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Wm J. Woelkerling

*TYPE COLLECTIONS OF
CORALLINALES (RHODOPHYTA)
IN THE FOSLIE HERBARIUM (TRH)*

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**Universitetet i Trondheim
Vitenskapsmuseet**

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ABSTRACT

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An analysis of the 490 type collections of Corallinales (Rhodophyta) in the Foslie herbarium at TRH (Botanisk Avdeling, Vitenskapsmuseet, Universitetet i Trondheim) has been provided along with data on 87 additional names including superfluous substitute names, *nomina nuda*, provisional names, and later homonyms. One hundred and fifty-eight types have been newly flagged or designated, and nomenclatural and taxonomic information on all 490 types has been summarized. Of the 490 types, 428 are of taxa described by Foslie and 62 are of taxa described by other authors. For 38 taxa, changes have been made to previously published statements on typification. Precise dating information for papers published by Foslie in *Det Kongelige Norske Videnskabers Selskabs Skrifter* and *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* are presented for the first time along with details of taxa issued in *M. Foslie: Lithothamnium Selecta Exsiccata*.

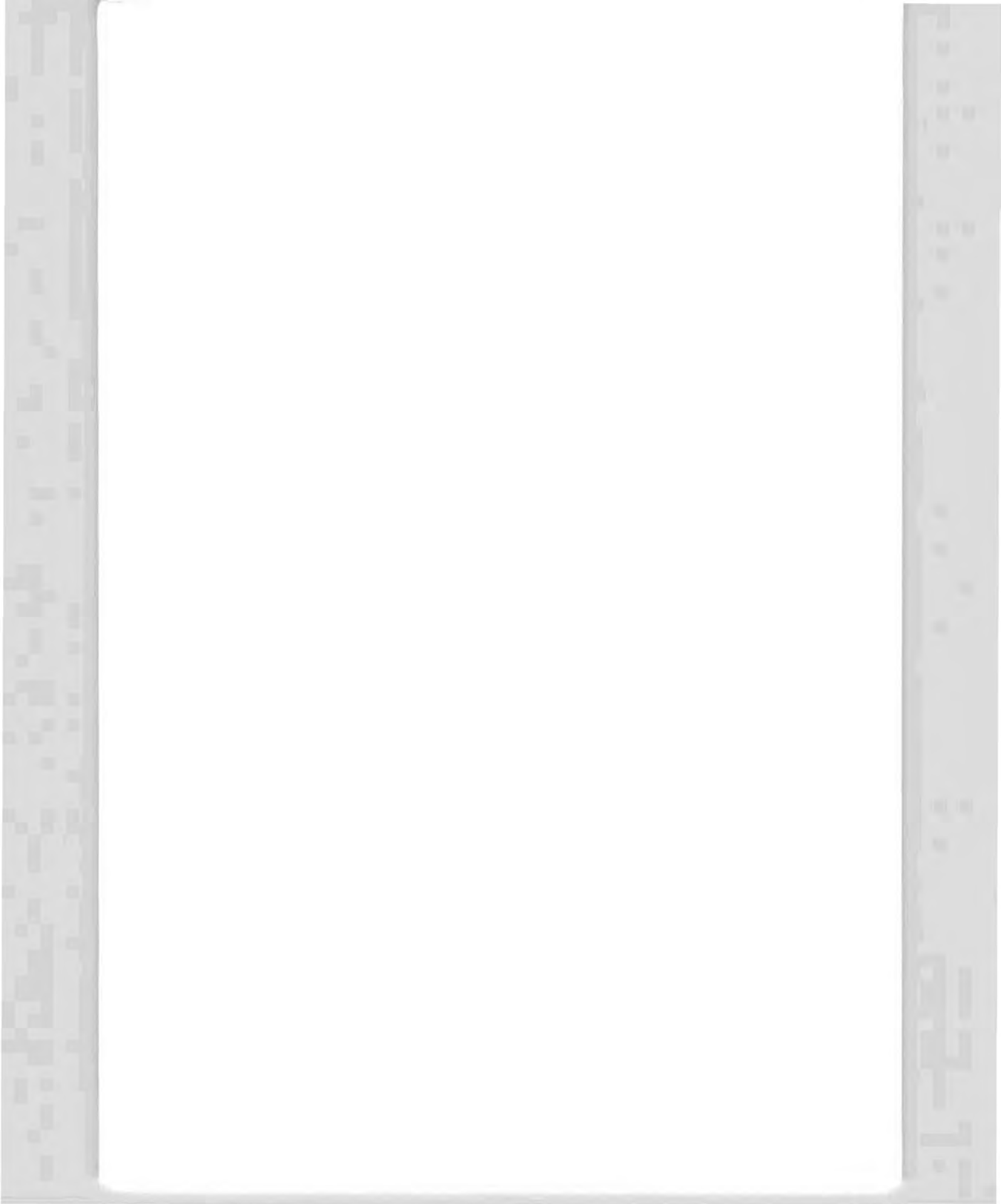
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1 INTRODUCTION

The herbarium of Mikael Foslie at TRH (Botanisk afdeling, Vitenskapsmuseet, Universitetet i Trondheim) contains one of the largest and most important collections of type material of Corallinales (Rhodophyta) in the world. The herbarium includes Foslie's own collections, mostly from Norway, gathered during the period 1876-1908, and collections Foslie received from many colleagues and from a number of scientific expeditions. After Foslie's death, his herbarium, according to Printz (1929, p. 10), was purchased by Det Kongelige Norske Videnskabers Selskab, Museet (now TRH).

Foslie produced 70 papers on corallines from 1887-1909 (one posthumous paper appeared in 1912; see references). He published 428 new taxa of Corallinales (as well as 80 superfluous substitute names, *nomina nuda*, provisional names and later homonyms - see Table 1, p. 254), but rarely did Foslie explicitly designate types. In addition, he obtained type material of other taxa from phycological colleagues (Table 2, p. 271), and thus the total number of types in the Foslie herbarium approaches 500. Biographic sketches of Foslie have been published by Wille (1911), Printz (1929) and Høeg (1944), and an analysis of Foslie's taxonomic work has been provided by Woelkerling (1984). His correspondence and the notes mentioned by Printz (1929, p. 5) are preserved in the archives of the Universitetsbiblioteket i Trondheim (University Library of Trondheim).

Four previous publications have dealt with material in the Foslie herbarium. Printz (1929) published *M. Foslie - Contributions to a Monograph of the Lithothamnia* which includes 75 plates depicting specimens, mostly from the Foslie herbarium. Of the 75 plates, 30 were prepared by Foslie prior to his death in 1909 and 45 were prepared subsequently by Printz (1929, p. 5). It is apparent from archival material that Foslie prepared plates 1-30 and Printz prepared plates 31-75, and this is also evident in the change in fonts used for the plate headings (e.g. compare the headings above plates 30 and 31). Printz also authored the entire text and prepared the figure legends.

Adey & Lebednik (1967) produced a *Catalog of the Foslie Herbarium* in which a number of type collections were flagged, and later Adey (1970) summarized information on the types flagged in Adey & Lebednik (1967) and placed these into various genera as they were delimited at that time. Adey & Lebednik's (1967) catalogue does not list taxa below species level, although such taxa account for about 40% of those described by Foslie. Adey (1970) dealt with the typification of 233 taxa, less than half the number of types represented in the Foslie herbarium. In addition, type material of taxa described by other authors generally has not been flagged in Adey & Lebednik (1967) or mentioned by Adey (1970), and in a few cases, collections flagged in Adey & Lebednik (1967) are untenable as types.

Verheij & Woelkerling (1992) undertook a comparative analysis of type material of specific and infraspecific taxa of nongeniculate Corallinales in TRH and in L (Rijksherbarium, Rijksuniversiteit Te Leiden, Leiden, The Netherlands) that is associated with the Siboga Expedition (1899–1900). Unlike most other taxa described by Foslie, the entire or major portion of the types of most Siboga-based taxa are lodged in L and not in TRH. Verheij & Woelkerling (1992) lectotypified 15 taxa and provided detailed information on all 23 species and infraspecific taxa.

The aims of the present monograph are to provide a detailed summary of information on type collections of Corallinales represented in the Foslie herbarium, to identify holotypes, isotypes, and syntypes that have not been flagged in Adey & Lebednik (1967), to lectotypify or neotypify taxa that have not been typified previously in accordance with the *International Code of Botanical Nomenclature* (hereafter abbreviated ICBN; see Greuter 1988), and to deal with other pertinent nomenclatural matters associated with names first published by Foslie. All species and infraspecific taxa described by Foslie are dealt with, including those previously considered by Adey & Lebednik (1967), Adey (1970) and Verheij & Woelkerling (1992). Entries also are provided for superfluous substitute names, *nomina nuda*, provisional names, and homonyms used by Foslie or directly associated with types in the Foslie herbarium.

2 FOSLIE'S HERBARIUM AND EXSICCATA

Foslie divided his herbarium into two parts, referred to here as the main herbarium and the ancillary herbarium.

The main herbarium contains nearly 3000 collections, was the principal resource for Foslie's taxonomic work, and until 1981 was housed in three large wooden cabinets. Foslie placed his collections in a variety of containers, ranging from paper packets to wooden cigar boxes to metal tins, but the majority were housed in round paper boxes of various sizes that were used by pharmacists and confectionary manufacturers of that period. A few large specimens were placed directly in cabinet drawers rather than in boxes.

Collection and identification data are written on the outside of the containers, usually in Foslie's script. In cases where specimens were photographed for use in publication, Foslie often but not always also indicated the publication, plate and figure number on the outside of the container. References to plate and figure numbers also occur for specimens depicted in Printz (1929), presumably in Printz's script.

Many collections in the main herbarium also are accompanied by slides containing ground thin sections of thalli that were prepared for Foslie by

several different commercial concerns. Foslie's knowledge of coralline anatomy was based mainly on the examination of these slides. Many show only vegetative portions of plants, and only limited interpretations of them are possible in a modern context. However, Foslie obtained data on cell sizes *etc.* from these slides, and most collections containing slides also contain small pieces of paper on which all of Foslie's measurements are recorded. Occasionally, Foslie also produced sketches of material from the slides, and these also were placed with the specimens. Most slides are numbered, and most also contain the name of the taxon and collecting information. For a few collections, Foslie also had unnumbered slides. Some of these also are of ground thin sections while others are balsam whole mounts, parafin sections, or squashes. The balsam mounts appear mostly to have come from colleagues who sent Foslie specimens, and many of these slides now contain little useful information. Foslie frequently altered his taxonomic views on species/forms (see comments in Woelkerling 1984, pp. 7-18 and Chamberlain 1991, p. 9), and notations on collection boxes and slides sometimes reflect the progression of resulting name changes of particular taxa. Older names usually were crossed out and replaced by newer names, but in some cases, the older names on the slide labels were not changed. Often these older slide label names have provided the vital clues in locating type material, especially in cases where Foslie pasted a new label on the container cover or put the material in a new container, thereby obliterating or destroying any hint of the older nomenclatural history of the collection.

Although Foslie had some awareness of the type concept (e.g. see Foslie 1898a and Foslie & Howe 1906b), he did not mark collections as types within his herbarium. At present, types are marked in one of two ways. Collections identified or designated by Adey (in Adey & Lebednik 1967) as types are marked with a thick orange line (poster paint?) beneath the name on the container. There is no indication on the containers whether these collections represent holotypes, isotypes, lectotypes, or neotypes. Boxes and packets containing collections identified or designated as types during this study usually have been placed in new boxes to which a red label has been affixed with the basionym and the nature of the type (holo-, lecto- *etc.*) indicated.

In addition to the main herbarium, Foslie assembled ancillary material in 81 open-topped wooden boxes (mostly 55 x 36 x 17 cm in size); these collections presumably are duplicates of ones in the main herbarium. Virtually all of these collections are identified and have locality and date information with them. There is no evidence that these collections ever have been examined in any detail, and whether or not type material is present has not been determined. They currently are stored apart from the main herbarium, and they were not included in the catalog of Adey & Lebednik (1967).

An exsiccata of duplicate Foslie material was prepared for distribution in June 1950 by Prof. Olav Gjærevoll of the Botanisk avdeling, Vitenskapsmuseet,

Universitetet i Trondheim. The set consists of 32 numbers [summarized on an accompanying one page document (Gjærevoll 1950)], and each collection was contained in a box with a printed label affixed to the cover. The labels include collection details and references to published accounts; a summary of data relating to these appears in Table 3 (p. 274). According to Prof. Gjærevoll (personal communication), 25 sets were prepared.

3 DATING OF FOSLIE'S PUBLICATIONS

Forty-five of the 70 papers on corallines published by Foslie appeared in either *Det Kongelige Norske Videnskabers Selskabs Skrifter* or *Det Kongelige Norske Videnskabers Selskabs Aarsberetning*, both published by *Det Kongelige Norske Videnskabers Selskab* (The Royal Norwegian Society for Science and Letters). *Det Kongelige Norske Videnskabers Selskabs Skrifter* contained original research articles, and prior to the 1896 volume, pagination was continuous throughout each volume and individual articles did not have title pages. From the 1896 volume onwards, however, articles were numbered sequentially within each volume, and each article was numbered from page one and had its own title page. *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* was mainly intended to contain reports of Society activities, but Foslie sometimes used his annual report on botanical activities and collections to publish new taxa. Pages in volumes of the *Aarsberetning* were numbered with Roman numerals through publication (in 1897) of the 1896 volume; subsequently, Arabic numerals were used. In both cases, pages in each volume were numbered sequentially throughout.

Previously, the citation of publication dates of Foslie's papers (e.g. see Wille 1911, Printz 1929, Woelkerling 1984) has been based principally on the year printed on the title page of the journal volume, or on the article, or on the cover of the offprint. During the present study, a search (with the assistance of Stein Johansen) of records of the The Royal Norwegian Society of Sciences and Letters preserved in the University Library of Trondheim led to the discovery of invoices from the printer [Aktietrykkeriet i Trondhjem] and the offprint and cover binder (Julius Maske) of the Society's publications. Data on the itemized invoices show that Aktietrykkeriet i Trondhjem printed the journal in parts, while Julius Maske usually produced or affixed the covers to the offprints (separates) and eventually to each completed volume.

Both firms periodically submitted dated invoices to the Society, and a number of these include records of dates on which particular articles or parts of the publications were printed or had covers affixed to the offprints. The invoices show that with one known exception (Foslie 1895), offprints (some with independent pagination) were produced at the same time as or after the journal

version of the paper had been printed. Foslie usually ordered 100 offprints, but explicit data are lacking for a number of papers.

Information relating to the printing and offprint cover binding of Foslie's papers in the *Skifter* and the *Aarsberetning* is summarized in Table 4 (p. 277). In some cases precise dates of printing or offprint processing are given; in other cases only a span of dates can be given. The date of effective publication (as defined by ICBN Art. 30; see Greuter 1988) is assumed to be the date of printing, when explicit invoice information is given. In cases where a date span is given, the earliest date is the date of the printer invoice which immediately precedes the one on which the article is itemized, while the latest date is either the date of the invoice on which the printing of the article is itemized or the date on which offprints were processed. In these cases, the earlier year usually is used when referring to the publication in question (e.g. see Foslie 1905c in Table 4). Dates appearing on the article title page and the journal title page often differ because individual articles were printed as they became available, and then ultimately the entire volume was assembled.

With three exceptions, precise dates of effective publication for Foslie papers published outside of *Det Kongelige Norske Videnskabers Selskabs Skifter* and *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* have not been determined during the present study. The exceptions are: Foslie 1901b, which was published in May 1901 (Stafleu & Cowan 1985, p. 253); Foslie 1904b, which was published in August 1904 (Stafleu & Cowan 1988, p. 132); and Foslie & Howe 1906b, which was published on 17 March 1906 (date appears on the cover of the offprint and also in a footnote at the bottom of page 577 in Foslie & Howe 1906a).

4 FORMAT FOR ENTRIES

In the taxonomic accounts in section 5, taxa are dealt with in alphabetical order by specific or infraspecific epithet using the orthography employed by Foslie or the relevant author of the taxon. This orthography, however, is sometimes at variance with recommendations or requirements of the *International Code of Botanical Nomenclature* (ICBN - see Greuter 1988). In cases where the same epithet applies to more than one taxon, entries are ordered alphabetically by the associated generic and specific epithets (e.g. see entries for the epithet *australis*).

For each taxon, information is provided in sequence under some or all of the following headings: Basionym & protologue; Effective publication date; Type (holotype, lectotype *etc.*); Type locality and collection data; TRH drawer; References to typification; Published illustrations of type; and Comments. Several of these headings require comment:

Effective publication date: For papers published in *Det Kongelige Norske Videnskabers Selskabs Skrifter* and *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* date information is based on data in Table 4. For other papers, the source of dating is provided in each account, and a question mark is used in cases where a precise date has not been determined.

Type: The nature of the type (holotype, lectotype, *etc.*) is specified in each case, except that in most cases, paratypes have not been marked or mentioned. Holotype elements are based on single specimens or collections. For types other than holotypes, data on the designator and place of designation are included. Most types in the Foslie herbarium are unnumbered at present. Many, however, include numbered slides that Foslie refers to as "preparations" in his herbarium notations. These slides are considered to constitute part of the type element and slide numbers are included in the type listing.

Lectotypes for *Lithothamnion agarici* forme f. *hibernica*, *L. corallioides* f. *subsimplex*, *L. lenormandii* f. *sublaevis* and *L. incrustans* f. *harveyi* have been selected jointly by Y. M. Chamberlain and the author; the lectotypes of *Lithophyllum craspedium* f. *abbreviata* and *Lithophyllum hyperellum* f. *heteroidea* have been designated here by D. Penrose, the lectotype of *Melobesia farinosa* f. *borealis* has been designated here by Y. M. Chamberlain, the lectotype of *Melobesia brassica-florida* has been designated here jointly by D. Penrose and Y. M. Chamberlain, and remaining lectotypes newly designated in this account have been selected by Wm J. Woelkerling.

Adey (1970, p. 2) removed fragments of a number of TRH types; these are now on deposit at USNC but have not been examined during the present study.

Type locality and collection data: Norwegian locality names are those used by Foslie; modern equivalents are given in Table 8 (p. 290).

TRH drawer: Prior to 1981, most collections in Foslie's main herbarium were housed in three large wooden cabinets, each containing 28 drawers. In cataloguing the Foslie collections, Adey & Lebednik (1967) listed material in terms of case and drawer number, with cases designated as A, B, & C, and drawers as 1-28 in each case.

When the main Foslie herbarium was moved to a fire-proof vault in a different building in 1981, the old cabinets were too large to fit through the vault doors (Sigmund Sivertsen, personal communication). Consequently, the collections were placed in a new set of herbarium cabinets within the vault, and collections from each old case drawer are now situated in cartons on shelves in the new cabinets. The cartons are numbered with the old case/drawer designations to preserve as closely as possible the arrangement of material in the main Foslie herbarium at the time of his death, and to facilitate usage of the Adey & Lebednik (1967) catalogue.

In the Adey & Lebednik (1967) catalogue, the types of infraspecific taxa are listed under a specific epithet without explicit reference to an infraspecific epithet. To facilitate cross-reference to entries in the Adey & Lebednik catalogue, the species under which each infraspecific taxon is listed (e.g. see entries for *australasica*, *effusa*, and *occidentale*) is given after the drawer and case number. Analogous information is given in cases where a species is placed under a specific epithet different from that of the basionym. In cases where no information is provided, the type is listed under the basionym, and pagination details are given under previous references to typification.

Previous references to typification: Papers in which the typification of the taxon is effected or mentioned are listed; cases where information in these papers is incorrect are dealt with in the section on comments. A question mark (?) signifies that no previous references have been found. Published illustrations of type: A question mark signifies that no published illustrations have been found.

Only references to basionyms are given for each entry. An index to all references for all coralline taxa mentioned in Foslie's publications is provided by Woelkerling (1984). The use of *Lithothamnion* for taxa described by Foslie merely with the abbreviation *L.* follows Woelkerling (1984, p. 25).

5 TAXONOMIC ACCOUNTS

abbreviata

Basionym & protologue: *Lithophyllum craspedium* f. *abbreviata* Foslie 1900g, p. 7.

Effective publication date: between 26 June and 31 December 1900.

Lectotype: TRH, British Museum no. A 14 (designated here by D. Penrose); includes slide 428.

Type locality and collection data: Fualopa, Funafuti, Tuvalu; collector not indicated, 16 September 1898.

TRH drawer: A-27; listed under *Lithophyllum craspedium* in Adey & Lebednik (1967, p. 47).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1900g) based *Lithophyllum craspedium* f. *abbreviata* on collections from Funafuti Atoll but did not designate a type. Two collections cited in the protologue are labelled *Lithophyllum craspedium* f. *abbreviata*; the one designated here as lectotype (by D. Penrose) contains the best preserved material.

abbreviata

Basionym & protologue: *Lithothamnion delapsum* f. *abbreviata* Foslie 1895, p. 78 (p. 50 in independently paginated offprint).

Comments: *Lithothamnion delapsum* f. *abbreviata* is a superfluous name for *Lithothamnion delapsum* f. *delapsum*.

absimile

Basionym & protologue: *Lithophyllum absimile* Foslie et Howe in Foslie 1907b, p. 27.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, Howe no. 4965; includes slides 1460 and 1477.

Type locality and collection data: Sandy Bay, near Montego Bay, Jamaica; collected by M. A. Howe, 9 January 1907.

TRH drawer: A-3.

Previous references to typification: Adey & Lebednik 1967, p. 17 (as *Lithophyllum*); Adey 1970, p. 12 (as *Pseudolithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 54, fig. 4 (as *Lithophyllum*).

Comments: Adey & Lebednik (1967, p. 17) incorrectly list holotype slide 1477 as 1467.

absonum

Basionym & protologue: *Lithothamnion absonum* Foslie 1907b, p. 7.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slides 1527-1529.

Type locality and collection data: Richards Point, Port Phillip Bay, Victoria, Australia; collected by J. Gabriel, 1901.

TRH drawer: B-1.

Previous references to typification: Adey & Lebednik 1967, p. 49 (as *Lithothamnion*); Adey 1970, p. 29 (as *Leptophyllum*).

Published illustrations of holotype: Printz 1929, pl. 1, figs 11, 12 (as *Lithothamnion*).

Comments: The holotype element includes plants on four pieces of rock, two of which are depicted in Printz (1929). The specimen depicted in pl. 1, fig. 11 in Printz (1929) is now fragmented.

acanthinum

Basionym & protologue: *Lithophyllum acanthinum* Foslie 1907a, p. 26.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Yendo no. 614; includes slides 694 and 1352.

Type locality and collection data: Misaki, Japan; collected by K. Yendo, April 1900.

TRH drawer: A-2.

Previous references to typification: Adey & Lebednik 1967, p. 15 (as

Lithophyllum); Adey 1970, p. 8 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 53, fig. 13 (as *Lithophyllum*).

Comments: The holotype element consists of two fragments, one of which is depicted in Printz (1929).

accedens

Basionym & protologue: *Lithophyllum accedens* Foslie 1907a, p. 25.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Farlow no. 10; includes slides 1487 and 1488.

Type locality and collection data: Talcahuano, San Vincent, Chile; collected by R. Thaxter, 1905-1906.

TRH drawer: A-3.

Previous references to typification: Adey & Lebednik 1967, p. 17 (as *Lithophyllum*); Adey 1970, p. 12 (as *Pseudolithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 54, fig. 9 (as *Lithophyllum*).

Comments: About 90% of the holotype specimen shown in Printz (1929) is no longer present in TRH.

accline

Basionym & protologue: *Lithothamnion accline* Foslie 1907b, p. 20.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slide 680.

Type locality and collection data: Samoa; collector and date not indicated; ex Bot. Mus. Hamburg.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion*); Adey 1970, p. 19 (as *Lithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 14, fig. 4 (as *Lithothamnion*).

Comments: About 60% of the holotype specimen depicted in Printz (1929) is no longer present in TRH.

accola

Basionym & protologue: *Litholepis accola* Foslie 1907a, p. 22.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Hariot no. 20; includes slide 1439.

Type locality and collection data: Hao, Tahiti; collector and date not indicated; comm. P. Hariot, April 1907.

TRH drawer: A-16.

Previous references to typification: Dawson 1960, p. 59 (as *Litholepis*); Adey & Lebednik 1967, p. 36 (as *Litholepis*); Adey 1970, p. 14 (as *Lithoporella*).

Published illustrations of holotype: ?

Comments: Dawson (1960, p. 59) suggests part of the holotype is in PC; this has not been confirmed during the present study.

accretum

Basionym & protologue: *Goniolithon accretum* Foslíe et Howe 1906b, p. (131).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 2920a.

Isotype: TRH, Howe no. 2920a; includes one slide also numbered 2920a.

Type locality and collection data: Sands Key, Florida, USA; collected by M. A. Howe, 30 March 1904.

TRH drawer: A-10.

Previous references to typification: Foslíe & Howe 1906b, p. (131) (as *Goniolithon*); Adey & Lebednik 1967, p. 24 (as *Goniolithon*); Adey 1970, p. 8 (as *Neogoniolithon*).

Published illustrations of holotype: Foslíe & Howe 1906b, pl. 85, fig. 2, pl. 91 (as *Goniolithon*).

Published illustrations of isotype: Printz 1929, pl. 45, fig. 20 (as *Goniolithon accretum* f. *typica*).

Comments: Foslíe & Howe (1906b) based *Goniolithon accretum* on a single named collection and explicitly state [p. (128)] that the main specimens are in NY and that duplicates were sent to Trondheim (TRH). The NY holotype has not been examined during the present study. Adey (1970, p. 8) incorrectly suggests that the holotype is in TRH. The TRH isotype element consists of fragments on two pieces of coral (?) which are difficult to match with the specimen depicted in Printz (1929).

acervatum

Basionym & protologue: *Lithothamnion acervatum* Foslíe 1907b, p. 4.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slides 702, 704, and 1523.

Type locality and collection data: Natal or Knysna, South Africa; collected by A. Weber van Bosse, no date indicated.

TRH drawer: B-1.

Previous references to typification: Adey & Lebednik 1967, p. 49 (as *Lithothamnion*); Adey 1970, p. 28 (as *Phymatolithon*).

Published illustrations of holotype: Printz 1929, pl. 1, figs 14, 15 (as *Lithothamnion*).

Comments: The holotype element consists of two specimens that Adey (1970, p. 28) incorrectly refers to as co-types.

acrocamptum

Basionym & protologue: *Lithophyllum acrocamptum* Heydrich 1902, p. 474.

Effective publication date: ?

Lectotype: PC (designated here).

Lectotype fragments: TRH, unnumbered; includes slides 850 and 851.
 Type locality and collection data: Fort Dauphin, Madagascar; *Ferlus*, date not indicated.
 TRH drawer: A-6.
 Previous references to typification: Printz 1929, pl. 57, legend to fig. 14 (as *Lithophyllum incrassatum*).
 Published illustrations of lectotype: Printz 1929, pl. 57, fig. 14 (as *Lithophyllum incrassatum*).
 Comments: Heydrich (1902) described *Lithophyllum acrocampium* without listing specimens or localities. TRH contains a photo labelled 'type' and fragments of a PC specimen (not examined during the present study) labelled *Lithophyllum acrocampium*; this specimen is regarded as lectotype because it has not been determined whether additional specimens exist in PC. Printz (1929, pl. 57, legend to fig. 14) explicitly labels the specimen as the type while Foslie (1909b, p. 19) refers to it as authentic. Adey & Lebednik (1967, p. 20) list the lectotype collection but do not flag it as type.

acropetum

Basionym & protologue: *Goniolithon acropetum* Foslie et Howe 1906a, p. 577.
 Effective publication date: ?
 Holotype: NY, Howe no. 4224.
 Isotypes: NY also contains at least two isotypes (see below).
 Isotypes: TRH, Howe no. 4224; includes slides 1067-1069 and two unnumbered slides.
 Isotype: BM, algal box collection 901.
 Type locality and collection data: Isle of Culebra, Puerto Rico; collected by M. A. Howe, 3 March 1906.
 TRH drawer: A-12.
 Previous references to typification: Adey & Lebednik 1967, p. 28 (as *Goniolithon*); Adey 1970, p. 8 (as *Neogoniolithon*).
 Published illustrations of holotype: Foslie & Howe 1906a, pl. 23, top plant (as *Goniolithon*).
 Published illustrations of TRH isotypes: Printz 1929, pl. 51, figs 2-5 (as *Goniolithon*; the plant depicted in fig. 4 is missing from TRH).
 Published illustrations of NY isotypes: Foslie & Howe 1906a, text fig. 1; pl. 23, bottom specimens; pl. 24 (as *Goniolithon*).
 Comments: Foslie & Howe (1906a) based *Goniolithon acropetum* on specimens from a single locality and designated a NY specimen as the holotype. Adey (1970, p. 8) incorrectly refers to the TRH isotypes as the holotype. The NY holotype and isotypes and the BM isotype (see Tittley *et al.* 1984, p. 7) have not been examined during the present study.

aculeiferum

Basionym & protologue: *Lithothamnion aculeiferum* Mason 1953, p. 326.

Effective publication date: 14 January 1953 (stated in the publication).

Holotype: UC 739410 (Setchell no. 1496a).

Isotype: TRH, Setchell no. 1496a; includes slide 203.

Type locality and collection data: White's Point, San Pedro, California, USA; collected by W. A. Setchell, 6 December 1896.

TRH drawer: B-15; listed under *Lithothamnion pacificum* in Adey & Lebednik (1967, p. 64).

Previous references to typification: Mason 1953, pp. 327, 329 (as *Lithothamnion*).

Published illustrations of holotype: Mason 1953, pl. 33, fig. c (as *Lithothamnion*).

Published illustrations of TRH isotype: ?

Comments: Details relating to the typification of this species are provided by Mason (1953, pp. 327, 329). The collection was originally included in the protologue account of *Lithothamnion rugosum* f. *crassiuscula* Foslie (1901a, p. 4).

adplicitum

Basionym & protologue: *Lithothamnion adplicitum* Foslie 1897c, p. 17.

Effective publication date: between 1 July and 31 December 1897.

Holotype: BM, algal box collection 573 and TRH, unnumbered; includes slide 23.

Holotype fragments: TRH, unnumbered.

TRH drawer: A-18; listed under *Lithophyllum hapalidioides* in Adey & Lebednik (1967, p. 40).

Type locality and collection data: Bognor, England; collected by E. Batters, October 1887.

Previous references to typification: Tittley *et al.* 1984, p. 9 (as *Lithothamnion*); Chamberlain 1991, pp. 34, 42 (as *Lithothamnion*).

Published illustrations of holotype (BM portion): Chamberlain 1991, p. 42, figs 120-128, 145, 146 (as *Lithothamnion*).

Comments: Foslie (1897c) based *Lithothamnion adplicitum* on a single collection of Batters. Foslie retained three fragments of the holotype and returned the major portion to Batters; it is now in BM. Chamberlain (1991) has studied the BM material in detail and treats *Lithothamnion adplicitum* as a heterotypic synonym of *Lithophyllum pustulatum* var. *macrocarpum* (as *Titanoderma*).

aemulans

Basionym & protologue: *Lithophyllum dentatum* f. *aemulans* Foslie 1900a, p. 32.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated here); includes slide 1730.

Type locality and collection data: Roundstone Bay, Galway, Republic of

Ireland; collected by *M. F. Foslie*, 15-17 April 1899.

TRH drawer: A-24; listed under *Lithophyllum dentatum* in Adey & Lebednik (1967, p. 45).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 62, figs 1-5 (as *Lithophyllum dentatum* f. *aemulans*), but see comments below.

Comments: Foslie (1900a) equated *Lithophyllum dentatum* f. *aemulans* with a plant identified by Hauck (1883, pl. 2, fig. 2) as *Lithothamnion dentatum* (Kützinger) Areschoug, but provided no details in the protologue. The only collection in TRH predating the protologue and labelled *Lithophyllum dentatum* f. *aemulans* is from Roundstone Bay. Based on comments in the protologue, Foslie is likely to have had his collection in mind as well as the plant figured by Hauck (1883) when preparing the original account, and it is on this basis that the material from Ireland is designated here as the lectotype of *Lithophyllum dentatum* f. *aemulans*. The collection contains a number of plants, but it has not been possible to match these precisely with the ones figured in Printz (1929). There is also a Hauck collection in TRH labelled *Lithophyllum dentatum* (see Adey & Lebednik 1967, p. 45) but not with the epithet *aemulans*, and the notations on the box refer to pl. 5 fig. 2 in Hauck, not the collection Foslie cited in the protologue.

aemulans

Basionym & protologue: *Lithothamnion fruticosum* var. *aemulans* Foslie et Howe 1906b, p. (130).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 2237; TRH, Howe, no. 2237; includes slide 1631 and two slides marked with the Howe collection number 2237.

Type locality and collection data: San Juan, Puerto Rico; collected by *M. A. Howe*, 28 May 1903.

TRH drawer: C-16; listed under *Lithothamnion aemulans* in Adey & Lebednik (1967, p. 80).

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion aemulans*); Adey 1970, p. 22 (as *Mesophyllum aemulans*).

Published illustrations of holotype: Foslie & Howe 1906b, pl. 81, figs 1, 2 (as *Lithothamnion fruticosum* f. *aemulans*); Printz 1929, pl. 12, fig. 21 (as *Lithothamnion aemulans*).

Comments: Foslie & Howe (1906b) based *Lithothamnion fruticosum* var. *aemulans* on a single specimen that was divided into two portions, one being retained at NY and the other sent to TRH [see Foslie & Howe 1906b, p. (128)]. Subsequently, Foslie (1908d, p. 9) raised *Lithothamnion fruticosum* var. *aemulans* to the rank of species, as *Lithothamnion aemulans*. The NY portion of the holotype element has not been examined during the present study.

aequabilis

Basionym & protologue: *Lithophyllum discoideum* f. *aequabilis* Foslie 1905e, p. 17.

Effective publication date: between 24 December 1904 and 24 August 1905.

Holotype: TRH, unnumbered; includes slide 951.

Type locality and collection data: South Orkney Islands; collector not indicated, 1903.

TRH drawer: A-9; listed under *Lithophyllum aequabile* in Adey & Lebednik (1967, p. 23).

Previous references to typification: Printz 1929, pl. 59, legend to fig. 12 (as *Lithophyllum aequabile* f. *typica*); Adey & Lebednik 1967, p. 23 (as *Lithophyllum aequabile*); Adey 1970, p. 12 (as *Pseudolithophyllum aequabile*).

Published illustrations of holotype: Printz 1929, pl. 59, fig. 12 (as *Lithophyllum aequabile* f. *typica*), but see comments below.

Comments: The holotype element consists of a single stone with plants of three species attached, but this stone does not match the one shown in Printz (1929, pl. 59, fig. 12).

aequinoctiale

Basionym & protologue: *Lithophyllum aequinoctiale* Foslie 1909b, p. 46.

Effective publication date: between 1 June and 18 December 1909.

Holotype: TRH, Jardim Bot. Coimbra, no. 33 (in part); includes slides 439 and 1152.

Type locality and collection data: Rotas Island, São Tomé; collected by F. Quintas, no date indicated.

TRH drawer: A-28.

Previous references to typification: Adey & Lebednik 1967, p. 48 (as *Lithophyllum*); Adey 1970, p. 10 (as *Porolithon*).

Published illustrations of holotype: Printz 1929, pl. 70, figs 4, 5 (as *Lithophyllum*); Lawson & John 1982, pl. VII, fig. F (as *Porolithon*); Lawson & John 1987, pl. VII, fig. F (as *Porolithon*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

aequum

Basionym & protologue: *Lithophyllum aequum* Foslie 1907a, p. 23.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Farlow no. 8; includes slide 1484.

Type locality and collection data: Puerto de Corral, Chile; collected by R. Thaxter, 1905-1906; comm. Farlow, 1907.

TRH drawer: A-2.

Previous references to typification: Adey & Lebednik 1967, p. 15 (as *Lithophyllum*); Adey 1970, p. 12 (as *Pseudolithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 53, fig. 12 (as *Lithophyllum*).

Comments: The holotype is the only collection of this species in TRH identified by Foslíe.

affine

Basionym & protologue: *Goniolithon affine* Foslíe et Howe in Foslíe 1907b, p. 22.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, Howe no. 4234; includes slide 1075 and two slides numbered 1253.

Type locality and collection data: Culebra, Puerto Rico; collected by M. A. Howe, 4 March 1906.

TRH drawer: A-12.

Previous references to typification: Adey & Lebednik 1967, p. 28 (as *Goniolithon*); Adey 1970, p. 8 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 52, fig. 11 (as *Goniolithon*).

Comments: The holotype is the only collection of this species in TRH identified by Foslíe.

affine

Basionym & protologue: *Lithothamnion affine* Foslíe 1897c, p. 13.

Effective publication date: between 1 July and 31 December 1897.

Lectotype: TRH, unnumbered (designated here); includes slide 7.

Type locality and collection data: Massanah, Red Sea; collected by K. M. Levander, 1894-1895; comm. F. Elfring.

TRH drawer: A-20; listed under *Lithophyllum kotschyanum* in Adey & Lebednik (1967, p. 42, with mention only of Elfring and not Levander).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 65, fig. 10 (as *Lithophyllum kotschyanum* f. *affinis*).

Comments: Foslíe (1897c) based *Lithothamnion affine* on Levander specimens from the Red Sea and on Miliarakis material from the island of Nisyro along the coast of Greece, but he did not designate a type. Foslíe (1897c) concurrently described *Lithothamnion affine* f. *complanata* and *Lithothamnion affine* f. *tuberosa* without indicating which he regarded to be the typical form of the species. Subsequently, Foslíe (1909b, p. 34) reduced *Lithothamnion affine* to *Lithothamnion kotschyanum* f. *affine*, and specimens so labelled, including the Levander specimens are found in TRH under *Lithophyllum kotschyanum* (see Adey & Lebednik 1967, p. 42). The Miliarakis material is now found under *Lithophyllum racemus* (see Adey & Lebednik 1967, p. 43), and there is no evidence on the associated box that this specimen ever was placed in *Lithothamnion affine*.

The Levander material is contained in four boxes at TRH. None of these is labelled either with f. *complanata* or with f. *tuberosa*. The

material chosen here as lectotype for *Lithothamnion affine* appears to be the most fertile of the Levander specimens and closely fits the description of *Lithothamnion affine* f. *complanata*. As a consequence, *Lithothamnion affine* f. *complanata* is designated here as the typical form of the species and must be known as *Lithothamnion affine* f. *affine* in accordance with ICBN Art. 26.1.

affinis

Basionym & protologue: *Litholepis affinis* Foslie 1906b, p. 17.

Effective publication date: between 1 December 1906 and 3 March 1907.

Lectotype: TRH, Børgesen no. 2072 (designated here, but see comments below); includes slides 1235 and 1236.

Type locality and collection data: Whistling Island, St. John, US Virgin Islands; collected by F. Børgesen, 21 March 1906.

TRH drawer: A-16.

Previous references to typification: Adey & Lebednik 1967, p. 36 (as *Litholepis*); Adey 1970, p. 16 (as *Heteroderma*).

Published illustrations of lectotype: ?

Comments: Foslie (1906b) based *Litholepis affinis* on three named collections, referring to the Børgesen 2072 collection as the typical form. Foslie did not, however, explicitly designate a type. Adey in Adey & Lebednik (1967, p. 36) flagged the Børgesen 2072 collection, and Adey (1970, p. 16) referred to this as the holotype. Given the circumstances just outlined, however, this collection has to be considered the lectotype and not the holotype of *Litholepis affinis*.

affinis

Nomen nudum: *Lithothamnion tophiiforme* f. *affinis* Foslie 1900i, p. 13.

Comments: The name *Lithothamnion tophiiforme* f. *affinis* appears in three Foslie publications (1900i, p. 13; 1904d, p. 10; and 1905c, p. 49) but never with a description, and there are no collections in TRH labelled *Lithothamnion tophiiforme* f. *affinis*. His footnote in the 1900i reference does not constitute a description as it lacks diagnostic features.

affinis

Basionym & protologue: *Mastophora affinis* Foslie 1904b, p. 71.

Effective publication date: August 1904 (see Stafleu & Cowan 1988, p. 132).

Holotype: L 943, 7-29 (Siboga Expedition collection 1262); includes one slide.

Holotype fragment: TRH, unnumbered; includes one unnumbered slide.

Type locality and collection data: Tual Anchorage, Kei Islands, Indonesia; collected by A. Weber van Bosse, 12-16 December 1899 (Siboga Expedition station 258).

TRH drawer: A-1.

Previous references to typification: Verheij & Woelkerling 1992, p. 276 (as *Mastophora affinis*).

Published illustrations of holotype: Foslie 1904b, p. 72, text figs 28, 29 (as *Mastophora affinis*); Printz 1929, pl. 74, figs 7-9 (as *Mastophora macrocarpa* f. *affinis*).

Comments: The holotype element consists of specimens attached to three pieces of the red alga *Polyopes*. Two of these (Printz, 1929, pl. 74, figs 8, 9) are in L and contain intact conceptacles. The TRH portion of the holotype element is badly fragmented and contains only one intact conceptacle; it is no longer possible to match the TRH material with the piece depicted in fig. 7 of pl. 74 in Printz (1929). In the protologue, the type locality is incorrectly given as Sikka, Island of Flores. Adey & Lebednik (1967, p. 14) cited the collection but did not flag it as type material.

africana

Basionym & protologue: *Goniolithon boergesenii* f. *africana* Foslie 1907a, p. 20.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slide 1265.

Type locality and collection data: São Tomé Island; collected by Gravier, no collection date; comm. P. Hariot 1907, no. 6).

TRH drawer: A-14; listed under *Goniolithon boergesenii* in Adey & Lebednik (1967, p. 30).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: Steentoft (1967, p. 131) provides additional comments on Gravier's material.

africanum

Basionym & protologue: *Archaeolithothamnion africanum* Foslie 1906c, p. 19 (p. 3 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Holotype: TRH, unnumbered; includes slide 1054.

Type locality and collection data: Puerto Orotava, Tenerife, Canary Islands; collected by C. Sauvageau, December 1904-February 1905.

TRH drawer: C-19.

Previous references to typification: Adey & Lebednik 1967, p. 84 (as *Archaeolithothamnion*); Adey 1970, p. 17 (as *Archaeolithothamnion*); Afonso-Carrillo 1984, p. 142 (as *Sporolithon*).

Published illustrations of holotype: Printz 1929, pl. 43, fig. 4 (as *Archaeolithothamnion*).

Comments: About 70% of the holotype as depicted in Printz (1929) is no longer present in TRH.

africanum

Basionym & protologue: *Lithophyllum africanum* Foslie 1900h, p. 3.

Effective publication date: between 26 June and 31 December 1900.

Lectotype: TRH, Henriques no. 23 (in part) (designated here); includes slide 1251.

Type locality and collection data: Cape Verde, Africa; collector and date unknown, comm. Henriques.

TRH drawer: A-27.

Previous references to typification: Adey & Lebednik 1967, p. 47 (as *Lithophyllum*); Adey 1970, p. 10 (as *Porolithon*).

Published illustrations of lectotype: Printz 1929, pl. 68, fig. 4 (as *Lithophyllum africanum* f. *intermedia*).

Comments: Foslie (1900h) concurrently established *Lithophyllum africanum*, *Lithophyllum africanum* f. *intermedia* and *Lithophyllum africanum* f. *truncata* based on specimens sent by Henriques and Bouvier from the west coast of Africa at Cape Verde. Foslie did not designate types for any of these entities, nor did he indicate in the protologue which specimens belonged to each of the new taxa. In TRH, the Henriques collection no. 23 material is divided into two boxes (grouped as a single entry in Adey & Lebednik, 1967, p. 47) and the Bouvier material is contained in one box. All of these boxes are clearly labelled as to which species and/or form is/are present. The entry flagged in Adey & Lebednik (1967, p. 47) as the type of *Lithophyllum africanum* pertains to both Henriques boxes which includes specimens of two taxa, and Adey (1970, p. 10) incorrectly refers to the two boxes as the holotype of the species. The box marked by Adey & Lebednik in TRH, however, is labelled *Lithophyllum africanum* without reference to a form, and thus the six specimens in this box collectively constitute the lectotype element of the species and of *Lithophyllum africanum* f. *africanum*. One of the specimens is figured in Printz (1929), who incorrectly names it *Lithophyllum africanum* f. *intermedia*. Specimens in the second box labelled Henriques no. 23 constitute the holotype element for *Lithophyllum africanum* f. *truncata*.

alternans

Basionym & protologue: *Lithothamnion philippii* f. *alternans* Foslie 1907b, p. 17.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slide 783.

Type locality and collection data: Tangiers, Morocco; collected by P. Kuckuck, 14 June 1901.

TRH drawer: B-16; listed under *Lithothamnion philippii* in Adey & Lebednik (1967, p. 67).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 6, figs 8, 9 (as *Lithothamnion philippii* f. *alternans*).

Comments: Foslie (1907a) based *Lithothamnion philippii* f. *alternans* on a single collection from Morocco. In TRH, this collection is housed in six boxes, but only one is explicitly labelled *Lithothamnion philippii* f.

alternans in Foslie's script. As a consequence, this box, which includes slide 783, is considered to be the holotype element of *Lithothamnion philippii* f. *alternans*. The holotype element includes nine fragments, two of which are figured in Printz (1929). The six boxes are grouped under a single entry in Adey & Lebednik (1967, p. 67).

americana

Basionym & protologue: *Lithothamnion australe* f. *americana* Foslie 1904b, p. 25.

Comments: *Lithothamnion australe* f. *americana* is a superfluous name for *Lithothamnion australe* f. *australe*.

americana

Basionym & protologue: *Lithothamnion erubescens* f. *americana* Foslie 1901c, p. 4.

Comments: *Lithothamnion erubescens* f. *americana* is a superfluous substitute name for *Lithothamnion erubescens* f. *erubescens*.

amphiroaeformis

Nomen nudum: *Lithophyllum byssoides* f. *amphiroaeformis* Foslie 1904c, p. 16.

Comments: *Lithophyllum byssoides* f. *amphiroaeformis* is a nomen nudum which Foslie used as an herbarium name and mentioned twice (Foslie 1904c, p. 5 and Foslie 1909b, p. 16) in publication. It has no nomenclatural status. In TRH, one collection filed under *Lithophyllum byssoides* (see Adey & Lebednik 1967, p. 19) carries the f. *amphiroaeformis* designation.

amplexifrons

Basionym & protologue: *Melobesia amplexifrons* Harvey 1849b, p. 110.

Effective publication date: ?

Lectotype: TCD, unnumbered (designated by Woelkerling & Campbell 1992, p. 98).

Isolectotypes: TCD, BM; all unnumbered.

Type fragment: TRH, unnumbered; includes slides 695 and 1336.

Type locality and collection data: Port Natal, South Africa; collected by Guenzius, date not indicated.

TRH drawer: A-2.

Previous references to typification: Woelkerling & Campbell 1992 (as *Melobesia*).

Published illustrations of lectotype: Woelkerling & Campbell 1992, fig. 63A (as *Melobesia*).

Comments: Harvey (1849b) based *Melobesia amplexifrons* on specimens of Guenzius from Port Natal but did not designate a type. Woelkerling & Campbell (1992) lectotypified *Melobesia amplexifrons* with a specimen in TCD. TRH contains two fragments (both less than 2 mm in greatest

dimension) (and two associated slides) which originated from specimens at TCD. It is not possible to determine whether the TRH material was taken from the lectotype collection or from one of the isolectotypes, and consequently, it is referred to here in general terms as type material. Adey & Lebednik (1967, p. 15) list the collection but do not flag it as type.

andrusovi

Orthographic variant: *Lithophyllum andrusovi* Foslie 1900i, p. 17.

Comments: *Lithophyllum andrusovi* is probably an orthographic variant of *Lithophyllum andrussowii*; see below.

andrussowii

Basionym & protologue: *Lithophyllum andrussowii* Foslie 1899c, p. 16.

Effective publication date: 5 January 1899.

Holotype: TRH, unnumbered; includes slides 601 and 1151.

Type locality and collection data: Marmara Sea at entrance to the Dardanelles; collector and date not indicated; comm. N. Andrussow.

TRH drawer: A-22.

Previous references to typification: Adey & Lebednik 1967, p. 43 (as *Lithophyllum*); Adey 1970, p. 4 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 63, figs 23-27 (as *Lithophyllum*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

angularis

Basionym & protologue: *Lithophyllum okamurai* f. *angularis* Foslie 1901f, p. 18.

Effective publication date: 24 June 1901.

Holotype: TRH, unnumbered.

Type locality and collection data: Misaki, Japan; collected by K. Yendo, August 1900.

TRH drawer: A-21; listed under *Lithophyllum okamurai* in Adey & Lebednik (1967, p. 42).

Previous references to typification: Foslie 1904b, pl. 11, fig. 12 (as *Lithophyllum okamurai* f. *angulata*); Printz 1929, pl. 64, fig. 7 (as *Lithophyllum okamurai* f. *angularis*).

Published illustrations of holotype: See above.

Comments: Foslie (1901f) established *Lithophyllum okamurai* f. *angularis* without citing specimens or indicating a type. Subsequently, however, Foslie (1904b, pl. 11, legend to fig. 12) designated a type specimen under the epithet *angulata*, although in the text, Foslie (1904b, p. 59) used the correct name *angularis*. The specimen figured by Foslie (1904b) is the only one of its name in TRH and thus must be regarded as the holotype.

The box containing the specimen is labelled f. *angulata* rather than f. *angularis*.

angulata

Basionym & protologue: *Lithophyllum incrustans* f. *angulata* Foslie 1899c, p. 17.

Effective publication date: 5 January 1899.

Lectotype: TRH, Flahault no. 254 (designated here); includes slide 52.

Type locality and collection data: Banyuls-sur-Mer, France; collected by C. Flahault, September 1893.

TRH drawer: A-8; listed under *Lithophyllum incrustans* in Adey & Lebednik (1967, p. 23).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 58, fig. 11 (as *Lithophyllum incrustans* f. *angulata*).

Comments: Foslie (1899c) established *Lithophyllum incrustans* f. *angulata* for specimens from several unspecified localities in the Mediterranean Sea but did not designate a type. Although there are four TRH collections labelled f. *angulata* from the Mediterranean, only one (Flahault 254) was collected prior to publication of the protologue. The Flahault material is contained in three boxes, two of which are not labelled f. *angulata*. The third box, labelled f. *angulata*, is designated here as lectotype. One of the two specimens in this box was illustrated in Printz (1929). The collection date does not appear on this box, but is presumed here to be the same as the remainder of Flahault 254.

angulata

Basionym & protologue: *Lithothamnion elegans* f. *angulata* Foslie 1896, p. 6, fig. 9.

Comments: *Lithothamnion elegans* f. *angulata* is a superfluous substitute name for *Lithothamnion elegans* f. *elegans*.

aninae

Basionym & protologue: *Lithophyllum aninae* Foslie 1907b, p. 28.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slides 920 and 921.

Type locality and collection data: St. Vincent, Cape Verde Islands; collected by Vanhöffen, 1901.

TRH drawer: A-23.

Previous references to typification: Adey & Lebednik 1967, p. 44 (as *Lithophyllum*); Adey 1970, p. 4 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 63, figs 30-33 (as *Lithophyllum*).

Comments: The specimens depicted in Printz (1929, pl. 63, figs 31, 32) are no longer present in TRH.

annulatum

Basionym & protologue: *Lithothamnion annulatum* Foslie 1906c, p. 18 (p. 2 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Holotype: TRH, unnumbered; includes slides 1061–1063.

Type locality and collection data: Betsy Cove, Kerguelen Island; collected by Nauman, 1874–1875.

TRH drawer: B-2.

Previous references to typification: Adey & Lebednik 1967, p. 51 (as *Lithothamnion*); Adey 1970, p. 22 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 2, fig. 15 (as *Lithothamnion*).

Comments: The holotype is represented in TRH by three small fragments depicted in Printz (1929), which are said by Printz to have come from the Botanical Museum in Berlin.

antarctica

Basionym & protologue: *Melobesia verrucata* var. *antarctica* J. D. Hooker et W. H. Harvey in W. H. Harvey & J. D. Hooker 1847, p. 482.

Effective publication date: ?

Homotypic synonyms:

Lectotype: BM, unnumbered (designated by May & Woelkerling 1988).

Isotype: TCD, unnumbered.

Isotype slide: TRH, slide 1356 only.

Type locality and collection data: Hermite Island, Cape Horn; collected by J. D. Hooker, date not indicated.

TRH drawer: B-17; listed under *Lithothamnion antarcticum* in Adey & Lebednik (1967, p. 68).

Previous references to typification: May & Woelkerling (1988, p. 68 as *Melobesia verrucata* var. *antarctica*).

Published illustrations of lectotype: May & Woelkerling 1988, p. 66, fig. 40 (as *Melobesia verrucata* var. *antarctica*).

Comments: Hooker & Harvey (1847) based *Melobesia verrucata* var. *antarctica* on specimens from Hermite Island but did not designate a type. May & Woelkerling (1988) lectotypified *Melobesia verrucata* var. *antarctica* with a BM specimen and noted that an isotype occurred in TCD. The slide in TRH was prepared from the TCD isotype.

antillarum

Basionym & protologue: *Lithophyllum antillarum* Foslie et Howe 1906a, p. 579.

Effective publication date: ?

Holotype: NY, Howe no. 4373. NY also has several isotypes.

Isotype: TRH, Howe no. 4373; includes slides 1085, 1086, and two unnumbered slides.

Isotype: BM, algal box collection 899.

Type locality and collection data: Culebra, Puerto Rico; collected by M. A. Howe, 7 March 1906.

TRH drawer: A-27.

Previous references to typification: Adey & Lebednik 1967, p. 47 (as *Lithophyllum*); Adey 1970, p. 10 (as *Porolithon*).

Published illustrations of holotype: Foslie & Howe 1906a, pl. 25, lower specimen (as *Lithophyllum*).

Published illustrations of TRH isotypes: Printz 1929, pl. 68, figs 5, 6 (as *Lithophyllum*).

Published illustration of NY isotypes: Foslie & Howe 1906a, text fig. 2 & pls 25 (upper specimen), 26 (all as *Lithophyllum*).

Comments: Foslie & Howe (1906a) based *Lithophyllum antillarum* on specimens from a single locality and designated a NY specimen as the holotype. The TRH isotype, which Adey (1970, p. 10) incorrectly terms the holotype, consists of two specimens, but the one depicted in Printz (1929, pl. 68, fig. 5) has become rather fragmented. The NY holotype and isotypes and the BM isotype (Tittley *et al.* 1984, p. 8) have not been examined during the present study.

apiculatum

Basionym & protologue: *Lithothamnion apiculatum* f. *apiculatum* Foslie 1895, p. 82 (p. 54 in independently paginated offprint) (as f. *typica*).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slides 71-73 and one unnumbered slide.

Type locality and collection data: Smølingsraasa, Bejan, Trondheimsfjord, Norway, collected by M. F. Foslie, 7 July 1894.

TRH drawer: B-25; listed under *Lithothamnion fornicatum* in Adey & Lebednik (1967, p. 72).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 15, figs 1-4 (as *Lithothamnion apiculatum*); Printz 1929, pl. 33, figs 1, 2, 6, 7 (as *Lithothamnion fornicatum* f. *apiculata*). Foslie's fig. 1 corresponds to Printz's fig. 6, Foslie's fig. 2 corresponds to Printz's fig. 7, Foslie's fig. 3 corresponds to Printz's fig. 1, and Foslie's fig. 4 corresponds to Printz's fig. 2.

Comments: Foslie (1895) based *Lithothamnion apiculatum* f. *apiculatum* on specimens from Bejan and illustrated four individuals. Subsequently, Foslie (1905a, p. 38) changed *Lithothamnion apiculatum* f. *apiculatum* to *Lithothamnion fornicatum* f. *apiculata*. The four specimens originally illustrated by Foslie are collectively designated here as the lectotype element of *Lithothamnion apiculatum* f. *apiculatum*. The nature of reported type material in BM (Tittley *et al.* 1984, p. 10) has not been determined during the present study.

aquilonia

Basionym & protologue: *Lithothamnion phymatodeum* f. *aquilonia* Foslie 1907a, p. 4.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Algae of Puget Sound no. 652; includes slides 1447 and 1448.

Type locality and collection data: Fort Casey, Whidbey Island, Washington State, USA; collected by N. L. Gardner, 18 June 1901.

TRH drawer: C-18; listed under *Lithothamnion phymatodeum* in Adey & Lebednik (1967, p. 83).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 4, fig. 12 (as *Lithothamnion phymatodeum* f. *aquilonia*).

Comments: The holotype material is badly fragmented and has become detached from the host.

arcticum

Basionym & protologue: *Lithophyllum arcticum* Kjellman 1877, p. 16.

Effective publication date: ?

Syntype: TRH, unnumbered; includes slide 1559.

Type locality and collection data: Uddebay, Novaya Zemlya; collected by Kjellman, 18 August 1875.

TRH drawer: B-18 (Adey & Lebednik 1967, p. 69).

Previous references to typification: ?

Published illustrations of TRH syntype: ?

Comments: Kjellman (1877, p. 16, pl. 1, figs 1-13) based *Lithophyllum arcticum* on material from Novaya Zemlya but did not designate a type or indicate how many specimens were involved. The TRH syntype consists of a number of fragments, the largest measuring 20 mm in greatest dimension, and of a photo, possibly sent by Kjellman.

armata

Basionym & protologue: *Goniolithon laccadivicum* f. *armata* Foslie 1907a, p. 16.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered (?); includes slides 1500 and 1501.

Type locality and collection data: Mangarêva Island, Gambier Islands, South Pacific Ocean; collected by A. Agassiz, 3 February 1905, comm. Farlow (1907), no. 18.

TRH drawer: A-14; listed under *Goniolithon laccadivicum* in Adey & Lebednik (1967, p. 31).

Previous references to typification: ?

Published illustrations of holotype: Printz, pl. 46, figs 15, 16 (as *Goniolithon laccadivicum* f. *armata*).

ascripticia

Basionym & protologue: *Lithophyllum pustulatum* f. *ascripticia* Foslie 1907a, p. 34.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered.

Type locality and collection data: Monterey Bay, California; collected by R. E. Gibbs, 10 January 1899.

TRH drawer: A-17; listed under *Melobesia* (*Dermatolithon*) *pustulatum* in Adey & Lebednik (1967, p. 39).

Previous references to typification: Mason 1953, p. 344 (as *Dermatolithon ascripticum*); Dawson 1960, p. 32 (as *Dermatolithon pustulatum* f. *ascripticum*); Adey & Lebednik 1967, p. 39 (as *Dermatolithon ascripticum* under the entry for *Melobesia pustulatum*); Adey 1970, p. 6 (as *Tenarea ascripticia*).

Published illustrations of holotype: ?

Comments: The holotype collection previously (Foslie 1905c, p. 127) had been referred to *Lithophyllum pustulatum* f. *australis*.

asperula

Basionym & protologue: *Lithothamnion repandum* f. *asperula* Foslie 1906b, p. 5.

Effective publication date: between 1 December 1906 and 30 March 1907.
Lectotype: TRH, Setchell no. 6346-6348 (designated here); includes slides 1139, 1167, and 1168.

Type locality and collection data: Bay of Islands, New Zealand; collected by W. A. Setchell, June 1904.

TRH drawer: B-1; listed under *Lithothamnion asperulum* in Adey & Lebednik (1967, p. 49).

Previous references to typification: Adey & Lebednik 1967, p. 49 (as *Lithothamnion asperulum*); Adey 1970, p. 29 (as *Leptophytum asperulum*).

Published illustrations of lectotype: Printz 1929, pl. 1, figs 4-6 (as *Lithothamnion asperulum*).

Comments: Foslie (1906b) based *Lithothamnion repandum* f. *asperula* on a series of specimens without designating a type. Adey in Adey & Lebednik (1967, p. 49) flagged the collection containing stones numbered 6346-6348, and Adey (1970, p. 29) subsequently referred to these as co-types and noted that the specimen numbered 6346 was missing. Because these specimens constitute a single preparation (i.e. they are housed in the same box), however, they collectively constitute the lectotype element of *Lithothamnion repandum* f. *asperula* and should not be referred to as co-types. There are two stones marked 6348 in the collection, and about 30% of the specimen depicted in pl. 1, fig. 6 in Printz (1929) is no longer present in TRH. Foslie (1907b, p. 6) subsequently raised *Lithothamnion repandum* f. *asperula* to the rank of species, as *Lithothamnion asperulum*.

assistum

Basionym & protologue: *Goniolithon assistum* Foslie 1907b, p. 23.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, Plate no. 9; includes slides 824 and 1558.

Type locality and collection data: El Tor, Red Sea; collected by Plate, 1901-1902; comm. Reinbold.

TRH drawer: A-14.

Previous references to typification: Adey & Lebednik 1967, p. 30 (as *Goniolithon*); Adey 1970, p. 8 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 47, fig. 3 (as *Goniolithon*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

atlantica

Basionym & protologue: *Mastophora atlantica* Foslie 1906b, p. 27.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, Børgesen no. 2095.

Type locality and collection data: Cruz Bay, St. John Island, US Virgin Islands, collected by F. Børgesen, 1905-1906.

TRH drawer: A-1.

Previous references to typification: Adey & Lebednik 1967, p. 14 (as *Mastophora*); Adey 1970, p. 14 (as *Lithoporella*).

Published illustrations of holotype: ?

Comments: Adey & Lebednik (1967, p. 14) give the incorrect date for the holotype collection.

attenuata

Basionym & protologue: *Lithothamnion calcareum* f. *attenuata* Foslie 1897c, p. 9.

Effective publication date: between 1 July and 31 December 1897.

Lectotype: TRH, Debray no. 12 (designated here).

Type locality and collection data: Concarneau, Finistere, France; collector and date not indicated.

TRH drawer: C-1; listed under *Lithothamnion calcareum* in Adey & Lebednik (1967, p. 74).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1897c) based *Lithothamnion calcareum* f. *attenuata* on collections from France (Debray, no. 12), Denmark and Norway, and he cited material identified by Harvey (1849a, pl. 291) as *Melobesia calcarea* as being associated with this form. Subsequently, Foslie (1900i, p. 13) changed *Lithothamnion calcareum* f. *attenuata* to *Lithothamnion calcareum* f. *valida*. Consequently, *Lithothamnion calcareum* f. *valida* is treated here as a superfluous substitute name for *Lithothamnion calcareum* f.

attenuata, although it is possible that Foslie was using the epithet *valida* to indicate the typical form of the species (i.e. *Lithothamnion calcareum* f. *calcareum*).

The only collection in TRH which includes a label in the box with the name *Lithothamnion calcareum* f. *attenuata* is the Debray collection which is designated here as lectotype. The outside of the box is labelled only as *Lithothamnion calcareum*.

aucklandica

Basionym & protologue: *Lithothamnion fumigatum* f. *aucklandica* Foslie 1905e, p. 16.

Effective publication date: between April 1905 and 24 August 1905.

Holotype: TRH, unnumbered; includes slides 932 and 933 (both missing).

Type locality and collection data: Auckland Islands; collector not indicated, March 1904.

TRH drawer: C-18; listed under *Lithothamnion aucklandicum* in Adey & Lebednik (1967, p. 83).

Previous references to typification: Adey & Lebednik 1967, p. 83 (as *Lithothamnion aucklandicum*); Adey 1970, p. 22 (as *Mesophyllum aucklandicum*).

Published illustrations of holotype: Printz 1929, pl. 4, fig. 17 (as *Lithothamnion aucklandicum*).

Comments: Foslie (1907b, p. 18) raised *Lithothamnion fumigatum* f. *aucklandica* to the rank of species, as *Lithothamnion aucklandicum*. The nature of the reported type material in BM (Tittley *et al.* 1984, p. 11, as *Lithothamnion fumigatum* f. *aucklandicum*) has not been determined during the present study.

australasica

Basionym & protologue: *Goniolithon elatocarpum* f. *australasica* Foslie 1901a, p. 19.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, unnumbered; includes slide 524.

Type locality and collection data: Western Port, Victoria, Australia; collected by J. Gabriel, 1899.

TRH drawer: B2; listed under *Lithothamnion mirabile* in Adey & Lebednik (1967, p. 52).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: TRH contains a single collection labelled *Goniolithon elatocarpum* f. *australasica*, and the associated collecting data matches that in the protologue (Foslie 1901a). It is presumed, therefore, that the taxon was based on this one collection, which must be regarded as the holotype. On the collection box and the enclosed note, the name *Goniolithon elatocarpum* f. *australasica* has been crossed off, *L. mirabile* has been pencilled on the box cover, and the collection is listed under *Litho-*

thamnion mirabile (see Adey & Lebednik 1967, p. 52) in TRH. Foslíe (1909b, p. 9), in his only other mention of *Goniolithon elatocarpum* f. *australasica*, removed the form from *Goniolithon elatocarpum* but did not indicate its fate.

australasicum

Basionym & protologue: *Archaeolithothamnion australasicum* Foslíe 1907a, p. 12.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 84); includes slides 568 and 1353.

Type locality and collection data: Cape Jaffa, South Australia; collected by A. Engelhart, 1900.

TRH drawer: C-19.

Previous references to typification: Adey & Lebednik 1967, p. 84 (as *Archaeolithothamnion*); Adey 1970, p. 18 (as *Archaeolithothamnion*).

Published illustrations of lectotype: Printz 1929, pl. 44, fig. 14 (as *Archaeolithothamnion*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 18).

australe

Basionym & protologue: *Lithothamnion australe* Foslíe 1904b, p. 24.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: TRH, Harlot no. 1 (designated by Adey in Adey & Lebednik 1967, p. 82); includes slides 86 and 87.

Type locality and collection data: California; no date or collector given; comm. P. Harlot.

TRH drawer: C-17.

Previous references to typification: Dawson 1960, p. 11 (as *Lithothamnion*); Adey & Lebednik 1967, p. 82 (as *Lithothamnion*); Adey 1970, p. 19 (as *Lithothamnion*); Adey *et al.* 1982, p. 57 (as *Lithothamnion*).

Published illustrations of lectotype: Foslíe 1896, fig. 7 (as *Lithothamnion coralloides* f. *australis*); Foslíe 1904b, p. 27, text fig. 10.

Comments: Foslíe (1904b, pp. 24, 25) based *Lithothamnion australe* on a single specified collection that he had earlier (Foslíe 1896, p. 8) identified as *Lithothamnion coralloides* f. *australis*. This collection consists of two individuals within a single box, both of which are depicted by Foslíe (1896, figs 6, 7). Adey (1970, p. 19) incorrectly refers to the two individuals as co-types and gives the Foslíe 1896 rather than the Foslíe 1904b reference as the protologue. Subsequently, Adey *et al.* (1982, p. 57) lectotypified the species with the specimen depicted in fig. 7 in Foslíe (1896) and provided background information and reasons. The name *Lithothamnion australe* first appeared as a *nomen nudum* in Foslíe 1900i, p. 13. Further data are presented in the entry for *Lithothamnion coralloides* f. *australis*.

australis

Basionym & protologue: *Lithophyllum pustulatum* f. *australis* Foslie 1905c, p. 117.

Effective publication date: between 25 August 1905 and 30 April 1906.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Orotava, Tenerife, Canary Islands; collected by J. Houegger, 1890, comm. F. S. Collins, 1904.

TRH drawer: A-17; listed under *Melobesia* (*Dermatolithon*) *pustulatum* in Adey & Lebednik (1967, p. 38).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: In the protologue for *Lithophyllum pustulatum* f. *australis*, Foslie (1905c, p. 126) listed the form as occurring in Morocco (Kuckuck), the Canary Islands (Houegger), Natal (Weber van Bosse), Monterey, California (Gibbs), and Cottage City, Massachusetts (Collins). In TRH, only the Canary Islands specimen and the Cottage City, Massachusetts specimen are labelled as f. *australis*; the designated lectotype contains the greater amount of material. The Kuckuck specimen from Morocco, which is not labelled f. *australis*, is figured in Printz (1929, pl. 72, fig. 1). Adey & Lebednik (1967, p. 38) mistakenly list the date of collection as 1904 and the collector as Collins.

australis

Basionym & protologue: *Lithothamnion coralloides* f. *australis* Foslie 1895, p. 90 (p. 62 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Cumbrae, Scotland, United Kingdom; collected by E. A. Batters, August 1891.

TRH drawer: C-1; listed under *Lithothamnion calcareum* in Adey & Lebednik (1967, p. 74).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 16, figs 27-30 (as *Lithothamnion coralloides* f. *australis*).

Comments: Foslie (1895, pp. 90, 93) based *Lithothamnion coralloides* f. *australis* on specimens from Haugesund and Storfosen in Norway, from Cumbrae in Scotland, and from Morlaix in France. The subsequent history of *Lithothamnion coralloides* f. *australis* is rather complex.

Firstly, Foslie (1896, p. 8) provided further information on two specimens from California sent by P. Hariot which he called *Lithothamnion coralloides* f. *australis* in the 1895 volume of *Det Kongelige Norske Videnskabers Selskabs Skrifter* (the protologue appeared in the 1894 volume). The Hariot specimens subsequently were regarded by Foslie (1904b, p. 25) to constitute the basis for a distinct species, which he called *Lithothamnion australe* (the name *Lithothamnion australe* first appeared as a *nomen nudum* in Foslie 1900i, p. 13). *Lithothamnion*

australe, therefore, is based on specimens different to those included in the protologue of *Lithothamnion coralloides* f. *australis* and was validly described as a distinct species (not a form) for the first time in 1904 (Foslie 1904b, p. 24).

Then Foslie (1899c, p. 6) removed *Lithothamnion coralloides* f. *australis* from *Lithothamnion coralloides* and explicitly designated it as the type form of a new species which he called *Lithothamnion squarrulosum* (i.e. *Lithothamnion squarrulosum* f. *australis* Foslie 1899c, p. 6). In accordance with ICBN Art. 26.1, *Lithothamnion squarrulosum* f. *australis* must be known as *Lithothamnion squarrulosum* f. *squarrulosum*, but the type of *Lithothamnion coralloides* f. *australis* is the same as the type of *Lithothamnion squarrulosum* f. *squarrulosum*.

Later, Foslie (1905c, p. 68) partially listed *Lithothamnion coralloides* f. *australis* in the synonymy of *Lithothamnion calcareum* f. *coralloides*, explicitly listing the specimens in figs 24, 25, 27-31 of pl. 16 of the protologue (Foslie 1895) as belonging to *Lithothamnion calcareum* f. *coralloides*. This explains why the specimens upon which the protologue of *Lithothamnion coralloides* f. *australis* is based are, with one exception (fig. 26), filed with *Lithothamnion calcareum* in the Foslie herbarium (the specimen shown in fig. 26 of the protologue has not been located).

From the above, it is apparent that the lectotype must be selected from amongst those specimens depicted in Foslie 1895, pl. 16, figs 24, 25, 27-31. Figs 24 and 25 depict specimens from Haugesund, figs 27-30 are from Cumbrae, and fig. 31 is from Morlaix. Of these, the Batters collection, encompassing the plants in figs 27-30, is in the best condition and thus has been designated here as lectotype of *Lithothamnion coralloides* f. *australis*.

In Adey & Lebednik (1967, p. 74), the lectotype specimens (which are in one box labelled *Lithothamnion coralloides* f. *australis*) have been grouped under a single entry with other Batters specimens collected concurrently which are in a second box labelled *Lithothamnion calcareum* f. *subsimplex*. The slides and the reference to Printz (1929) cited in the Adey & Lebednik entry pertain to material in this second box.

The nature of reported type material in BM (Tittley *et al.* 1984, p. 10) has not been determined during the present study.

australis

Basionym & protologue: *Lithothamnion lenormandii* f. *australis* Foslie 1901a, p. 8.

Effective publication date: between 1 January and 18 March 1901.

Lectotype: TRH, unnumbered (designated here); includes slides 358 and 516.

Type locality and collection data: Halfmoon Bay, Port Phillip Bay, Victoria, Australia; collected by J. Gabriel, 14 January 1899.

TRH drawer: C-18; listed under *Lithothamnion repandum* in Adey & Lebednik (1967, p. 83).

Previous references to typification: Adey & Lebednik 1967, p. 83 (as *Lithothamnion repandum*); Adey 1970, p. 30 (as *Leplophyllum repandum*). Published illustrations of lectotype: Printz 1929, pl. 1, fig. 10 (as *Lithothamnion repandum*).

Comments: Foslie (1901a) based *Lithothamnion lenormandii* f. *australis* on specimens from several localities in Victoria, Australia but did not designate a type. Subsequently, Foslie (1904c, p. 4) concluded that *Lithothamnion lenormandii* f. *australis* represented a distinct species (*Lithothamnion repandum*). Thus the type of both *Lithothamnion lenormandii* f. *australis* and *Lithothamnion repandum* is the same.

Adey in Adey & Lebednik (1967, p. 83) lectotypified these taxa with the collection from Halfmoon Bay (see also Adey 1970, p. 30). This collection is contained in two boxes which are listed as separate entries by Adey & Lebednik (1967, p. 83); one box (involving slide 358) is flagged in the catalogue, while the other box (involving slide 516) is marked as lectotype in TRH. Because the two boxes are part of the same collection, and to avoid possible confusion over apparent discrepancies outlined above, both boxes have been put in a single container and the specimens therein are collectively considered here to constitute the lectotype of *Lithothamnion lenormandii* f. *australis*.

australis

Basionym & protologue: *Lithothamnion squarrulosum* f. *australis* Foslie 1899c, p. 6.

Comments: *Lithothamnion squarrulosum* f. *australis* is a superfluous substitute name for *Lithothamnion squarrulosum* f. *squarrulosum*.

balanicola

Basionym & protologue: *Lithothamnion flavescens* f. *balanicola* Foslie 1905c, p. 20.

Comments: *Lithothamnion flavescens* f. *balanicola* was not accepted by Foslie (1905c, p. 20, footnote) and thus is not validly published (ICBN Art. 34.1). There are no specimens in TRH with this name.

bandanum

Basionym & protologue: *Lithothamnion bandanum* Foslie 1904b, p. 12.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Holotype: L 943, 7-27 (Siboga Expedition collection 224); includes one slide.

Holotype fragment: TRH; includes one unnumbered slide.

Type locality and collection data: Banda Anchorage, Sumatra, Indonesia; collected by A. Weber van Bosse, November 1899 (Siboga Expedition station 240).

TRH drawer: B-15.

Previous references to typification: Adey & Lebednik 1967, p. 64 (as *Lithothamnion*); Adey 1970, p. 19 (as *Lithothamnion*); Verheij &

Woelkerling 1992, p. 276 (as *Lithothamnion*).

Published illustrations of holotype: Foslie 1904b, pl. 1, fig. 10, and text fig. 4, p. 12 (as *Lithothamnion*); Printz 1929, pl. 5, fig. 8 (as *Lithothamnion*).

Comments: The portion of the holotype in L is c. 12 x 9 x 8 mm in size and contains a number of multiporate conceptacles, many with broken roofs. The TRH holotype fragment is c. 4 x 3 x 2 mm in size and contains a small number of intact conceptacles.

battersii

Basionym & protologue: *Lithothamnion battersii* Foslie 1896, p. 1.

Effective publication date: between 1 February and 1 June 1896.

Holotype: TRH, unnumbered; includes slide 129 and one unnumbered slide.

Type locality and collection data: Cumbrae, Scotland, United Kingdom; collected by E. Batters, 18 August 1891.

TRH drawer: C-10; listed under *Lithothamnion granii* in Adey & Lebednik (1967, p. 78).

Previous references to typification: Adey & Lebednik 1967, p. 78 (as *Lithothamnion*).

Published illustrations of holotype: Foslie 1896, figs 1-5 (as *Lithothamnion*).

Comments: The holotype element, comprising a single collection containing five specimens, was flagged in Adey & Lebednik (1967, p. 78) but was not commented upon by Adey (1970). The nature of the reported type material in BM (Tittley *et al.* 1984, p. 10) has not been determined during the present study.

belgicum

Basionym & protologue: *Lithophyllum belgicum* Foslie 1909a, p. 4.

Effective publication date: between 1 June and 18 December 1909.

Holotype: TRH, unnumbered; includes one unnumbered slide.

Type locality and collection data: Namur, Belgium.

TRH drawer: A-4 (Adey & Lebednik 1967, p. 18).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: *Lithophyllum belgicum* is based on a single collection that is listed in Adey & Lebednik (1967, p. 18) but was not flagged as type material.

bermudense

Basionym & protologue: *Lithophyllum bermudense* Foslie et Howe 1906b, p. (132).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 199; TRH, Howe, no. 199; includes one unnumbered slide.

Type locality and collection data: Spanish Point, Bermuda; collected by M. A. Howe, 21 June 1900.

TRH drawer: A-19.

Previous references to typification: Foslie & Howe 1906b, p. (132) (as *Lithophyllum*); Adey & Lebednik 1967, p. 41 (as *Lithophyllum*); Adey 1970, p. 6 (as *Tenarea*); Woelkerling & Campbell 1992 (as *Lithophyllum*).
Published illustrations of holotype: Foslie & Howe 1906b, pl. 81, fig. 3, pl. 85, fig. 3, pl. 91 (as *Lithothamnion*); Printz 1929, pl. 72, fig. 19 (as *Lithophyllum*); Woelkerling & Campbell 1992, figs 2, 3 (as *Lithophyllum*).
Comments: Foslie & Howe (1906b) based *Lithothamnion bermudense* on a single specimen that was divided into two portions, one being retained at NY (not seen) and the other sent to TRH [see Foslie & Howe 1906b, p. (128)].

bermudensis

Basionym & protologue: *Melobesia bermudensis* Foslie 1901a, p. 22.
Effective publication date: between 1 January and 18 March 1901.
Holotype: TRH, Farlow no. XXVII; includes slide 501.
Type locality and collection data: Bermuda; collector and date not indicated, comm. Farlow, 1900.
TRH drawer: A-16.
Previous references to typification: Adey & Lebednik 1967, p. 36 (as *Melobesia*); Adey 1970, p. 15 (as *Lithoporella*).
Published illustrations of holotype: ?
Comments: The holotype is the only collection of this species in TRH identified by Foslie.

bispora

Basionym & protologue: *Dermatolithon pustulatum* f. *bispora* Foslie 1898b, p. 11.
Comments: *Dermatolithon pustulatum* f. *bispora* is a superfluous substitute name for *Dermatolithon pustulatum* f. *pustulatum*, the type form of the species (note Foslie's citations after the epithet *bispora*).

bisporum

Basionym & protologue: *Lithothamnion bisporum* Foslie 1906c, p. 18 (p. 2 in independently paginated offprint).
Effective publication date: between 1 May and 30 November 1906.
Holotype: TRH, unnumbered; includes slides 1058 and 1059.
Type locality and collection data: Puerto Orotava, Tenerife, Canary Islands; collected by C. Sauvageau, December 1904 - February 1905.
TRH drawer: B-2.
Previous references to typification: Adey & Lebednik 1967, p. 51 (as *Lithothamnion*); Adey 1970, p. 30 (as *Leptophytum*).
Published illustrations of holotype: Printz 1929, pl. 1, fig. 16 (as *Lithothamnion*).
Comments: The holotype specimen as depicted in Printz (1929) is no longer present in TRH; only tiny fragments used to prepare the slide remain.

boergesenii

Basionym & protologue: *Goniolithon boergesenii* Foslie 1901a, p. 19.

Effective publication date: between 1 January and 18 March 1901.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 31); includes slide 366.

Type locality and collection data: St. Croix, US Virgin Islands; collected by F. Børgesen, January–March 1892.

TRH drawer: A-14.

Previous references to typification: Adey & Lebednik 1967, p. 31 (as *Goniolithon*); Adey 1970, p. 11 (as *Hydrolithon*).

Published illustrations of lectotype: Printz 1929, pl. 52, fig. 9 (as *Goniolithon*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 11). Foslie (1901a, p. 21) erroneously records the type locality as St. Croix, West India and Adey & Lebednik (1967, p. 31) incorrectly report slide 366 as 365.

boreale

Basionym & protologue: *Lithothamnion boreale* Foslie 1891, p. 37 (p. 2 in independently paginated offprint), pl. 1 (upper specimen).

Effective publication date: ?

Holotype: TRH, unnumbered; includes slides 131, 132 and two unnumbered slides.

Type locality and collection data: Gjesvær, Finnmark, Norway; collector not indicated, 1883.

TRH drawer: B-10; listed under *Lithothamnion glaciale* in Adey & Lebednik (1967, p. 62).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1891, pl. 1, upper specimen (as *Lithothamnion boreale*); Printz 1929, pl. 24, fig. 4 (as *Lithothamnion glaciale* f. *boreale*).

Comments: In 1909, Foslie (1909b, p. 4; see also Foslie 1905c, p. 27, footnote) reduced *Lithothamnion boreale* to *Lithothamnion glaciale* f. *borealis*.

borealis

Basionym & protologue: *Melobesia farinosa* f. *borealis* Foslie 1905c, p. 96.

Effective publication date: between 25 August 1905 and 30 April 1906.

Lectotype: TRH, *Gigartina* 'a' (designated here); includes six unnumbered slides.

Type locality and collection data: Roundstone, Republic of Ireland; collected by M. F. Foslie, 18 April 1899.

TRH drawer: A-15; listed under *Melobesia farinosa* in Adey & Lebednik (1967, p. 33).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1905c) based *Melobesia farinosa* f. *borealis* on collections from Ireland, Norway, Denmark and Sweden but did not designate a type. Y. M. Chamberlain has examined all the TRH syntypes from Ireland collected on 18 April 1899 and on that basis has designated the Roundstone collection on *Gigartina* 'a' as lectotype in the present account. The accompanying slides show features considered by Chamberlain to be diagnostic of *Melobesia farinosa* f. *borealis*.

bornetii

Basionym & protologue: *Lithothamnion bornetii* Foslie 1899c, p. 9.

Effective publication date: 5 January 1899.

Holotype: TRH, unnumbered; includes slide 172.

Isotype: PC, unnumbered.

Type locality and collection data: Cherbourg, France; collected by E. Bornet, 30 November 1853.

TRH drawer: C-18.

Previous references to typification: Adey & Lebednik 1967, p. 83 (as *Lithothamnion*); Adey 1970, p. 30 (as *Leptophytum*); Chamberlain 1990, p. 180 (as *Leptophytum*).

Published illustrations of holotype: Chamberlain 1990, p. 182, figs 6-8 (as *Leptophytum*).

Published illustrations of isotype: Chamberlain 1990, pp. 182, 183, figs 9-11 (as *Leptophytum*).

Comments: The holotype (see Chamberlain 1990 for details) consists of a tiny fragment, but according to Chamberlain (1990, p. 181) a somewhat larger isotype occurs in PC.

botrytoides

Basionym & protologue: *Lithothamnion botrytoides* Foslie in Rosenvinge 1898, p. 10.

Comments: *Lithothamnion botrytoides* Foslie in Rosenvinge (1898) originally was described as *Lithothamnion delapsum* f. *conglutinata* Foslie (1895, p. 78) and thus the type of both taxa is the same.

brachiata

Basionym & protologue: *Lithothamnion australe* f. *brachiata* Foslie 1904, p. 24.

Lectotype: L 991-239-221 (Siboga Expedition collection 868) (designated by Verheij & Woelkerling 1992).

Lectotype fragment: TRH (Siboga Expedition collection 868).

Isolectotypes: L 991, 239-259 [Siboga Expedition collections 13, 865, 866, 869, 873, 874 (slide only), 875 and 877].

Isolectotypes: TRH [Siboga Expedition collections 864 (slide only), 867, 875 (slide only), and 876].

Type locality and collection data: Haingsisi, Samau Island, Timor; collected by A. Weber van Bosse, 2-5 February 1900 (Siboga Expedition station

303).

TRH drawer: C-17; listed under *Lithothamnion australe* in Adey & Lebednik (1967, p. 82).

Previous references to typification: Verheij & Woelkerling, 1992, p. 276 (as *Lithothamnion australe* f. *brachiata*).

Published illustrations of lectotype: Foslie 1904, pl. 2, fig. 25 (as *Lithothamnion australe* f. *brachiata*); Printz 1929, pl. 17, fig. 45 (as *Lithothamnion australe* f. *brachiata*).

Published illustrations of isoelectotypes: Foslie 1904, pl. 2, figs 26-30 (as *Lithothamnion australe* f. *brachiata*); Printz 1929, pl. 17, figs 46-50 (as *Lithothamnion australe* f. *brachiata*).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 277).

brachiata

Basionym & protologue: *Lithophyllum lithophylloides* f. *brachiata* Heydrich 1901b, p. 531.

Effective publication date: 11 January 1901 (date printed on title page of journal; manuscript was submitted in June 1900).

Holotype: PC, no. 14 (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Holotype fragments: TRH, no. 14 (as above); includes slide 668.

Type locality and collection data: Bay de la Paz, Baja California, Mexico; collected by *Digue*, 1894.

TRH drawer: A-28; listed under *Lithophyllum lithophylloides* in Adey & Lebednik (1967, p. 48).

Previous references to typification: Adey & Lebednik 1967, p. 48, (as *Lithophyllum*).

Published illustrations of holotype: ?

Comments: The holotype is represented in TRH by three large fragments (25 - 57 mm in greatest dimension) and a number of smaller fragments. Foslie (1901d, p. 21; 1907a, p. 10) commented on this taxon twice without reaching firm conclusions. Adey & Lebednik (1967, p. 48) grouped together the types of *Lithophyllum lithophylloides* f. *lithophylloides* and *Lithophyllum lithophylloides* f. *brachiata* under a single entry and neglected to list the Hariot no. 10 along with the Hariot no. 14 in their entry. The PC portion of the holotype has not been examined during the present study.

brachycladum

Basionym & protologue: *Lithothamnion brachycladum* Foslie 1900a, p. 3.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, British Museum no. 10; includes slides 336 and 1360.

Type locality and collection data: St. Helena Island; collector and date not indicated: presented to BM by W. H. Sutton; ex British Museum 1899.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 81 (as *Lithothamnion*); Adey 1970, p. 22 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 12, fig. 19 (as *Lithothamnion*).

Comments: In the protologue, Foslie (1900a) mentioned several collections, but he definitely referred only one collection to the species. Only fragments of the holotype specimen depicted in Printz (1929) are present in TRH; presumably the remainder of the specimen is in BM (Tittley *et al.* 1984, p. 10; specimen not seen). Steentoft (1967, p. 129) provides additional comments on the BM specimen.

brasiliense

Basionym & protologue: *Lithothamnion brasiliense* Foslie 1900a, p. 4 (as *Lithothamnion brasiliense* f. *genuina*).

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, H. von Ihring no. 1047; includes slide 413.

Type locality and collection data: São Sebastião, Brasil, collected by von Ihring, September 1896.

TRH drawer: C-15.

Previous references to typification: Adey & Lebednik 1967, p. 79 (as *Lithothamnion*); Adey 1970, p. 19 (as *Lithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 14, fig. 6 (as *Lithothamnion*).

Comments: Foslie (1900a) based *Lithothamnion brasiliense* f. *brasiliense* (as f. *genuina*) on a single collection. A second collection mentioned in the protologue was described as *Lithothamnion brasiliense* f. *heteromorpha*. Because two collections were mentioned in the protologue, Adey (1970, p. 19) referred to the type as a lectotype; however only one of these pertained to each form described, and thus both are holotypes. In accordance with ICBN Arts 24.3 and 26.1, the name *Lithothamnion brasiliense* f. *genuina* (used by Foslie in the protologue) is superfluous for *Lithothamnion brasiliense* f. *brasiliense*.

brassica-florida

Basionym & protologue: *Melobesia brassica-florida* Harvey 1849b, p. 110.

Effective publication date: ?

Lectotype: BM, algal box collection 78 (designated here).

Lectotype fragments: TRH, BM Foslie no. 11; includes slide 337.

Type locality and collection data: Algoa Bay, South Africa; collected by Bowerbank, date not indicated.

TRH drawer: A-11; listed under *Goniolithon mamillosum* in Adey & Lebednik (1967, p. 27).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 47, fig. 9 (as *Goniolithon brassica-floridae*).

Comments: Harvey (1849b) based *Melobesia brassica-florida* on Bowerbank

material from Algoa Bay, South Africa but did not designate a type or indicate how many specimens were involved. After a detailed examination of relevant material, D. Penrose & Y. M. Chamberlain have designated here a BM specimen (Tittley *et al.* 1984, p. 12) depicted in Printz (1929) as lectotype. TRH contains three lectotype fragments (the largest measuring 8 mm in greatest dimension). Adey & Lebednik (1967, p. 27) incorrectly list Algoa Bay as occurring in Brasil.

breviaxe

Basionym & protologue: *Lithothamnion brevixae* Foslie 1895, p. 44 (p. 16 of independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 63); includes slide 1599 and one unnumbered slide.

Type locality and collection data: Kjelmø, Finnmark, Norway; collector not indicated, 3 August 1887.

TRH drawer: B-12.

Previous references to typification: Adey & Lebednik 1967, p. 63 (as *Lithothamnion*); Adey 1970, p. 19 (as *Lithothamnion*).

Published illustrations of lectotype: Foslie 1895, pl. 2, fig. 1 (as *Lithothamnion*).

Comments: Foslie (1895) based *Lithothamnion brevixae* on a single collection containing a number of specimens. Subsequently, one of these specimens was designated as lectotype by Adey in Adey & Lebednik (1967, p. 63; see also Adey 1970, p. 19). The isolectotypes in TRH have not been flagged.

breviclavium

Basionym & protologue: *Goniolithon breviclavium* Foslie 1907a, p. 20.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slides 1368, 1426, 1492 and one unnumbered slide.

Type locality and collection data: Honolulu, Hawaii, USA; collector and date not indicated; "Eugenie-exp?" indicated on box.

TRH drawer: A-14.

Previous references to typification: Adey & Lebednik 1967, p. 30 (as *Goniolithon*); Adey 1970, p. 11 (as *Hydrolithon*); Adey *et al.* 1982, p. 26 (as *Hydrolithon*).

Published illustrations of holotype: Printz 1929, pl. 52, figs 14, 15 (as *Goniolithon*).

Comments: The holotype element contains three specimens, two of which are depicted in Printz (1929).

brevifulta

Basionym & protologue: *Goniolithon spectabile* f. *brevifulta* Foslie 1901a, p. 16.

Effective publication date: between 1 January and 18 March 1901.
 Lectotype: TRH, Jadin no. 549 (designated here); includes slide 35.
 Type locality and collection data: Mauritius; collected by *Jadin*, September 1890.
 TRH drawer: A-12; listed under *Goniolithon frutescens* in Adey & Lebednik (1967, p. 29).
 Previous references to typification: ?
 Published illustrations of lectotype: Printz 1929, pl. 48, fig. 10 (as *Goniolithon frutescens* f. *typica*).
 Comments: In the protologue of *Goniolithon spectabile* f. *brevifulta*, Foslie (1901a) cited three specimens: Jadin 549 from Mauritius, which he definitely referred to f. *brevifulta*, and two Farlow collections (nos XXXII & XXXIII) also thought to be from Mauritius which he said were probably to be referred to f. *brevifulta*. Based on Foslie's comments, Jadin 549 has been designated here as lectotype. The box containing the lectotype has been mislabelled as *Goniolithon frutescens*; consequently Printz (1929, pl. 48, legend to fig. 10) used the name *Goniolithon frutescens* f. *typica*, and Adey & Lebednik (1967, p. 29) found the collection in drawer A-12 with other collections of that species. However, within the box, slide 35 is clearly labelled Jadin 549 with the name *Goniolithon spectabile* f. *brevifulta*. In Adey & Lebednik (1967, p. 29), Jadin 549 and Jadin 552 are combined under a single entry; the latter does not constitute part of the type of *Goniolithon spectabile* f. *brevifulta*.

californiense

Basionym & protologue: *Lithophyllum californiense* Heydrich 1901b, p. 530.
 Effective publication date: 11 January 1901 (date printed on title page of journal; manuscript was submitted in June 1900).
 Holotype: PC, no. 2 (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).
 Holotype fragment: TRH, unnumbered; includes slide 664.
 Type locality and collection data: Bay of La Paz, Baja California, Mexico; collected by *Diguet*, 1894.
 TRH drawer: A-20; listed under *Lithophyllum pallescens* in Adey & Lebednik (1967, p. 42).
 Previous references to typification: ?
 Published illustrations of holotype: ?
 Comments: Heydrich (1901b) based *Lithophyllum californiense* on a single collection, part of which is in PC and part in TRH. TRH contains several holotype fragments, the largest measuring 11 mm in greatest dimension. Foslie (1901d, p. 20) considered *Lithophyllum californiense* to be a heterotypic synonym of *Lithophyllum pallescens* Foslie. The PC portion of the holotype has not been examined during the present study. Adey & Lebednik (1967, p. 42) incorrectly place the type locality in the USA.

californicum

- Basionym & protologue: *Lithothamnion californicum* Foslie 1900h, p. 3.
 Effective publication date: between 26 June and 31 December 1900.
 Lectotype: TRH, Setchell no. 1148 (designated by Mason 1953, p. 324); includes slides 199, 1531, 1532, and 1538.
 Isolectotype: UC 737626.
 Type locality and collection data: Point Fernino, San Pedro, California, USA; collected by W. A. Setchell, December 1895.
 TRH drawer: B-2.
 Previous references to typification: Mason 1953, p. 324 (as *Lithothamnion*); Dawson 1960, p. 13 (as *Lithothamnion*); Adey & Lebednik 1967, p. 51 (as *Lithothamnion*); Adey 1970, p. 19 (as *Lithothamnion*).
 Published illustrations of lectotype: Printz 1929, pl. 3, fig. 1 (as *Lithothamnion*).
 Published illustrations of isolectotype: Mason 1953, pls 29c, 31b (as *Lithothamnion*).
 Comments: Foslie (1900h) based *Lithothamnion californicum* on two collections from California but did not designate a type. Subsequently, Mason (1953, p. 324) lectotypified *Lithothamnion californicum* with the Setchell collection. The lectotype specimen as depicted in Printz (1929) is fragmented, and information on the box cover is written faintly in pencil. The UC isolectotype has not been examined during the present study.

canariense

- Basionym & protologue: *Lithothamnion canariense* Foslie 1906c, p. 17 (p. 1 in independently paginated offprint).
 Effective publication date: between 1 May and 30 November 1906.
 Holotype: TRH, unnumbered; includes slides 1012, 1056, and 1057.
 Type locality and collection data: Puerto Orotava, Tenerife, Canary Islands; collected by C. Sauvageau, December 1904-February 1905.
 TRH drawer: C-15.
 Previous references to typification: Adey & Lebednik 1967, p. 79 (as *Lithothamnion*); Adey 1970, p. 22 (as *Mesophyllum*).
 Published illustrations of holotype: Printz 1929, pl. 14, figs 7, 8 (as *Lithothamnion*).
 Comments: The holotype element consists of several specimens. About 50% of the specimen depicted in pl. 14, fig. 8 in Printz (1929) is no longer present in TRH. Steentoft (1967, p. 130) provides additional comments on material in TRH.

canariensis

- Basionym & protologue: *Goniolithon accretum* f. *canariensis* Foslie 1906c, p. 19 (p. 3 in independently paginated offprint).
 Effective publication date: ?
 Holotype: TRH, unnumbered; includes slides 1016 and 1021.

Type locality and collection data: Puerto Orotava, Tenerife, Canary Islands; collected by C. Sauvageau, December 1904–February 1905.

TRH drawer: A-10; listed under *Goniolithon accretum* in Adey & Lebednik (1967, p. 24).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 45, fig. 21 (as *Goniolithon*).

Comments: The holotype element consists of several specimens and fragments including the one figured in Printz (1929).

canescens

Basionym & protologue: *Melobesia canescens* Foslie 1900h, p. 6.

Effective publication date: between 26 June and 31 December 1900.

Holotype: TRH, unnumbered; includes slide 867 (listed as 687 in Adey & Lebednik, 1967, p. 37).

Type locality and collection data: Marine Laboratory at Sagami Prov., Japan; collected by K. Yendo, 1899.

TRH drawer: A-17.

Previous references to typification: Dawson 1960, p. 33 (as *Dermatolithon canescens*); Adey & Lebednik 1967, p. 37 (as *Melobesia canescens*; Adey 1970, p. 7 (as *Tenarea canescens*).

Published illustrations of holotype: Printz 1929, pl. 72, fig. 3 (as *Lithophyllum canescens*).

Comments: Dawson (1960, p. 33) incorrectly refers to the holotype as the lectotype.

capitellata

Basionym & protologue: *Lithothamnion crassum* f. *capitellata* Foslie 1895, p. 59 (p. 31 in independently paginated offprint).

Comments: Foslie (1895) based *Lithothamnion crassum* f. *capitellata* on specimens from Mandal and Kragerø in Norway but did not designate a type. No TRH collections labelled *Lithothamnion crassum* f. *capitellata* have been found, and none of the TRH collections from the two cited localities contained any information which would link them to this taxon. Consequently, *Lithothamnion crassum* f. *capitellata* has not been typified during this study, and its status remains uncertain.

capitulatum

Basionym & protologue: *Lithophyllum capitulatum* Heydrich 1900, p. (560).

Effective publication date: not determined during the present study.

Holotype: BR, Racovitza no. 77.

Holotype fragment: TRH, Racovitza no. 77; includes slides 791 and 1362.

Type locality and collection data: Beagle Channel, Tierra del Fuego, Argentina; collected by E. Racovitza, 24 December 1897.

TRH drawer: A-9; listed under *Lithophyllum discoideum* in Adey & Lebednik (1967, p. 24).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 59, fig. 3 (as *Lithophyllum capitulatum*).

Comments: The TRH portion of the holotype consists of several fragments, the largest of which is depicted in Printz (1929). Foslie (1907c, p. 12) considered *Lithophyllum capitulatum* Heydrich to be a heterotypic synonym of *Lithophyllum discoideum* Foslie. The BR portion of the holotype has not been examined during the present study.

caribaea

Basionym & protologue: *Lithophyllum decipiens* f. *caribaea* Foslie 1906b, p. 18.

Effective publication date: between 1 December 1906 and 30 March 1907. Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 14); includes slide 363.

Type locality and collection data: The Harbour, St. Thomas Island, US Virgin Islands; collected by F. Børgesen, January-March 1892.

TRH drawer: A-1; listed under *Lithophyllum caribaeum* in Adey & Lebednik (1967, p. 14).

Previous references to typification: Adey & Lebednik 1967, p. 14 (as *Lithophyllum caribaeum*); Adey 1970, p. 8 (as *Neogoniolithon caribaeum*).

Published illustrations of lectotype: Printz 1929, pl. 53, fig. 7 (as *Lithophyllum caribaeum*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 8). The designated lectotype element contains material on two stones, the smaller of which is depicted in Printz (1929).

carpophylli

Basionym & protologue: *Melobesia carpophylli* Heydrich 1893, p. (78).

Effective publication date: ?

Syntype: TRH, unnumbered; includes slide 300.

Type locality and collection data: Bay of Islands, New Zealand; collector and date unknown [see Heydrich 1893, p. (75), footnote 2].

TRH drawer: A-19.

Previous references to typification: ?

Published illustrations of TRH syntype: Printz 1929, pl. 72, fig. 15 (as *Lithophyllum*).

Comments: Heydrich (1893) based *Melobesia carpophylli* on material from the Bay of Islands, New Zealand but did not designate a type or indicate how many specimens were involved. Heydrich's herbarium is presumed to be destroyed (Stafleu & Cowan 1979, p. 187), and thus the total number of specimens involved can no longer be determined. The TRH syntype, which is not listed in Adey & Lebednik (1967, p. 41), consists of the small fragment depicted in Printz (1929) and is annotated as coming from Heydrich's herbarium.

caspica

Basionym & protologue: *Melobesia caspica* Foslie 1900e, p. 131.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated by Woelkerling 1986, p. 254).

Type locality and collection data: Caspian Sea; collected by *Ostroumou*, 1899; comm. N. Andrussow.

TRH drawer: A-16; listed under *Litholepis caspica* in Adey & Lebednik (1967, p. 36).

Previous references to typification: Woelkerling 1986, p. 254 (as *Melobesia caspica*).

Published illustrations of lectotype: Woelkerling 1986, figs 4-12 (as *Melobesia caspica*).

Comments: The basis for selection of the designated lectotype is explained by Woelkerling (1986), who provides a detailed account of the material.

caulerpae

Basionym & protologue: *Melobesia caulerpae* Foslie 1906b, p. 16.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, Setchell no. 6080a.

Type locality and collection data: Bay of Islands, New Zealand; collected by *W. A. Setchell*, June 1904.

TRH drawer: A-15; listed under *Melobesia lejolisii* in Adey & Lebednik (1967, p. 35).

Previous references to typification: Adey & Lebednik 1967, p. 35 (as *Heteroderma*); Adey 1970, p. 16 (as *Heteroderma*).

Published illustrations of holotype: ?

Comments: It is not clear why the type collection is filed under *Melobesia lejolisii* in Foslie's herbarium since in publication he always regarded the two species to be distinct.

ceylonense

Basionym & protologue: *Goniolithon ceylonense* Foslie 1906c, p. 20 (p. 4 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 24); includes slide 976.

Type locality and collection data: Dondern Head, Sri Lanka; collected by *N. Svedelius*, 17 March 1903.

TRH drawer: A-10.

Previous references to typification: Adey & Lebednik 1967, p. 24 (as *Goniolithon*); Adey 1970, p. 8 (as *Neogoniolithon*).

Published illustrations of lectotype: Printz 1929, pl. 45, fig. 18 (as *Goniolithon*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 8). The lectotype element contains three fragments, one of which is depicted in Printz (1929).

chalonii

Basionym & protologue: *Lithophyllum chalonii* Heydrich 1899, p. 221.

Effective publication date: ?

Syntype slide: TRH, slide 856.

Type locality and collection data: Banyuls-sur-Mer, France; collector and date not indicated.

TRH drawer: A-28.

Previous references to typification: ?

Published illustrations of syntype material: Heydrich 1899, pl. 27, fig. 5 (as *Lithophyllum*).

Comments: Heydrich (1899) based *Lithophyllum chalonii* on material obtained from Dr Chalon, but Heydrich did not designate a type or indicate how many specimens were involved. The TRH syntype slide was prepared from material in the herbarium of Chalon, but there is no associated specimen or fragments in TRH. Adey & Lebednik (1967, p. 48) cited the syntype slide but did not flag it as type material.

chamaedoris

Basionym & protologue: *Lithophyllum chamaedoris* Foslie et Howe 1906b, p. (134).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 4017.

Isotype: TRH, Howe no. 4017.

Isotype: BM.

Type locality and collection data: Cave Cays, Exuma Chain, Bahamas; collected by *M. A. Howe*, 19 February 1905.

TRH drawer: A-16.

Previous references to typification: Adey & Lebednik 1967, p. 36 (as *Melobesia*); Adey 1970, p. 5 (as *Lithophyllum*).

Published illustrations of holotype: Foslie & Howe 1906b, pl. 90, fig. 1 (as *Lithophyllum*).

Published illustrations of isotype: ?

Comments: Foslie & Howe (1906b) based *Lithophyllum chamaedoris* on a single collection and explicitly state [p. (128)] that the main specimens are in NY and that duplicates were sent to Trondheim (TRH). The NY holotype has not been examined during the present study. Adey (1970, p. 18) incorrectly suggests that the holotype is in TRH. The BM isotype (Tittley *et al.* 1984, p. 10) has not been examined during the present study.

chatamense

Basionym & protologue: *Lithothamnion chatamense* Foslie 1906c, p. 18 (p. 2 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Holotype: TRH, unnumbered; includes slides 301, 302 and 546.

Type locality and collection data: Chatham Islands; collected by *N.*

Schauinsland, December 1898.

TRH drawer: B-18.

Previous references to typification: Adey & Lebednik 1967, p. 69 (as *Lithothamnion*); Adey 1970, p. 23 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 9, fig. 10 (as *Lithothamnion*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

chilense

Basionym & protologue: *Archaeolithothamnion chilense* Foslie 1904c, p. 6.

Effective publication date: between 24 December 1904 and 11 January 1905.

Holotype: TRH, unnumbered; includes slides 595 and 877.

Type locality and collection data: Lobos de Afuera, Chile; collected by W. v. Ohlendorff, 4 July 1896.

TRH drawer: C-19.

Previous references to typification: Adey & Lebednik 1967, p. 84 (as *Archaeolithothamnion*); Adey 1970, p. 18 (as *Archaeolithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 44, fig. 12 (as *Archaeolithothamnion*).

Comments: About 80% of the holotype specimen as depicted in Printz is no longer present in TRH.

cingens

Basionym & protologue: *Lithothamnion muelleri* f. *cingens* Foslie 1900f, p. 69.

Comments: *Lithothamnion muelleri* f. *cingens* is a superfluous substitute name for *Lithothamnion muelleri* f. *muelleri*, the type form of *Lithothamnion muelleri* Rosanoff (1866, p. 101) (see ICBN Art. 26.1).

circumscripta

Basionym & protologue: *Lithophyllum discoideum* f. *circumscripta* Foslie 1906b, p. 22.

Comments: *Lithophyllum discoideum* f. *circumscripta* is a superfluous substitute name for *Lithophyllum discoideum* f. *discoideum*.

clavulata

Basionym & protologue: *Lithothamnion fruticosum* f. *clavulata* Foslie 1901b, p. 17.

Effective publication date: May 1901 (Stafleu & Cowan 1985, p. 253).

Neotype: TRH, unnumbered (designated here).

Type locality and collection data: Val di Bora, Adriatic Sea; collected by Kuckuck, 7 November 1894.

TRH drawer: B-6; listed under *Lithothamnion fruticosum* in Adey & Lebednik (1967, p. 58).

Previous references to typification: ?

Published illustrations of neotype: Foslie 1904d, pl. 1, fig. 12 (as *Lithothamnion fruticosum* f. *clavulata*); Printz 1929, pl. 13, fig. 1 (as *Lithothamnion fruticosum* f. *clavulata*).

Comments: In the protologue for *Lithothamnion fruticosum* f. *clavulata*, Foslie (1901b, p. 17, footnote 2) refers to the examination of specimens from Hauck's herbarium. However, there are no Hauck collections labelled *Lithothamnion fruticosum* f. *clavulata* at TRH, but there are five other collections so labelled, including four which Foslie would have had available when he produced his account (Foslie 1904d) of species in the Adriatic Sea. In the absence of Hauck material, and because of the detailed study of Adriatic material, one of the specimens figured in that account and later by Printz (1929) has been chosen here to serve as neotype for *Lithothamnion fruticosum* f. *clavulata*. Adey & Lebednik (1967, p. 58) give the collection date as 1897, but 1894 is written on the box.

coalescens

Basionym & protologue: *Lithothamnion coalescens* Foslie 1895, p. 162 (p. 134 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slide 215 (missing) and five unnumbered slides.

Type locality and collection data: Inderøen, Strømmen, Trondheimsfjord, Norway; collected by M. F. Foslie, 12 August 1893.

TRH drawer: C-21; listed partly under *Clathromorphum coalescens* and partly under *C. evanescens* in Adey & Lebednik (1967, p. 87).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 19, figs 15-20 (as *Lithothamnion coalescens*); Printz 1929, pl. 41, figs 11, 12 (as *Clathromorphum compactum* f. *coalescens*).

Comments: Foslie (1895) based *Lithothamnion coalescens* on collections from 2(-3) localities, but did not designate a type. The designated lectotype is the only collection labelled *Lithothamnion coalescens* found at TRH. It consists of plants attached to 41 small stones and is housed in two boxes which have been placed in a single larger box during the present study. The smaller box, which contains five of the six individuals depicted in the protologue, was mistakenly listed under *Clathromorphum evanescens* by Adey & Lebednik (1967, p. 87). Use of the name *Clathromorphum coalescens* by Adey & Lebednik (1967, p. 87) apparently follows Foslie (1898b, p. 8). The nature of the reported type material in BM (Tittley *et al.* 1984, p. 10) has not been determined during the present study.

coarctatum

Basionym & protologue: *Lithophyllum coarctatum* Foslie 1907a, p. 31.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slides 286, 288, and 1429.

Type locality and collection data: Cocos-Keeling Islands; no collector or date indicated; from Josephine exp (?).

TRH drawer: A-28.

Previous references to typification: Adey & Lebednik 1967, p. 48 (as *Lithophyllum*); Adey 1970, p. 10 (as *Porolithon*).

Published illustrations of holotype: Printz 1929, pl. 70, fig. 2 (as *Lithophyllum coarctatum* f. *typica*).

Comments: Foslie (1907a) described the species *Lithophyllum coarctatum* and the form *Lithophyllum coarctatum* f. *sandvicensis* in the same account, but based each on a single, different, specified collection. Thus the Cocos-Keeling collection is the holotype of *Lithophyllum coarctatum* (f. *coarctatum*) and not the lectotype as suggested by Adey (1970, p. 10).

colliculosum

Basionym & protologue: *Lithothamnion colliculosum* Foslie 1891, p. 43 (p. 8 in independently paginated offprint).

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here); includes slides 137 and 138.

TRH drawer: B-11; listed under *Lithothamnion glaciale* in Adey & Lebednik (1967, p. 63).

Previous references to typification: Adey & Lebednik 1967, p. 71 (as *Lithothamnion*); Adey 1970, p. 19 (as *Lithothamnion*).

Type locality and collection data: Skorpen, Kvænangen, Norway, collected by M. F. Foslie, 8 September 1890.

Published illustrations of lectotype: Foslie 1891, pl. 3, fig. 1 (as *Lithothamnion*); 1895, pl. 17, fig. 9 (as *Lithothamnion*).

Comments: Foslie (1891) based *Lithothamnion colliculosum* on specimens collected at a depth of 10-15 fathoms at Skorpen, Kvænangen in northern Norway, and the protologue included a photograph (Foslie 1891, pl. 3, fig. 1) of eight rocks with attached thalli. Subsequently, Foslie (1895, p. 103) recognized three forms of *Lithothamnion colliculosum* and included within f. *densa* the type of the species *Lithothamnion colliculosum*, as evidenced by the citation of the 1891 figures in the protologue for f. *densa* and the fact that one of the specimens depicted in the 1891 publication was also depicted in the 1895 publication in fig. 9 on pl. 17. Consequently, *Lithothamnion colliculosum* f. *densa* is a superfluous substitute name for *Lithothamnion colliculosum* f. *colliculosum*, the type form of the species (see ICBN Arts 24.3, 26.1 and 63.1).

There are no collections in TRH that are labelled *Lithothamnion colliculosum* and were collected at Skorpen, the only locality cited in the protologue (see Adey & Lebednik 1967, p. 71). This led Adey (1970, p. 19) to designate an 1890(?) collection from Kragerø as neotype for *Lithothamnion colliculosum*. However, a detailed search of the listings

(see Adey & Lebednik 1967, pp. 54, 63, 87, 88) has revealed four 1890 collections whose field data (Skorpen, Kvænangen, Norway 10–15 fathoms, collected by *M. F. Foslie*) matches that given in the protologue, and the one filed under *Lithothamnion glaciale* (Adey & Lebednik 1967, p. 63) included four of the eight rocks depicted in the protologue for *Lithothamnion colliculosum*. This collection also includes slides 137 and 138, both labelled *Lithothamnion colliculosum* f. *densa*, and slide 137 contains a reference to the 1891 protologue.

The rediscovery of original protologue material has resulted here in the designation of this collection as the lectotype element for *Lithothamnion colliculosum*. In accordance with ICBN Art. 8.1, this lectotype supersedes the neotype designated by Adey in Adey & Lebednik (1967, p. 71). The lectotype element contains plants on 20 stones and one shell. The collection is considered lectotype rather than holotype because only four of the eight stones depicted in the protologue form part of this collection. The other four have not been found, but they do not occur in any of the collections whose field data matches that given in the protologue.

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 10) has not been determined during the present study.

compacta

Basionym & protologue: *Lithophyllum discoideum* f. *compacta* Foslie 1906b: 22.

Effective publication date: between 1 December 1906 and 30 March 1907. Holotype: TRH, unnumbered; includes slide 1187.

Type locality and collection data: Hooker Point, Falkland Islands; collected by *C. Skottsberg*, 25 February 1902.

TRH drawer: A-9; listed under *Lithophyllum discoideum* in Adey & Lebednik (1967, p. 24).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1907c, pl. 2, fig. 5 (as *Lithophyllum*); Printz 1929, pl. 59, fig. 11 (as *Lithophyllum*).

Comments: Less than half of the holotype specimen illustrated by Foslie (1907c) and by Printz (1929) remains intact.

compactum

Basionym & protologue: *Lithothamnion compactum* Kjellman 1883a, p. 132.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated by Woelkerling 1988, p. 161); includes slide 217.

Type locality and collection data: Karmakul Bay, Novaya Zemlya; collected by *F. Kjellman*, 26 June 1875.

TRH drawer: C-20.

Previous references to typification: Woelkerling (1988, p. 161, as *Clathromorphum compactum*).

Published illustrations of lectotype: Woelkerling 1988, p. 160, figs 167–170

(as *Clathromorphum compactum*).

Comments: Lectotypification of *Lithothamnion compactum* Kjellman with a specimen in TRH was effected by Woelkerling (1988, p. 161) who provides further details.

complanata

Basionym & protologue: *Lithophyllum fasciculatum* f. *complanata* Foslie 1909b, p. 29.

Comments: *Lithophyllum fasciculatum* f. *complanata* is a superfluous substitute name for *Lithophyllum fasciculatum* f. *compressa*; see the entry for *Lithophyllum fasciculatum* f. *compressa* below.

complanata

Basionym & protologue: *Lithothamnion affine* f. *complanata* Foslie 1897c, p. 13.

Comments: *Lithothamnion affine* f. *complanata* is a superfluous substitute name for *Lithothamnion affine* f. *affine*; see the entry for *Lithothamnion affine* above.

complanata

Basionym & protologue: *Lithothamnion elegans* f. *complanata* Foslie 1896b, p. 6.

Effective publication date: ?

Holotype: TRH, Hariot no. 2 (in part); includes slide 433.

Type locality and collection data: Gulf of California, Mexico; no collector or date given; comm. Hariot, no. 2.

TRH drawer: A-23; listed under *Lithothamnion elegans* in Adey & Lebednik (1967, p. 44).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1896, fig. 10 (as *Lithothamnion*); Printz 1929, pl. 63, fig. 2 (as *Lithophyllum elegans*).

Comments: The box containing the holotype of *Lithothamnion elegans* f. *complanata* also contains the holotype of *Lithothamnion elegans* f. *elegans*. The coast of California is given as the locality in the protologue, but the Gulf of California is written on the box containing the type material.

complanata

Basionym & protologue: *Lithothamnion incertum* f. *complanata* Foslie 1904c, p. 5.

Comments: *Lithothamnion incertum* f. *complanata* is a superfluous substitute name for *Lithothamnion incertum* f. *incertum*.

The name *Lithothamnion incertum* f. *complanata* subsequently was used by Printz (1929, p. 42, pl. 14, legends to figs 23, 24) to depict plants which are so labelled in TRH, but Foslie never described more than one form of *Lithothamnion incertum*; the only mention of *Lithothamnion*

incertum in Foslie's publications is the very brief protologue account (Foslie 1904c, p. 5).

compressa

Basionym & protologue: *Lithophyllum craspedium* f. *compressa* Foslie 1900g, p. 7.

Comments: *Lithophyllum craspedium* f. *compressa* is a superfluous name for *Lithophyllum craspedium* f. *craspedium*.

compressa

Basionym & protologue: *Lithophyllum fasciculatum* f. *compressa* Foslie 1900a, p. 30.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, unnumbered.

Type locality and collection data: Roundstone Bay, Republic of Ireland; collected by M. F. Foslie, 15 April 1899.

TRH drawer: A-23; listed under *Lithophyllum fasciculatum* in Adey & Lebednik (1967, p. 44).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 63, figs 9, 10 (as *Lithophyllum fasciculatum* f. *complanata*).

Comments: Foslie (1900a) based *Lithophyllum fasciculatum* f. *compressa* on material from the west coast of Ireland. Subsequently, Foslie (1909b, p. 29) changed the name to *Lithophyllum fasciculatum* f. *complanata* (a superfluous substitute name; see ICBN Arts 61.1 & 63.1). In TRH the single collection of *Lithophyllum fasciculatum* f. *compressa* (i.e. the holotype element) is labelled as *Lithophyllum fasciculatum* f. *complanata*; it consists of a number of individuals including the two figured by Printz (1929).

compressa

Basionym & protologue: *Lithothamnion coralloides* f. *compressa* Heydrich 1901b, p. 539.

Effective publication date: 11 January 1901 (date printed on title page of journal; manuscript was submitted in June 1900).

Holotype: PC, no. 42 (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Isotype: TRH, unnumbered.

Type locality and collection data: Cotentin Peninsula, France; collected by Malard, date not indicated.

TRH drawer: C-1; listed under *Lithothamnion calcareum* in Adey & Lebednik (1967, p. 74).

Previous references to typification: ?

Published illustrations of holotype: ?

Published illustrations of TRH isotype: ?

Comments: Heydrich (1901b) based *Lithothamnion coralloides* f. *compressa*

on a single collection containing a number of unattached individuals. TRH contains four individuals and five fragments from the original collection; these are treated here as isotype material because a number of entire individuals are involved and because Foslie did not transfer the number 42 mentioned in the protologue onto the two TRH boxes housing the specimens and fragments. The PC holotype has not been examined during the present study.

conchatum

Basionym & protologue: *Lithothamnion conchatum* Setchell et Foslie in Foslie 1902a, p. 6.

Effective publication date: between 11 September and 20 November 1902.

Lectotype: TRH, Gibbs & Setchell no. 3057a (designated by Mason 1953, p. 317); includes slides 729 and 1578.

Isolectotype: UC 737624 (see Mason 1953, p. 318).

Type locality and collection data: Monterey, California, USA; collector not indicated, 10 January 1899.

TRH drawer: B-17.

Previous references to typification: Mason 1953, p. 317 (as *Polyporolithon*); Adey & Lebednik 1967, p. 68 (as *Lithothamnion*); Adey 1970, p. 23 (as *Mesophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 10, figs 3-6 (as *Lithothamnion*).

Comments: Setchell & Foslie in Foslie (1902a) based *Lithothamnion conchatum* on collections from California and British Columbia but did not designate a type. Subsequently, Mason (1953, p. 317) lectotypified *Lithothamnion conchatum* (as *Polyporolithon*) with the California collection; Adey (1970, p. 23) provides additional comments.

condensata

Basionym & protologue: *Mastophora macrocarpa* f. *condensata* Foslie 1907b, p. 30.

Effective publication date: between 30 September 1907 and 27 June 1908.

Holotype: L 943, 10-60 (Siboga Expedition collection 1334).

Holotype fragment: TRH (Siboga Expedition collection 1334).

Type locality and collection data: Sanana Bay, east coast of Sula Besi Island, Indonesia; collected by A. Weber van Bosse, 13-14 November 1899 (Siboga Expedition station 193).

TRH drawer: A-1; listed under *Mastophora macrocarpa* in Adey & Lebednik (1967, p. 15).

Previous references to typification: Verheij & Woelkerling 1992, p. 277 (as *Mastophora macrocarpa* f. *condensata*).

Published illustrations of holotype: Foslie 1904b, p. 71, text fig. 27 (as *Mastophora macrocarpa* f. *condensata*); Printz 1929, pl. 74, fig. 6 (as *Mastophora macrocarpa* f. *condensata*); Woelkerling 1988, p. 11, fig. 16 (as *Mastophora*).

Comments: TRH contains only a small, sterile fragment representing less than 0.01% of the specimen; the remainder of the holotype is in L.

confinis

Basionym & protologue: *Lithothamnion fruticulosa* f. *confinis* Foslie 1904c, p. 4.

Effective publication date: between 24 December 1904 and 11 January 1905.

Lectotype: TRH, unnumbered (designated here); includes slide 356.

Type locality and collection data: Western Port, Victoria, Australia; collected by J. Gabriel, 1899.

TRH drawer: B-7; listed under *Lithothamnion indicum* in Adey & Lebednik (1967, p. 58).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1904d, pl. 1, figs 8, 9 (as *Lithothamnion fruticulosa* f. *crassiuscula*); Printz 1929, pl. 13, fig. 24 (as *Lithothamnion indicum* f. *typica*).

Comments: Foslie (1904c) based *Lithothamnion fruticulosa* f. *confinis* on Australian specimens which he referred elsewhere (Foslie 1904d, pl. 1, figs 7-9) to *Lithothamnion fruticulosa* f. *crassiuscula*, but he did not designate a type. Subsequently, Foslie (1907a, p. 7) established the species *Lithothamnion indicum* for all plants which he had previously referred to *Lithothamnion fruticulosa* f. *crassiuscula*, thus accounting for the placement of the Australian specimens in Foslie's herbarium. The three Australian specimens depicted by Foslie (1904d, pl. 1, figs 7-9) come from two collections. The specimen depicted in fig. 7 has been designated the lectotype of *Lithothamnion indicum*. The collection which includes the specimens depicted in figs 8 and 9 is designated here as lectotype of *Lithothamnion fruticulosa* f. *confinis*.

confragosa

Basionym & protologue: *Goniolithon myriocarpum* f. *confragosa* Foslie 1907a, p. 14.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, P. Hariot no. 27 (designated here); includes slide 1445.

Type locality and collection data: Tearia, Tahiti; collector and date not indicated; comm. P. Hariot, April 1907.

TRH drawer: A-10; listed under *Goniolithon myriocarpum* in Adey & Lebednik (1967, p. 25).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 46, fig. 8 (as *Goniolithon*).

Comments: Foslie (1907a) apparently based *Goniolithon myriocarpum* f. *confragosa* on more than one collection but explicitly cited only the Hariot collection which is designated here as lectotype. Two other collections in TRH are also marked f. *confragosa*; both come from

localities in the Red Sea, and in Adey & Lebednik (1967, p. 25) details are given under the entries for Gibson and Reinbold under *Goniolithon myriocarpum*. The El Tor material was collected by Plate and sent to Foslie by Reinbold.

congesta

Basionym & protologue: *Goniolithon frutescens* f. *congesta* Foslie 1903c, p. 468, pl. 25, fig. 5.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here); includes slide 736.

Type locality and collection data: Hulule, Male Atoll, Maldives Islands; collected by *Stanley Gardiner*, April 1900.

TRH drawer: A-12; listed under *Goniolithon frutescens* in Adey & Lebednik (1967, p. 28).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1903c, pl. 25, fig. 5 (as *Goniolithon*); Printz 1929, pl. 48, fig. 13 (as *Goniolithon*).

Comments: In the protologue of *Goniolithon frutescens* f. *congesta*, Foslie (1903c) lists three localities in the Maldives and Laccadives. In TRH, there is only one collection from these localities which is unequivocally labelled *Goniolithon frutescens* f. *congesta*, and it is designated here as lectotype. It was illustrated in the protologue (Foslie 1903c, pl. 25, fig. 5) and by Printz (1929). Adey & Lebednik (1967, p. 28) include the designated lectotype and all other material from the type locality under a single entry.

congestum

Basionym & protologue: *Goniolithon congestum* Foslie 1899c, p. 13.

Effective publication date: 5 January 1899.

Holotype: TRH, unnumbered; includes slides 435 and 436.

Type locality and collection data: St. Barthelemy; collected by *Goes*, 1867.

TRH drawer: A-23.

Previous references to typification: Adey & Lebednik 1967, p. 44 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 66, figs 6, 7 (as *Lithophyllum*).

Comments: The holotype element consists of five specimens, two of which are depicted in Printz (1929).

conglutinata

Nomen nudum: *Lithothamnion crassum* f. *conglutinata* Foslie 1898b, p. 9.

Comments: The name *Lithothamnion crassum* f. *conglutinata* Foslie (1898b, p. 9) appeared without diagnosis or description but with a reference to Foslie 1895. The name *Lithothamnion crassum* f. *conglutinata*, however, does not appear in Foslie 1895. It is likely that Foslie (1898b) meant to refer back to *Lithothamnion delapsum* f. *conglutinata* Foslie (1895, p. 78).

conglutinata

Basionym & protologue: *Lithothamnion delapsum* f. *conglutinata* Foslie 1895, p. 78 (p. 50 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slide 146.

Type locality and collection data: Mestervik, Malangen, Norway, collector not indicated, 20 September 1890.

TRH drawer: B-11; listed under *Lithothamnion glaciale* in Adey & Lebednik (1967, p. 63).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 14, fig. 4 (*Lithothamnion delapsum* f. *conglutinata*); Printz 1929, pl. 23, fig. 12 (as *Lithothamnion glaciale* f. *botrytoides*).

Comments: Foslie (1895) based *Lithothamnion delapsum* f. *conglutinata* on material from Mestervik, Malangen, Norway but did not designate a type; and it is not clear from the protologue whether more than one specimen was involved. The only collection in TRH labelled *Lithothamnion delapsum* f. *conglutinata* contains the plant depicted in pl. 14, fig. 4 of the protologue. The two specimens within the box are collectively designated here as the lectotype element of *Lithothamnion delapsum* f. *conglutinata*.

Subsequently, Foslie (in Rosenvinge 1898, p. 10) redescribed *Lithothamnion delapsum* f. *conglutinata* as a separate species and coined a new binomial: *Lithothamnion botrytoides*. Later, Foslie (1905c, p. 26) treated *Lithothamnion delapsum* f. *conglutinata* as a synonym of *Lithothamnion glaciale* f. *botrytoides* (the epithet *conglutinata* has priority in the rank of form - see ICBN Art 61.1), and this explains why the collection was grouped with other specimens of *Lithothamnion glaciale* and why Printz (1929) used the name *Lithothamnion glaciale* f. *botrytoides*. Further notes on *Lithothamnion delapsum* f. *conglutinata* are provided in the entry for *Lithothamnion delapsum* below and the entry for *Lithothamnion botrytoides* above.

congregatum

Basionym & protologue: *Lithothamnion congregatum* Foslie 1895, p. 142 (p. 114 in independently paginated offprint).

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here); includes slides 172-174.

Type locality and collection data: Skjørn, Trondheimsfjord, Norway; collected by M. F. Foslie, 20 July 1894.

TRH drawer: C-7; listed under *Lithothamnion nodulosum* in Adey & Lebednik (1967, p. 77).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 20, figs 1-6 (as *Lithothamnion*).

Comments: Foslie (1895) based *Lithothamnion congregatum* on a series of

specimens from a single locality. In TRH, these specimens are contained in 13 boxes which were grouped under a single entry by Adey & Lebednik (1967, p. 77). The six specimens depicted in the protologue were in two boxes; these have been placed in a larger box and collectively constitute the designated lectotype element of *Lithothamnion congregatum*. Foslie (1900i, p. 13; 1905c, p. 62) subsequently reduced *Lithothamnion congregatum* to *Lithothamnion nodulosum* f. *congregatum*, which accounts for placement of the specimens in the Foslie herbarium.

conjuncta

Basionym & protologue: *Mastophora conjuncta* Foslie 1907b, p. 30.

Effective publication date: between 30 September 1907 and 27 January 1908.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 14); includes slides 1557 and 1563.

Type locality and collection data: Cape Blanco, Cape Vert, West Africa; collector not indicated, 29 December 1895; comm. A. Weber van Bosse.

TRH drawer: A-1.

Previous references to typification: Adey & Lebednik 1967, p. 14 (as *Mastophora*); Adey 1970, p. 15 (as *Lithoporella*).

Published illustrations of lectotype: Printz 1929, pl. 73, fig. 8 (as *Mastophora*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 15).

connata

Basionym & protologue: *Lithophyllum consociatum* f. *connata* Foslie 1907b, p. 28.

Comments: *Lithophyllum consociatum* f. *connata* is a superfluous substitute name for *Lithophyllum consociatum* f. *consociatum*.

connata

Basionym & protologue: *Lithothamnion apiculatum* f. *connata* Foslie 1895, p. 82 (p. 54 in independently paginated offprint), pl. 15, figs 9-13.

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Drøbak, Oslofjorden, Norway, collected by H. H. Gran, 12 July 1893.

TRH drawer: B-20; listed under *Lithothamnion colliculosum* in Adey & Lebednik (1967, p. 71).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 15, figs 9-13 (as *Lithothamnion apiculatum* f. *connata*); Printz 1929, pl. 21, figs 11-15 (as *Lithothamnion colliculosum* f. *pusilla*).

Comments: Foslie (1895) based *Lithothamnion apiculatum* f. *connata* on specimens from Drøbak, Røberg and Storfosen in Norway, and he

provided photos of five individuals. Subsequently, Foslie (1905c, p. 39) reduced *Lithothamnion apiculatum* to *Lithothamnion fornicatum* f. *apiculata* but he explicitly excluded f. *connata* from this change without indicating its fate in this or any subsequent publication.

No collections have been found in TRH which are labelled *Lithothamnion apiculatum* f. *connata*, but three of the specimens depicted in the protologue (Foslie 1895, pl. 15, figs 9, 11, 12) have been found in drawer B-20 in a box labelled *Lithothamnion colliculosum* f. *typica*, and the specimen depicted in fig. 10 also has been found in drawer B-20 in a box labelled *Lithothamnion colliculosum* f. *pusilla*. The specimen shown in fig. 13 remains missing. The specimen depicted in fig. 10 (Foslie 1895, pl. 15) has been transferred back to the box containing the other three depicted specimens, and collectively they are designated here as the lectotype for *Lithothamnion apiculatum* f. *connata*. Three of these specimens were depicted in Printz (1929, pl. 21, figs 11, 12, 15) under the name *Lithothamnion colliculosum* f. *pusilla*. The photographs of the specimens as printed in Foslie 1895a are in mirror image to those printed in Printz 1929. The specimens in pl. 15, figs 9, 11, and 12 of Foslie 1895 correspond respectively with those in pl. 21, figs 12, 11 and 15 of Printz 1929.

Adey & Lebednik (1967, p. 71) group two Gran collections under one entry.

consociatum

Basionym & protologue: *Lithophyllum consociatum* Foslie 1905e, p. 15.

Effective publication date: between April 1905 and 24 August 1905.

Holotype: TRH, unnumbered; includes slide 917.

Type locality and collection data: Royal Sound, Kerguelen; collected by H. Gundersen, 1898.

TRH drawer: A-9.

Previous references to typification: Adey & Lebednik 1967, p. 24 (as *Lithophyllum*); Adey 1970, p. 12 (as *Pseudolithophyllum*); Mendoza & Cabioch 1986, p. 178 (as *Hydrolithon*); Ricker 1987, p. 178 (as *Pseudolithophyllum*).

Published illustrations of holotype: Foslie 1908a, fig. 12 (as *Lithophyllum consociatum* f. *connata*); Printz 1929, pl. figs 20, 21 (as *Lithophyllum consociatum* f. *connata*); Ricker 1987, figs 75d, 75f (as *Pseudolithophyllum consociatum*).

Comments: In the protologue, Foslie (1905e, p. 16) cited only material collected by Gundersen. There is only one Gundersen collection of *Lithophyllum consociatum* at TRH, which consequently must be treated as the holotype.

Subsequently, Foslie (1907b, p. 28) described *Lithophyllum consociatum* f. *connata* (see also Foslie 1908a, p. 211, pl. 20, fig 12) and regarded the Gundersen collection to belong to this form. As a consequence, f. *connata* must be considered a superfluous substitute name for the type

form of the species, namely *Lithophyllum consociatum* f. *consociatum*. Whether specimens Foslíe (1908a, p. 211) referred to f. *typica* represent a distinct taxon needs to be determined.

Ricker (1987, pp. 178, 180) provides three conflicting sets of information with respect to his figures of the type and it is unclear whether the type material is illustrated only in figs 75d & 75f (see notes in legend for fig. 75f) or in figs 75c-f (stated on p. 180) or figs 75a-g (implied at the start of the figure legend).

conspectum

Basionym & protologue: *Lithophyllum conspectum* Foslíe 1907b, p. 29.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, Hariot no. 52c; includes slide 671.

Type locality and collection data: Tierra del Fuego; no collector indicated, 1883; comm. P. Hariot.

TRH drawer: A-18.

Previous references to typification: Adey & Lebednik 1967, p. 39 (as *Lithophyllum*); Adey 1970, p. 7 (as *Tenarea*).

Published illustrations of holotype: Printz 1929, pl. 72, fig. 9 (as *Lithophyllum*).

Comments: Only a few small fragments of the holotype as depicted in Printz (1929) remain.

conspersa

Basionym & protologue: *Lithothamnion synanablastum* f. *conspersa* Foslíe 1900a, p. 11.

Comments: *Lithothamnion synanablastum* f. *conspersa* is a superfluous substitute name for *Lithothamnion synanablastum* f. *synanablastum*, the type form of *Lithothamnion synanablastum* Heydrich (1897a, p. 54).

contigua

Basionym & protologue: *Lithophyllum okamurai* f. *contigua* Foslíe 1904c, p. 7.

Comments: Foslíe (1904c) based *Lithophyllum okamurai* f. *contigua* on specimens from Cape Jaffa, South Australia sent by August Engelhart, but no collections labelled *Lithophyllum okamurai* f. *contigua* have been found in TRH, and none of the Engelhart collections from Cape Jaffa includes any information which would link it to this taxon. Consequently, *Lithophyllum okamurai* f. *contigua* has not been typified during this study, and its status remains uncertain. Additional information is provided by Woelkerling & Campbell (1992, p. 98).

corymbiformis

Basionym & protologue: *Lithothamnion fruticosum* f. *corymbiformis* Foslíe 1895, p. 46 (p. 18 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Tromsø, Norway, collected by M. F. Foslie, 15 August 1890.

TRH drawer: B-27; listed under *Lithothamnion ungeri* in Adey & Lebednik (1967, p. 73).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 6, fig. 3 (as *Lithothamnion fruticosum* f. *corymbiformis*); Printz 1929, pl. 29, fig. 1 (as *Lithothamnion ungeri*).

Comments: Foslie (1895) based *Lithothamnion fruticosum* f. *corymbiformis* on specimens from Tromsø, Norway but did not designate a type. Subsequently, Foslie (1905c, p. 45) changed *Lithothamnion fruticosum* f. *corymbiformis* to *Lithothamnion ungeri* f. *flexuosa* (also note the nom. nud. in Foslie 1898b, p. 5 and 1900i, p. 11). The specimen designated here as lectotype for *Lithothamnion fruticosum* f. *corymbiformis* has conceptacles and is depicted both in the protologue (Foslie 1895, pl. 6, fig. 3) and in Printz (1929, pl. 29, fig. 1).

corymbiformis

Nomen nudum: *Lithothamnion ungeri* f. *corymbiformis* Foslie 1898b, p. 5.

Comments: The name *Lithothamnion ungeri* f. *corymbiformis* Foslie appeared in three Foslie publications (1898b, p. 5; 1900i, p. 11; 1901d, pp. 25, 26) but without diagnosis or description.

coulmanicum

Basionym & protologue: *Lithothamnion coulmanicum* Foslie 1905e, p. 16.

Effective publication date: between April 1905 and 24 August 1905.

Holotype: TRH, unnumbered; includes slides 930 and 931.

Type locality and collection data: Cape Wadsworth, Coulman Island, Antarctica; collector not indicated, 17 January 1902.

TRH drawer: B-1.

Previous references to typification: Adey & Lebednik 1967, p. 51 (as *Lithothamnion*); Adey 1970, p. 30 (as *Leptophytum*).

Published illustrations of holotype: Printz 1929, pl. 2, figs 8, 9 (?) (as *Lithothamnion*).

Comments: The holotype element consists of plants on two pieces of rock, but these pieces of rock do not appear to match those depicted in Printz (1929). The nature of the reported type material in BM (Tittley *et al.* 1984, p. 10) has not been determined during the present study.

craspedium

Basionym & protologue: *Lithophyllum craspedium* Foslie 1900a, p. 26.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, British Museum no. A 27; includes slide 421.

Type locality and collection data: Onoataa, Gilbert Islands; collected by

Finckh, date unknown.

TRH drawer: A-27.

Previous references to typification: Adey & Lebednik 1967, p. 47 (as *Lithophyllum*); Adey 1970, p. 10 (as *Porolithon*); Tittley *et al.* 1984, p. 8 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 69, fig. 3 (as *Lithophyllum craspedium* f. *compressa*).

Comments: Foslie (1900a) based *Lithophyllum craspedium* on a single named collection, part of which is in TRH and part in BM. The BM portion of the holotype (see Tittley *et al.* 1984, p. 8) has not been examined during the present study.

Subsequently, Foslie (1900g, p. 8) explicitly cited the same specimen as the type of *Lithophyllum craspedium* f. *compressa*. As a consequence, *Lithophyllum craspedium* f. *compressa* is a superfluous substitute name for *Lithophyllum craspedium* f. *craspedium* because the type of *Lithophyllum craspedium* f. *compressa* is also the type of the species *Lithophyllum craspedium* (ICBN Art. 26.1).

crassa

Basionym & protologue: *Lithothamnion gibbosum* f. *crassa* Foslie 1907e, p. 100.

Effective publication date: ?

Holotype: TRH, unnumbered; includes slide 1289.

Type locality and collection data: Saya de Malha Bank, Indian Ocean; collected by *Stanley Gardiner*, August 1905.

TRH drawer: C-16; listed under *Lithothamnion gibbosum* in Adey & Lebednik (1967, p. 81).

Previous references to typification: ?

Published illustration of holotype: Printz 1929, pl. 12, fig. 18 (as *Lithothamnion gibbosum* f. *crassa*).

Comments: The holotype of *Lithothamnion gibbosum* f. *crassa* is grouped with a collection of f. *gibbosum* under a single entry in Adey & Lebednik (1967, p. 81) and in Adey (1970, p. 20) without reference to either form, and is incorrectly treated there as the type for *Lithothamnion gibbosum*.

crassa

Basionym & protologue: *Lithothamnion heterocladum* f. *crassa* Foslie 1905e, p. 17.

Comments: *Lithothamnion heterocladum* f. *crassa* is a superfluous name for *Lithothamnion heterocladum* f. *heterocladum*.

crassiramosum

Basionym & protologue: *Archaeolithothamnion crassiramosum* Pilger 1908, p. 39.

Effective publication date: ?

Syntype fragment: TRH, Voeltzkow no. 22; includes slide 1725.

Type locality and collection data: Juan de Nova Island, Malagasy Republic; collected by Voeltzkow (?), 1894.

TRH drawer: C-19.

Previous references to typification: ?

Published illustrations of type material: Pilger 1908, pl. 5, figs 1-3 (as *Archaeolithothamnion*).

Comments: Pilger (1908) based *Archaeolithothamnion crassiramosum* on material from Juan de Nova Island but did not designate a type or indicate how many specimens were involved, and apparently the species has not been lectotypified to date. The syntype fragment in TRH is 9 mm in greatest dimension.

crassiuscula

Basionym & protologue: *Lithothamnion fruticosum* f. *crassiuscula* Foslie 1901b, p.17.

Effective publication date: ?

Neotype: TRH, unnumbered (designated here).

Type locality and collection data: Brionic Is., Adriatic Sea; collected by Kuckuck, 11 June 1895.

TRH drawer: B-6; listed under *Lithothamnion fruticosum* in Adey & Lebednik (1967, p. 58).

Previous references to typification: ?

Published illustrations of neotype: Foslie 1904d, pl. 1, fig. 4 (as *Lithothamnion fruticosum* f. *crassiuscula*); Printz 1929, pl. 13, fig. 9 (as *Lithothamnion fruticosum* f. *crassiuscula*).

Comments: In the protologue for *Lithothamnion fruticosum* f. *crassiuscula*, Foslie (1901b, p. 17, footnote 2) refers to the examination of specimens from Hauck's herbarium. However, there are no Hauck collections labelled *Lithothamnion fruticosum* f. *crassiuscula* at TRH, but there are two other collections so labelled which Foslie would have had available when he produced his account (Foslie 1904d) of species in the Adriatic Sea. In the absence of Hauck material, and because of the detailed study of the Adriatic material, one of the specimens figured in that account and later by Printz (1929) has been chosen here to serve as neotype for *Lithothamnion fruticosum* f. *crassiuscula*.

crassiuscula

Basionym & protologue: *Lithothamnion rugosum* f. *crassiuscula* Foslie 1901a, p. 4.

Effective publication date: between 1 January and 18 March 1901.

Lectotype: TRH, Setchell, no. 1149 (designated by Mason 1953, p. 329); includes slide 205.

Type locality and collection data: White's Point, San Pedro, California; collected by W. A. Setchell, December 1895.

TRH drawer: B-15; listed under *Lithothamnion pacificum* in Adey & Lebednik (1967, p. 64).

Previous references to typification: Mason 1953, p. 329 (as *Lithothamnion crassiusculum*).

Published illustrations of lectotype: Printz 1929, pl. 4, fig. 13 (as *Lithothamnion pacificum* f. *crassiuscula*).

Comments: The basis for selection of the designated lectotype is given by Mason (1953, p. 329). Five years after describing *Lithothamnion rugosum* f. *crassiuscula*, Foslie (1906b, p. 10) removed f. *crassiuscula* from *Lithothamnion rugosum* and treated it as a distinct form of *Lithothamnion pacificum*.

crenulata

Basionym & protologue: *Lithothamnion magellanicum* f. *crenulata* Foslie 1905e, p. 17.

Effective publication date: between April 1905 and 24 August 1905.

Holotype: TRH, unnumbered; includes slides 953-955.

Type locality and collection data: Scotia Bay, South Orkney Islands; collector not indicated, 1903.

TRH drawer: B-1; listed under *Lithothamnion crenulatum* in Adey & Lebednik (1967, p. 49).

Previous references to typification: Adey & Lebednik 1967, p. 49 (as *Lithothamnion crenulatum*); Adey 1970, p. 23 (as *Mesophyllum crenulatum*).

Published illustrations of holotype: Printz 1929, pl. 2, fig. 11 (as *Lithothamnion crenulatum*).

Comments: The holotype element contains plants on two stones, one of which is depicted in Printz (1929). About 30% of the stone depicted in Printz is no longer present in TRH. According to Foslie's notations on the box, several species are present in the collection. Foslie (1907b, p. 5) subsequently raised *Lithothamnion magellanicum* f. *crenulata* to the rank of species, as *Lithothamnion crenulatum*.

crinita

Basionym & protologue: *Melobesia pustulata* f. *crinita* Möbius 1892, p. 1441.

Effective publication date: not determined during the present study.

Syntype: TRH, unnumbered; there are no associated slides.

Type locality and collection data: Malta; collector and date not indicated.

TRH drawer: A-17; listed under *Melobesia macrocarpum* in Adey & Lebednik (1967, p. 38; entry only includes reference to Malta).

Previous references to typification: ?

Published illustrations of TRH syntype: ?

Comments: Möbius (1892) based *Melobesia pustulata* f. *crinita* on specimens growing on *Cystoseira* from Malta but did not designate a type or indicate how many collections were involved. The TRH syntype consists of two pieces of host material 17 & 25 mm long with attached plants of *Melobesia pustulata* f. *crinita*.

crispescens

Basionym & protologue: *Lithothamnion simulans* f. *crispescens* Foslie 1904b, p. 16.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: L 991, 239-256 (Siboga Expedition collection 409) (designated by Verheij & Woelkerling 1992).

Lectotype fragment: TRH (Siboga Expedition collection 409); includes one slide.

Type locality and collection data: Between Nusa Besi and the northeast point of Timor, Indonesia; collected by A. Weber van Bosse, 15-17 January 1900 (Siboga Expedition station 282).

TRH drawer: B-18; listed under *Lithothamnion simulans* in Adey & Lebednik (1967, p. 70).

Previous references to typification: Adey & Lebednik 1967, p. 70 (as *Mesophyllum crispescens*); Adey 1970, p. 23 (as *Mesophyllum crispescens*); Womersley & Bailey 1970, p. 309 (as *Lithothamnion simulans* f. *crispescens*); Verheij & Woelkerling 1992, p. 278 (as *Lithothamnion simulans* f. *crispescens*).

Published illustrations of lectotype: Foslie 1904b, pl. 1, fig. 23 (as *Lithothamnion simulans* f. *crispescens*); Printz 1929, pl. 8, fig. 18 (without name). The figure legend in Printz (1929) is missing but the specimen matches that shown in Foslie (1904b).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 278). About 85% of the lectotype is in L, is broken into two pieces, and has small, intact, multiporate conceptacles. The remaining 15% of the lectotype specimen is in TRH and has one intact conceptacle and one additional conceptacle on a fragment in the box. The locality on the boxes in L and TRH and in Adey & Lebednik (1967, p. 70) is given as Oosthoek, Timor.

crouani

Basionym & protologue: *Lithophyllum crouani* Foslie 1899c, p. 17.

Effective publication date: 5 January 1899.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 16); includes slide 67.

Type locality and collection data: Berwick-upon-Tweed, England; collected by E. A. L. Batters, March 1896.

TRH drawer: A-2.

Previous references to typification: Adey & Lebednik 1967, p. 16 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*); Chamberlain *et al.* 1988, pp. 179, 188 (as *Lithophyllum*).

Published illustrations of lectotype: Chamberlain *et al.* 1988, p. 180, figs 2-6.

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 5); additional comments are provided by Chamberlain *et al.* (1988, pp. 179, 188).

curvirostra

Basionym & protologue: *Lithothamnion fruticosum* f. *curvirostra* Foslie 1895, p. 46 (p. 18 in independently paginated offprint).

Comments: Foslie (1895) based *Lithothamnion fruticosum* f. *curvirostra* on specimens from two localities in Norway but did not designate a type. Subsequently, Foslie (1898b, p. 5) transferred *Lithothamnion fruticosum* f. *curvirostra* to *Lithothamnion ungeri* f. *curvirostra* along with several other forms described in 1895 under *Lithothamnion fruticosum*, but he did not refer back to the protologue. There is no further mention of *Lithothamnion fruticosum* f. *curvirostra* in Foslie's publications, and no specimen labelled with that name could be found in TRH. Consequently, *Lithothamnion fruticosum* f. *curvirostra* has not been typified during this study and its status is uncertain.

curvirostra

Nomen nudum: *Lithothamnion ungeri* f. *curvirostra* Foslie 1898b, p. 5.

Comments: *Lithothamnion ungeri* f. *curvirostra* is mentioned only once in Foslie's publications; it is possible that the name relates to *Lithothamnion fruticosum* f. *curvirostra* Foslie (see above) but no unequivocal connection can be made.

cymodoceae

Basionym & protologue: *Melobesia cymodoceae* Foslie 1901a, p. 23.

Effective publication date: between 1 January and 18 March 1901.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 32).

Type locality and collection data: Port Phillip Bay, Victoria, Australia; collected by F. von Müller, 1862; ex herb. N. Wille.

TRH drawer: A-15.

Previous references to typification: Adey & Lebednik 1967, p. 32 (as *Melobesia*); Adey 1970, p. 16 (as *Heteroderma*); Penrose 1992a, p. 93 (as *Hydrolithon*).

Published illustrations of lectotype: Penrose 1992a, figs 1, 2 (as *Hydrolithon*).

Comments: The basis for selection of the lectotype is explained by Adey (1970, p. 16).

cystocarpidium

Basionym & protologue: *Lithothamnion cystocarpidium* Foslie 1906b, p. 7.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, Maltby no. 39; includes slides 1191 and 1192.

Type locality and collection data: Chatham Islands; collected by H. E. Maltby, November 1905.

TRH drawer: B-17.

Previous references to typification: Adey & Lebednik 1967, p. 68 (as *Lithothamnion*); Adey 1970, p. 23 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 10, figs 7-9 (as *Lithothamnion*).

Comments: The nature of the reported type material in BM (Tittley *et al.* 1984, p. 10) has not been determined during the present study.

daedaleum

Basionym & protologue: *Lithophyllum daedaleum* Foslie et Howe 1906b, p. (133).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 2676.

Isotype: TRH, Howe no. 2676; includes one slide also numbered 2676.

Type locality and collection data: Salinas Bay, near Guánica, Puerto Rico; collected by *M. A. Howe*, 29 June 1903.

TRH drawer: A-22.

Previous references to typification: Foslie & Howe 1906b, p. 133 (as *Lithophyllum*); Adey & Lebednik 1967, p. 133 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*).

Published illustrations of holotype: Foslie & Howe 1906b, pl. 83 (as *Lithophyllum*).

Published illustrations of isotype: Printz 1929, pl. 66, fig. 2 (as *Lithophyllum daedaleum* f. *typica*).

Comments: Foslie & Howe (1906b) based *Lithophyllum daedaleum* on four collections from Puerto Rico and designated Howe no. 2676 as the type, explicitly stating [1906b, p. (128)] that the main specimens are in NY and that duplicates were sent to Trondheim (TRH). The NY holotype has not been examined during the present study. Adey (1970, p. 5) incorrectly suggests that the holotype is in TRH.

decipiens

Basionym & protologue: *Lithothamnion decipiens* Foslie 1897c, p. 20.

Effective publication date: between 1 July and 31 December 1897.

Holotype: TRH, Setchell no. 1482; includes slide 61.

Type locality and collection data: San Pedro, California; collected by *W. A. Setchell*, 5 December 1896.

TRH drawer: A-2.

Previous references to typification: Mason 1953, p. 338 (as *Lithophyllum*); Dawson 1960, p. 37 (as *Lithophyllum*); Adey & Lebednik 1967, p. 16 (as *Lithophyllum*); Adey 1970, p. 11 (as *Hydrolithon*); Mendoza & Cabioch 1986, p. 183 (as *Hydrolithon*).

Published illustrations of holotype: ?

Comments: The holotype is one of four collections of this species in TRH identified by Foslie.

decumbens

Basionym & protologue: *Goniolithon tortuosum* f. *decumbens* Foslie 1898c, p. 14.

Effective publication date: ?

Holotype: TRH, Debray no. 95.

Type locality and collection data: Saint Eugène, near Algiers, Algeria; collected by *F. Debray*, February 1888.

TRH drawer: A-5; listed under *Lithophyllum tortuosum* in Adey & Lebednik (1967, p. 20).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 56, fig. 10 (as *Lithophyllum tortuosum* f. *decumbens*).

decumbens

Basionym & protologue: *Lithophyllum decussatum* f. *decumbens* Foslie 1900a, p. 33.

Effective publication date: between 1 January and 25 June 1900.

Holotype: BM (see Tittley *et al.* 1984, p. 8); TRH, British Museum 1899, no. 5; includes slide 335.

decumbens

Basionym & protologue: *Lithophyllum decussatum* f. *decumbens* Foslie 1900a, p. 33.

Effective publication date: between 1 January and 25 June 1900.

Holotype: BM (see Tittley *et al.* 1984, p. 8); TRH, British Museum 1899, no. 5; includes slide 335.

Type locality and collection data: Rousse Island, Corsica; collector not indicated, April 1895.

TRH drawer: A-24; listed under *Lithophyllum decussatum* in Adey & Lebednik (1967, p. 44).

Previous references to typification: Tittley *et al.* 1984, p. 8.

Published illustrations of holotype: Printz 1929, pl. 61, fig. 2 (as *Lithophyllum*).

Comments: The holotype specimen is broken into two parts (see Printz 1929, pl. 61, fig. 2); the right-hand portion is in TRH; the left-hand portion is in BM.

dehiscens

Basionym & protologue: *Lithothamnion dehiscens* f. *dehiscens* Foslie 1895, p. 72 (p. 44 in independently paginated offprint) (as f. *typica*).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slide 144 and two unnumbered slides.

Type locality and collection data: Skjørn, Trondheimsfjord, Norway, collector not indicated, 20 July 1894.

TRH drawer: B-22; listed under *Lithothamnion fornicatum* in Adey & Lebednik (1967, p. 72).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 12, fig. 2 (as *Litho-*

thamnion dehiscens f. *typica*).

Comments: Foslie based *Lithothamnion dehiscens* f. *dehiscens* on material from Norway but did not designate a type specimen. Subsequently, he (Foslie 1905c, p. 39) considered *Lithothamnion dehiscens* f. *dehiscens* (as f. *typica*) to be conspecific with *Lithothamnion fornicatum* f. *fornicatum* (as *Lithothamnion fornicatum* f. *obcrateriformis*), which accounts for the placement of specimens in the Foslie herbarium. Thirteen specimens make up the entire collection; the specimen designated here as lectotype of *Lithothamnion dehiscens* f. *dehiscens* is one of three depicted by Foslie in the protologue.

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 10) has not been determined during the present study.

delapsum

Basionym & protologue: *Lithothamnion delapsum* Foslie 1895, p. 78 (p. 50 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Mestervik, Malangen, Norway; collector not indicated, 15 June 1889.

TRH drawer: B-21; listed under *Lithothamnion fornicatum* in Adey & Lebednik (1967, p. 71).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 14, fig. 1 (as *Lithothamnion delapsum*).

Comments: Foslie (1895) concurrently described the species *Lithothamnion delapsum* and two forms (*Lithothamnion delapsum* f. *abbreviata* and *Lithothamnion delapsum* f. *conglutinata*) without designating any type specimens or indicating which he considered to be the typical form of the species. Subsequently, *Lithothamnion delapsum* f. *abbreviata* was subsumed under *Lithothamnion fornicatum* f. *robusta* (Foslie 1905c, p. 39) and *Lithothamnion delapsum* f. *conglutinata* was subsumed under *Lithothamnion glaciale* f. *botryoides* (Foslie 1905c, p. 26) but again without any indication as to which form was considered the typical form of *Lithothamnion delapsum*. In the protologue of *Lithothamnion delapsum*, Foslie (1895) gives slightly more emphasis to the form *abbreviata*, and on this basis *Lithothamnion delapsum* f. *abbreviata* is designated here as the lectotype form for *Lithothamnion delapsum*. In accordance with ICBN Art. 26.1, this form must be known as *Lithothamnion delapsum* f. *delapsum*, and *Lithothamnion delapsum* f. *abbreviata* is thus a superfluous name (ICBN Art. 63.1).

In the protologue of *Lithothamnion delapsum* f. *abbreviata*, Foslie (1895c, pl. 14, figs 1-3) depicted three specimens; the specimen shown in fig. 2 has not been found. The specimen shown in figure 1 has been designated here as lectotype for *Lithothamnion delapsum* f. *delapsum* as it has conceptacles and is the larger of the two specimens.

densa

Basionym & protologue: *Lithothamnion colliculosum* f. *densa* Foslie 1895, p. 103 (p. 75 in independently paginated offprint).

Comments: *Lithothamnion colliculosum* f. *densa* is a superfluous substitute name for *Lithothamnion colliculosum* f. *colliculosum*, the type form of *Lithothamnion colliculosum*.

depressa

Basionym & protologue: *Lithothamnion lichenoides* f. *depressa* Foslie 1900a, p. 12.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Roundstone Bay, Galway, Republic of Ireland.

TRH drawer: B-19; listed under *Lithothamnion lichenoides* in Adey & Lebednik (1967, p. 70).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 11, figs 5-7 (as *Lithothamnion lichenoides* f. *depressa*).

Comments: Foslie (1900a) based *Lithothamnion lichenoides* f. *depressa* on specimens from Ireland and from both coasts of France, but did not designate a type. The only collection in TRH labelled *Lithothamnion lichenoides* f. *depressa* is from Ireland and is designated here as the lectotype.

In the protologue, Foslie (1900a, p. 12) lists *Lithothamnion lichenoides* f. *rupicola* (Foslie 1897c, p. 4) as a synonym *ex parte*. There are no specimens in TRH labelled *Lithothamnion lichenoides* f. *rupicola*, it has not been typified, and it is not clear from Foslie's citations whether he included what he considered to be the type of *Lithothamnion lichenoides* f. *rupicola* in the *ex parte* listing of this name under *Lithothamnion lichenoides* f. *depressa*. In the present account, it is assumed that the *ex parte* listing excluded the type, thus allowing legitimate use of the form name *depressa*.

Adey & Lebednik (1967) have grouped two boxes under their entry; only the one containing specimens depicted by Printz (1929) is explicitly labelled with the form name.

detrusum

Basionym & protologue: *Lithophyllum detrusum* Foslie 1906b, p. 21.

Effective publication date: between 1 December 1906 and 30 March 1907.

Lectotype: TRH, Setchell no. 6350 (designated by Adey in Adey & Lebednik 1967, p. 16); includes slides 1169 and 1170.

Type locality and collection data: Bay of Islands, New Zealand; collected by W. A. Setchell, June 1904.

TRH drawer: A-2.

Previous references to typification: Adey & Lebednik 1967, p. 16 (as

Lithophyllum); Adey 1970, p. 12 (as *Pseudolithophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 53, fig. 18 (as *Lithophyllum*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 12).

devia

Orthographic variant: *Lithophyllum oncodes* f. *devia* Foslie 1909b, p. 38.

Comments: *Lithophyllum oncodes* f. *devia* is an orthographic variant for *Lithophyllum oncodes* f. *divia*.

dickiei

Basionym & protologue: *Lithothamnion dickiei* Foslie 1900a, p. 7.

Comments: *Lithothamnion dickiei* is a superfluous substitute name for *Lithothamnion imbricatum* Dickie; see Foslie (1906b, p. 12) and entry for *Lithothamnion imbricatum* below.

dilatata

Basionym & protologue: *Lithothamnion fasciculatum* f. *dilatata* Foslie 1897c, p. 8.

Effective publication date: between 1 July and 31 December 1897.

Holotype: TRH, Science & Art Museum, Dublin no. 71; includes slide 45.

Type locality and collection data: Schull, Republic of Ireland; collector not indicated, September 1895.

TRH drawer: A-24.

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: Foslie (1897c) based *Lithothamnion fasciculatum* f. *dilatata* on material from Ireland but did not designate a type. Subsequently, Foslie (1900a, p. 32) referred f. *dilatata* to *Lithophyllum dentatum*. In TRH, there is only one box labelled *Lithothamnion fasciculatum* f. *dilatata*; it was found in 'drawer' A-24 with collections of *Lithophyllum dentatum*. Thus it must be considered the holotype. This collection is not listed in Adey & Lebednik (1967, p. 45). Another box in 'drawer' A-24 labelled *Lithothamnion dentatum* f. *dilatata* and involving slide 225 contains material shown in Printz (1929, pl. 62, figs 10, 11). This material cannot be considered for purposes of typification, however, because an explicit note on the box indicates that the collection was not sent to Foslie from the Science and Arts Museum in Dublin until 1899, two years after publication of the protologue of *Lithothamnion fasciculatum* f. *dilatata*.

dimorphum

Basionym & protologue: *Lithothamnion dimorphum* Foslie 1895, p. 68 (p. 40 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slides 154, 157

and five unnumbered slides.

Type locality and collection data: Rottingsund, Frøyen, Trondheimsfjord, Norway; collected by *M. F. Foslie*, 10 July 1894.

TRH drawer: B-25; listed under *Lithothamnion fornicatum* in Adey & Lebednik (1967, p. 72).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 10, figs 1, 3, 5, 6 (as *Lithothamnion dimorphum*).

Comments: Foslie (1895) based *Lithothamnion dimorphum* on specimens from Frøyen but did not designate a type. Subsequently, Foslie (1905c, p. 38) reduced *Lithothamnion dimorphum* to *Lithothamnion fornicatum* f. *dimorpha*, which explains why the specimens are found with other collections of *Lithothamnion fornicatum* in TRH. There are two boxes of material from the type locality labelled *Lithothamnion fornicatum* f. *dimorpha*. The one designated here as lectotype element of *Lithothamnion dimorphum* includes four of the six specimens depicted in the protologue account as well as some additional specimens.

Adey & Lebednik (1967, p. 72) have grouped under one entry material which is contained in two boxes and includes slides additional to those they list. One box contains the specimens depicted in figs 2 and 4 on plate 10 of Foslie 1895, while the second box contains the specimens depicted in figs 1, 3, 5, and 6 on plate 10 of Foslie 1895 as well as some additional specimens not depicted by Foslie (1895).

dimotum

Basionym & protologue: *Archaeolithothamnion dimotum* Foslie et Howe 1906b, p. (128).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 2667.

Isotype: TRH, Howe no. 2667; includes three slides numbered 2667.

Type locality and collection data: Lemon Bay, near Guánica, Puerto Rico; collected by *M. A. Howe*, 27 June 1903.

TRH drawer: C-19.

Previous references to typification: Adey & Lebednik 1967, p. 84 (as *Archaeolithothamnion*); Adey 1970, p. 18 (as *Archaeolithothamnion*).

Published illustrations of holotype: Foslie & Howe 1906b, pl. 80, fig. 1, pl. 87 (as *Archaeolithothamnion*).

Published illustrations of isotype: Printz 1929, pl. 43, fig. 16 (as *Archaeolithothamnion*).

Comments: Foslie & Howe (1906b) based *Archaeolithothamnion dimotum* on a single collection and explicitly state [1906b, p. (128)] that the main specimens are in NY and that duplicates were sent to Trondheim (TRH). The NY holotype has not been examined during the present study. Adey (1970, p. 18) incorrectly suggests that the holotype is in TRH.

discoideum

Basionym & protologue: *Lithophyllum discoideum* Foslie 1900f, p. 73.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 24); includes slide 374.

Type locality and collection data: Mouth of Río Grande river, Tierra del Fuego; collected by *Dusén*, February 1896.

TRH drawer: A-9.

Previous references to typification: Adey & Lebednik 1967, p. 24 (as *Lithophyllum*); Adey 1970, p. 12 (as *Pseudolithophyllum*); Mendoza & Cabioch 1985, p. 148 (as *Hydrolithon*); 1986, p. 173 (as *Hydrolithon*).

Published illustrations of lectotype: Printz 1929, pl. 59, figs 1, 2 (as *Lithophyllum discoideum* f. *circumscripta*); Mendoza & Cabioch 1985, pl. 2, figs 2-6, as *Hydrolithon discoideum*.

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 24).

discrepans

Basionym & protologue: *Lithothamnion discrepans* Foslie 1907b, p. 8.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slides 346 and 1556.

Type locality and collection data: Grahamstown, South Africa; collected by *H. Becker*, May 1899.

TRH drawer: C-18.

Previous references to typification: Adey & Lebednik 1967, p. 83 (as *Lithothamnion*); Adey 1970, p. 23 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 5, fig. 3 (as *Lithothamnion*).

Comments: Adey (1970, p. 23) incorrectly refers to the holotype collection as the lectotype.

dispalatum

Basionym & protologue: *Goniolithon dispalatum* f. *dispalatum* Foslie et Howe in Foslie 1908f, p. 6 (as f. *typica*).

Effective publication date: between 23 December 1908 and 14 January 1909.

Holotype: TRH, Howe no. 5243; includes slide 1676.

Type locality and collection data: Samana Cay, Bahamas; collected by *M. A. Howe*, 3 December 1907.

TRH drawer: A-14.

Previous references to typification: Adey & Lebednik 1967, p. 31 (as *Goniolithon*); Adey 1970, p. 8 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 47, fig. 4 (as *Goniolithon dispalatum* f. *typica*).

Comments: In the protologue of *Goniolithon dispalatum*, Foslie (1908f)

described *f. typica* and *f. subsimplex* but did not designate types or indicate how many collections were involved. TRH contains two collections (Adey & Lebednik (1967, p. 31), one labelled as *f. typica* and the other as *f. subsimplex*. Adey (1970, p. 8) referred to the collection flagged in Adey & Lebednik (1967, p. 31) as the lectotype, but as only a single collection of *f. typica* is present, it must be considered the holotype of *Goniolithon dispalatum*. In accordance with ICBN Art. 26, *Goniolithon dispalatum f. typica* must be known as *Goniolithon dispalatum f. dispalatum*. About 25% of the holotype as depicted in Printz (1929) is no longer present.

dispar

Basionym & protologue: *Lithophyllum tumidulum f. dispar* Foslie 1907b, p. 29.

Effective publication date: between 30 September 1907 and 27 January 1908.

Lectotype: TRH, Algae of Puget Sound no. 658 (designated by Mason 1953, p. 344); includes slide 808.

Type locality and collection data: West coast of Whidbey Island, Washington; collected by *N. L. Gardner*, 28 July 1901.

TRH drawer: A-18; listed under *Lithophyllum dispar* in Adey & Lebednik (1967, p. 39).

Previous references to typification: Mason 1953, p. 344 (as *Dermatolithon*); Dawson 1960, p. 34 (as *Dermatolithon*); Adey 1970, p. 7 (as *Tenarea*).

Published illustrations of lectotype: Printz 1929, pl. 72, fig. 14 (as *Lithophyllum dispar*).

Comments: Foslie (1907b) based *Lithophyllum tumidulum f. dispar* on collections from California and Washington, USA but did not designate a type. The TRH lectotype contains plants attached to three pieces of host material, one of which is depicted in Printz (1929). Adey & Lebednik (1967, p. 39) did not flag the TRH collection as lectotype, but they did underline the name on the TRH box.

dissidens

Basionym & protologue: *Lithothamnion repandum f. dissidens* Foslie 1907a, p. 3.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slides 1374, 1375 and 1548.

Type locality and collection data: Cape Jaffa, South Australia; collected by *A. Engelhart*, 1899.

TRH drawer: C-18; listed under *Lithothamnion dissidens* in Adey & Lebednik (1967, p. 83).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 4, fig. 3 (as *Lithothamnion dissidens*).

Comments: Foslie (1907b, p. 6) raised *Lithothamnion repandum* f. *dissidens* to the rank of species, as *Lithothamnion dissidens*.

dissita

Basionym & protologue: *Archaeolithothamnion schmidtii* f. *dissita* Foslie 1903c, p. 464.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here); includes slide 767.

Type locality and collection data: S. Nilandu, Maldives Islands; collector not indicated, April 1900; comm. J. Stanley Gardiner.

TRH drawer: C-19; listed under *Archaeolithothamnion schmidtii* in Adey & Lebednik (1967, p. 85).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1903c, pl. 24, fig. 1 (as *Archaeolithothamnion schmidtii* f. *dissita*).

Comments: Foslie (1903c) based *Archaeolithothamnion schmidtii* f. *dissita* on two collections from the Maldives but did not designate a type. Each collection contains one individual; the larger of the two, which is also depicted in the protologue, is designated here as lectotype of *Archaeolithothamnion schmidtii* f. *dissita*.

distans

Basionym & protologue: *Lithothamnion norvegicum* f. *distans* Foslie 1891, p. 42 (p. 7 in independently paginated offprint).

Comments: Foslie (1891) based *Lithothamnion norvegicum* f. *distans* on specimens from Skorpen, Norway but did not designate a type. Subsequently, Foslie (1895, p. 96) established *Lithothamnion divergens* for some of the specimens he had originally referred to *Lithothamnion norvegicum* f. *distans*. The specimens upon which *Lithothamnion divergens* is based were found amongst collections of *Lithothamnion tophiforme*. However, no collections labelled *Lithothamnion norvegicum* f. *distans* have been found in TRH. Consequently, *Lithothamnion norvegicum* f. *distans* has not been typified during this study and its status is uncertain.

divaricata

Basionym & protologue: *Lithophyllum fasciculatum* f. *divaricata* Foslie 1900a, p. 30.

Effective publication date: ?

Holotype: TRH, unnumbered.

Type locality and collection data: Roundstone Bay, Republic of Ireland; collected by M. F. Foslie, 15 April 1899.

TRH drawer: A-23; listed under *Lithophyllum fasciculatum* in Adey & Lebednik (1967, p. 44).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 63, figs 7, 8 (as

Lithophyllum fasciculatum f. *divergens*).

Comments: Foslie (1900a) based *Lithophyllum fasciculatum* f. *divaricata* on specimens from the west coast of Ireland but did not designate a type. Subsequently, Foslie (1909b, p. 29) changed the name to *Lithophyllum fasciculatum* f. *divergens* (a superfluous substitute name; see ICBN Arts 61.1 & 63.1). In TRH the single collection of *Lithophyllum fasciculatum* f. *divaricata* (i.e. the holotype element) is labelled as *Lithophyllum fasciculatum* f. *divergens*; it consists of the two individuals figured by Printz (1929). The nature of the type material in BM (Tittley *et al.* 1984, p. 8) has not been determined during the present study.

divaricata

Basionym & protologue: *Lithothamnion soriferum* f. *divaricata* Foslie 1891, p. 41 (p. 6 in independently paginated offprint).

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Tromsø, Norway; collected by M. F. Foslie, 5 August 1882.

TRH drawer: C-11; listed under *Lithothamnion tophiiforme* in Adey & Lebednik (1967, p. 78).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1891, pl. 3, fig. 2, lower left specimen (as *Lithothamnion soriferum* f. *divaricata*); Printz, 1929, pl. 20, fig. 9 (as *Lithothamnion tophiiforme* f. *divergens*).

Comments: Foslie (1891) based *Lithothamnion soriferum* f. *divaricata* on specimens from northern Norway without designating a type. Subsequently, Foslie (1895, p. 147) associated *Lithothamnion soriferum* f. *divaricata* with two forms of *Lithothamnion tophiiforme*. No collections labelled *Lithothamnion soriferum* f. *divaricata* could be found in TRH, but the specimen matching the lower left specimen in pl. 3, fig. 2 of the protologue was discovered amongst collections of *Lithothamnion tophiiforme*, and the collection containing that specimen is designated here as lectotype element for *Lithothamnion soriferum* f. *divaricata*. Adey & Lebednik (1967, p. 78) have grouped this collection with several others under a single entry.

divergens

Basionym & protologue: *Lithophyllum fasciculatum* f. *divergens* Foslie 1909b, p. 28.

Comments: *Lithophyllum fasciculatum* f. *divergens* is a superfluous substitute name for *Lithophyllum fasciculatum* f. *divaricata*.

divergens

Basionym & protologue: *Lithothamnion divergens* Foslie 1895, p. 96 (p. 68 in independently paginated offprint).

Effective publication date: 5 December 1895.

Holotype: TRH, unnumbered; includes slides 92 and 93 and one unnumbered slide.

Type locality and collection data: Skorpen, Norway; collected by M. F. Foslie, 8 September 1890.

TRH drawer: C-11; listed under *Lithothamnion tophiiforme* in Adey & Lebednik (1967, p. 78).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1895, pl. 16, figs 43-50 (as *Lithothamnion divergens*); Printz 1929, pl. 20, figs 7, 8 (as *Lithothamnion tophiiforme* f. *divergens*).

Comments: Foslie (1895) based *Lithothamnion divergens* on a single collection. Subsequently, Foslie (1905c, p. 51) reduced *Lithothamnion divergens* to *Lithothamnion tophiiforme* f. *divergens* which accounts for the placement of this material in the Foslie herbarium.

Adey & Lebednik (1967, p. 78) include three boxes in their listing for this material, only two of which are labelled *Lithothamnion divergens*. These two have been united in a single, larger box and collectively serve as the holotype element.

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 11) has not been determined during the present study.

divia

Basionym & protologue: *Lithophyllum onkodes* f. *divia* Foslie 1907a, p. 29.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Farlow 1907, no. 17; includes slide 1499.

Type locality and collection data: Easter Island; collected by A. Agassiz, no date; comm. Farlow, 1907.

TRH drawer: A-26; listed under *Lithophyllum onkodes* in Adey & Lebednik (1967, p. 46).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 67, fig. 8 (as *Lithophyllum onkodes* f. *devia*).

Comments: The holotype consists of a single specimen that is in poor condition.

dura

Basionym & protologue: *Sporolithon ptychoides* f. *dura* Heydrich 1897a, p. 415.

Comments: *Sporolithon ptychoides* f. *dura* is a superfluous name for *Sporolithon ptychoides* f. *ptychoides*.

durum

Basionym & protologue: *Archaeolithothamnion durum* Foslie 1907a, p. 11.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 84); includes two slides, both numbered 355.

TRH drawer: C-19.

Previous references to typification: Adey & Lebednik 1967, p. 84 (as *Archaeolithothamnion*); Adey 1970, p. 18 (as *Archaeolithothamnion*).

Type locality and collection data: Cape Jaffa, South Australia; collected by A. Engelhart, 1899.

Published illustrations of lectotype: Printz 1929, pl. 43, figs 1-3 (as *Archaeolithothamnion*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 18).

durum

Basionym & protologue: *Lithothamnion durum* Kjellman 1889, p. 22.

Effective publication date: ?

Syntypes: TRH, unnumbered; includes slides 223 and 224.

Type locality and collection data: Port Clarence, Alaska; collected by Kjellman, 18 July 1879.

TRH drawer: C-21.

Previous references to typification: Lebednik 1977, p. 64 (as *Lithothamnion*).

Published illustrations of syntypes: Kjellman 1889, pl. 1, figs 3-5 (as *Lithothamnion durum*).

Comments: Kjellman (1889) based *Lithothamnion durum* on material from Port Clarence, Alaska but did not designate a type or indicate how many specimens were involved. TRH contains separate boxes with fragments of two syntype specimens (grouped under a single entry in Adey & Lebednik 1967, p. 87, where the collection date is incorrectly given as 1897); the largest rock fragment measures 19 mm in greatest dimension. The material associated with slide 223 is marked as type, but until the main portions of these specimens can be re-examined, it is uncertain whether that specimen has been formally designated as lectotype. Adey & Lebednik (1967, p. 87) listed the material but did not flag it as type, while Lebednik (1977, p. 64) refers to these collections as apparent holotype material.

eckloniae

Basionym & protologue: *Lithothamnion capense* f. *eckloniae* Foslie 1902b, p. 19.

Effective publication date: 27 May 1902.

Holotype: TRH, unnumbered; includes slides 701, 731 and 1555.

Type locality and collection data: Houtbaai, Cape of Good Hope, South Africa; collected by A. Weber van Bosse, 1893.

TRH drawer: B-1; listed under *Lithothamnion eckloniae* in Adey & Lebednik (1967, p. 51).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: Foslie (1902b, p. 3) raised *Lithothamnion capense* f. *eckloniae* to the rank of species, as *Lithothamnion eckloniae*.

ectocarpon

Basionym & protologue: *Lithothamnion ectocarpon* Foslie 1907b, p. 11.

Effective publication date: between 30 September 1907 and 27 January 1908.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 83); includes slides 869, 1557 (missing) and 1564.

Type locality and collection data: Cape Blanco, Africa; collected by A. Weber van Bosse, 29 December 1895.

TRH drawer: C-18.

Previous references to typification: Adey & Lebednik 1967, p. 83 (as *Lithothamnion*); Adey 1970, p. 23 (as *Mesophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 8, fig. 1 (as *Lithothamnion*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 23). About 50% of the lectotype as depicted in Printz (1929) is no longer present.

effusa

Basionym & protologue: *Lithothamnion solutum* f. *effusa* Foslie 1906b, p. 14.

Effective publication date: between 1 December 1906 and 30 March 1907.

Lectotype: TRH, Børgesen no. 2003 (designated here); includes slides 1241 and 1242.

Type locality and collection data: Off American Hill, St. John Island, US Virgin Islands; collected by F. Børgesen, March 1906.

TRH drawer: B-7; listed under *Lithothamnion occidentale* in Adey & Lebednik (1967, p. 59).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 13, fig. 18 (as *Lithothamnion occidentale* f. *effusa*). The lectotype collection consists of a number of unattached individuals, one of which is illustrated in Printz.

Comments: Foslie (1906b, p. 14) based *Lithothamnion solutum* f. *effusa* on specimens from Santo Domingo (Dominican Republic) and St. John Island (US Virgin Islands) but did not designate a type. In the protologue, the specimens from St. John Island were referred to f. *effusa* with question, but subsequently, Foslie (1908f, pp. 3, 4) transferred the form from *Lithothamnion solutum* to *L. occidentale* and ascribed the St. John Island material to f. *effusa* without question. All material of f. *effusa* is filed under *L. occidentale* in the Foslie herbarium.

TRH contains four collections labelled *Lithothamnion occidentale* f. *effusa*: one from Santo Domingo and three (Børgesen nos. 1917, 2003, and 2972) from St. John Island. The Santo Domingo material is scant and appears sterile. Of the three St. John Island collections, Børgesen number 2003 has been designated here as lectotype element because it contains the greatest number of individuals (all of which are unattached and many of which are fertile). One specimen in the lectotype element is depicted

in Printz (1929).

Børgesen 2003 (and Børgesen 2072) were listed in Adey & Lebednik (1967, p. 59) and Adey (1970, p. 21) as co-types of *Lithothamnion occidentale* (Foslie) Foslie (Basionym: *Lithothamnion fruticosum* f. *occidentale*), but neither can be used to lectotypify this taxon as explained in the entry for *occidentale*.

elatocarpum

Basionym & protologue: *Goniolithon elatocarpum* Foslie 1900a, p. 23.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, British Museum no. 17a; includes slides 344 and 847.

Type locality and collection data: Cape of Good Hope, South Africa; collected by W. Tyson, 20 April 1895.

TRH drawer: A-14.

Previous references to typification: Adey & Lebednik 1967, p. 31 (as *Goniolithon*); Adey 1970, p. 19 (as *Lithothamnion*); Tittley *et al.* 1984, p. 7 (as *Goniolithon*).

Published illustrations of holotype: Printz 1929, pl. 47, fig. 1 (as *Goniolithon*).

Comments: The TRH portion of the holotype constitutes less than 10% of the specimen depicted in Printz (1929). BM contains a specimen numbered 17b (Tittley *et al.* 1984, p. 7) which may constitute the remainder of the holotype, but this has not been verified during the present study.

elegans

Basionym & protologue: *Lithothamnion elegans* Foslie 1896, p. 6.

Effective publication date: between 1 February and 30 June 1896.

Holotype: TRH, Harriot no. 2.

Type locality and collection data: Gulf of California, Mexico; no collector or date given; comm. Harriot, no. 2.

TRH drawer: A-23 (Adey & Lebednik 1967, p. 44).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1896, fig. 9 (as *Lithothamnion*); Printz 1929, pl. 63, fig. 1 (as *Lithophyllum*).

Comments: Foslie (1896) concurrently established *Lithothamnion elegans* with two forms: f. *angulata* and f. *complanata*, and he indicated that f. *angulata* constituted the typical form. The single specimen of f. *angulata* thus constitutes the holotype of *Lithothamnion elegans*, and in accordance with ICBN Art. 26.1 the name *Lithothamnion elegans* f. *angulata* is a superfluous substitute for *Lithothamnion elegans* f. *elegans*. The box containing the holotype of *Lithothamnion elegans* f. *elegans* also contains the holotype of *Lithothamnion elegans* f. *complanata*.

The coast of California is given as the locality in the protologue, but the Gulf of California is written on the box containing the type material.

elimbata

Basionym & protologue: *Lithothamnion funafutiense* f. *elimbata* Foslie 1907b, p. 18.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slide 504.

Type locality and collection data: Hawaiian Islands; collector and date not indicated; comm. Farlow 1900.

TRH drawer: C-16; listed under *Lithothamnion funafutiense* in Adey & Lebednik (1967, p. 81).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 12, fig. 4 (as *Lithothamnion*).

engelhartii

Basionym & protologue: *Lithothamnion engelhartii* Foslie 1900a, p. 18.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik, 1967, p. 69); includes slide 350.

Type locality and collection data: Cape Jaffa, South Australia; collector and date not indicated; comm. A. Engelhart, 1900.

TRH drawer: B-18.

Previous references to typification: Adey & Lebednik 1967, p. 69 (as *Lithothamnion*); Adey 1970, p. 23 (as *Mesophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 7, fig. 14 (as *Lithothamnion engelhartii* f. *typica*).

Comments: Foslie (1900a) concurrently described *Lithothamnion engelhartii* and the forms *Lithothamnion engelhartii* f. *imbricata* and *Lithothamnion engelhartii* f. *umbonata* without designating any types or stating which was the typical form of the species. As noted by Adey (1970, p. 23), however, Foslie indicated on one specimen box (of six which house the original Engelhart material) that f. *imbricata* was the typical form, and thus *Lithothamnion engelhartii* f. *imbricata* must be called *Lithothamnion engelhartii* f. *engelhartii* in accordance with ICBN Art. 26.1. The lectotype is in the box on which Foslie equated f. *imbricata* with the typical form of the species.

epiphytica

Basionym & protologue: *Lithothamnion lichenoides* f. *epiphytica* Foslie 1897c, p. 4.

Effective publication date: between 1 July and 31 December 1897.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Anglesey, England; collected by R. W. Phillips, March 1895.

TRH drawer: B-19; listed under *Lithothamnion lichenoides* in Adey & Lebednik (1967, p. 70).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1897c) gave the name *Lithothamnion lichenoides* f. *epiphytica* to plants of *Lithothamnion lichenoides* that grew epiphytically, but he did not mention localities or specimens. There are no collections in TRH labelled *Lithothamnion lichenoides* f. *epiphytica*, but there are two pre-1897 collections labelled *Lithothamnion lichenoides* that are epiphytic, and the one containing the greater number of individuals is designated here as lectotype of *Lithothamnion lichenoides* f. *epiphytica*. The neotype element of *Lithothamnion lichenoides* is also epiphytic (Woelkerling & Irvine 1986b, as *Mesophyllum*), and it is likely that *Lithothamnion lichenoides* f. *epiphytica* is conspecific with *Lithothamnion lichenoides* f. *lichenoides*.

Foslie (1900a, p. 12) needlessly changed *Lithothamnion lichenoides* f. *epiphytica* to *Lithothamnion lichenoides* f. *pusilla*; thus in accordance with ICBN Arts 11.3 & 63.1, the latter is a superfluous substitute name for the former.

erosum

Basionym & protologue: *Lithophyllum erosum* Foslie 1906b, p. 20.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, unnumbered; includes slides 1205 and 1206.

Type locality and collection data: Magenbay, St. Thomas Island, US Virgin Islands; collected by F. Børgesen, 1905–1906.

TRH drawer: A-2.

Previous references to typification: Adey & Lebednik 1967, p. 16 (as *Lithophyllum*); Adey 1970, p. 8 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 53, fig. 9 (as *Lithophyllum*).

Comments: The holotype is one of two collections of this species in TRH identified by Foslie.

erubescens

Basionym & protologue: *Lithothamnion erubescens* Foslie 1900a, p. 9.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, unnumbered.

Isotype: BM.

Type locality and collection data: Chaloup Bay, Fernando do Noronha, Brasil; collected by Ridley, Lea, & Ramage, 1887.

TRH drawer: C-15.

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion*); Adey 1970, p. 23 (as *Mesophyllum*).

Published illustrations of holotype: Foslie 1904b, pl. 3, fig. 20 (as *Lithothamnion*).

Comments: Foslie (1900a) based *Lithothamnion erubescens* on specimens in a single collection earlier identified by Dickie (1874, p. 363) as *Litho-*

thamnion mamillare. Consequently, the TRH specimens collectively constitute the holotype element. Subsequently, Foslie (1901c, p. 4) referred to the type form as *Lithothamnion erubescens* f. *americana*, but in accordance with ICBN Art. 26.1, *Lithothamnion erubescens* f. *americana* is superfluous for *Lithothamnion erubescens* f. *erubescens*. Isotype material from the same collection is in BM (see Tittley *et al.* 1984, p. 11).

erythraeum

Basionym & protologue: *Lithothamnion erythraeum* Rothpletz 1893, p. 5.
Effective publication date: ?

Lectotype: TRH, unnumbered (designated by Foslie 1904b, pl. 5, legend to fig. 1); includes slide 730.

Type locality and collection data: El Tor, Suez, Red Sea; collector and date not explicitly indicated.

TRH drawer: C-19; listed under *Archaeolithothamnion erythraeum* in Adey & Lebednik (1967, p. 85).

Previous references to typification: Foslie 1904b, p. 39 (as *Archaeolithothamnion*); Papenfuss 1968, p. 83 (as *Sporolithon*); Woelkerling & Townsend in Woelkerling 1988, p. 204 (as *Sporolithon*).

Published illustrations of lectotype: Foslie 1904b, pl. 5, fig. 1 [as *Archaeolithothamnion erythraeum* f. *dura*; this is probably an error with respect to use of the form name (compare with text comments on p. 39)]; Woelkerling & Townsend in Woelkerling 1988, figs 240, 244 (as *Sporolithon*).

Comments: Rothpletz (1893) based *Lithothamnion erythraeum* on specimens from the Red Sea but did not designate a type. Subsequently, Foslie (1904b, p. 39, pl. 5, fig. 1) depicted a plant obtained from Rothpletz which he referred to as part of the type specimen, thus suggesting that the species was based originally on a single specimen. This, however, cannot be verified, as (according to Adey *et al.* 1982, p. 48) the Rothpletz collections possibly have been destroyed. Consequently, Woelkerling & Townsend in Woelkerling (1988, p. 204) have chosen to refer to the TRH material as lectotype rather than holotype.

eunana

Basionym & protologue: *Lithophyllum calcareum* f. *eunana* Foslie 1899c, p. 15.

Effective publication date: 5 January 1899.

Holotype: TRH, unnumbered; includes slides 235 and 236.

Type locality and collection data: Larne Harbour, County Antrim, Republic of Ireland; collected by H. Hanna, 18 July 1898.

TRH drawer: C-1; listed under *Lithothamnion calcareum* in Adey & Lebednik (1967, p. 74).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: The holotype element comprises about 30-40 individuals, all unattached.

evanescens

Basionym & protologue: *Lithothamnion evanescens* Foslie 1895c, p. 165 (p. 137 in independently paginated offprint).

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here); includes slides 221 and 968, and three unnumbered slides.

Type locality and collection data: Marbelhead, Massachusetts, USA; collected by F. S. Collins, April 1889.

TRH drawer: C-21.

Previous references to typification: Lebednik 1977, p. 64.

Published illustrations of lectotype: Foslie 1895, pl. 22, fig. 6 (as *Lithothamnion*); Printz 1929, pl. 41, fig. 13 (as *Clathromorphum*).

Comments: Foslie (1895) based *Lithothamnion evanescens* on collections from Malangen, Norway and Marbelhead, Massachusetts, USA but did not designate a type. Lebednik (1977, p. 64) refers to these as syntypes. The Marbelhead collection has been designated here as lectotype because it is in better condition and has numerous conceptacles. Adey & Lebednik (1967, p. 87) listed the material but did not flag it as type.

evanida

Basionym & protologue: *Phymatolithon loculosum* f. *evanida* Foslie 1905c, p. 93.

Effective publication date: between 25 August 1905 and 30 April 1906.

Lectotype: TRH, unnumbered (designated here); includes slide 871.

Type locality and collection data: Shimushu, Kurile Islands.

TRH drawer: C-21; listed under *Clathromorphum loculosum* in Adey & Lebednik (1967, p. 87).

Previous references to typification: Lebednik (1977, p. 71).

Published illustrations of lectotype: ?

Comments: Foslie (1905c) based *Phymatolithon loculosum* f. *evanida* on material from Shimushu and Rubetsu in the Kurile Islands and Pribilof Island in the Bering Sea, but did not designate a type. The two Kurile Island collections are labelled *Clathromorphum loculosum* f. *evanida*, although Foslie did not transfer the form to *Clathromorphum* in publication. The collection designated here as the lectotype of *Phymatolithon loculosum* f. *evanida* possesses numerous intact conceptacles, whereas the other collection, which is depicted in Printz (1929, pl. 41, fig. 16) has two individuals, one of which appears to be sterile and the other has only broken conceptacles. Lebednik (1977, p. 71) incorrectly refers to the latter collection as the holotype.

exasperatum

Basionym & protologue: *Lithothamnion exasperatum* Foslie 1907a, p. 9.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Farlow no. 9; includes slides 1485 and 1486.

Type locality and collection data: Punta Arenas, Chile; collected by R. Thaxter, 1905-1906.

TRH drawer: C-15.

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 14, fig. 14 (as *Lithothamnion*).

Comments: The holotype specimen is badly fragmented.

exigua

Basionym & protologue: *Lithothamnion expansum* f. *exigua* Foslie 1897c, p. 3.

Effective publication date: between 1 July and 31 December 1897.

Holotype: TRH, Debray no. 5.

Type locality and collection data: Baie de Side Ferruch, Algeria; collected by F. Debray, 10 May 1888.

TRH drawer: A-25; listed under *Lithophyllum expansum* in Adey & Lebednik (1967, p. 45).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 60, fig. 10 (as *Lithophyllum expansum* f. *involvens*).

Comments: Adey & Lebednik (1967, p. 45) have group a number of other Debray specimens with the holotype which come from a different locality. Foslie (1909b, p. 21) ultimately treated *Lithothamnion expansum* f. *exigua* as a synonym of *Lithophyllum expansum* f. *involvens* Vinassa, and the latter name was used by Printz (1929, p. 34, pl. 60, figs 7-11).

explanatum

Basionym & protologue: *Lithophyllum explanatum* Foslie 1906b, p. 25.

Effective publication date: between 1 December 1906 and 30 March 1907.

Lectotype: TRH, Setchell no. 6104a (designated by Adey in Adey & Lebednik 1967, p. 36).

Type locality and collection data: Bay of Islands, New Zealand; collected by W. A. Setchell, June 1904.

TRH drawer: A-16; listed under *Melobesia explanata* in Adey & Lebednik (1967, p. 36).

Previous references to typification: Adey & Lebednik 1967, p. 36 (as *Melobesia*); Adey 1970, p. 16 (as *Heteroderma*).

Published illustrations of lectotype: ?

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 16).

faeroensis

Basionym & protologue: *Dermatolithon macrocarpum* f. *faeroensis* Foslie 1900b, p. 15.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, Jønsson no. 284 (designated by Chamberlain 1991, pp. 26, 33); includes slide 552 and six additional slides labelled Jønsson 284.

Type locality and collection data: Bordøvig, Faeroes Islands; collected by H. Jønsson, 15–18 November 1897, comm. F. Børgesen.

TRH drawer: A-17; listed under *Melobesia* (*Dermatolithon*) *macrocarpum* in Adey & Lebednik (1967, p. 38).

Previous references to typification: Chamberlain 1991, pp. 26, 33 (as *Dermatolithon macrocarpum* f. *faeroensis*).

Published illustrations of lectotype: Chamberlain 1991, p. 33, fig. 81 (as *Lithophyllum pustulatum* f. *faeroense*).

Comments: Foslie (1900b) based *Dermatolithon macrocarpum* f. *faeroensis* on specimens from the Faeroes Islands sent to him by Børgesen, but he did not designate a type. TRH apparently contains no specimens explicitly identified as f. *faeroensis*; however, seven Faeroes Islands collections (see Adey & Lebednik 1967, p. 38) sent by Børgesen, with *Dermatolithon macrocarpum* or *Lithophyllum pustulatum* f. *macrocarpum* written on the packets or boxes are present, and these are undoubtedly the material Foslie alluded to in the protologue. Chamberlain (1991, pp. 26, 33) selected one of these to serve as lectotype. One portion of the lectotype element is dated 15 November while another is dated 18 November. Both, however bear the same Jønsson collection number, namely 284.

falklandica

Basionym & protologue: *Lithophyllum marlothii* f. *falklandica* Foslie 1905e, p. 17.

Effective publication date: between April 1905 and 24 August 1905.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik (1967, p. 17); includes slide 946.

Type locality and collection data: Port Louis, Falkland Islands; collected by C. Skottsberg, 21 July 1902.

TRH drawer: A-3; listed under *Lithophyllum falklandicum* in Adey & Lebednik (1967, p. 17).

Previous references to typification: Adey & Lebednik 1967, p. 17 (as *Lithophyllum falklandicum*); Adey 1970, p. 12 (as *Pseudolithophyllum falklandicum*); Mendoza & Cabioch 1986, p. 175 (as *Hydrolithon falklandicum*).

Published illustrations of lectotype: Printz 1929, pl. 54, figs 15, 16 (as *Lithophyllum falklandicum*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 12).

farlowii

Basionym & protologue: *Lithophyllum farlowii* Foslie 1901a, p. 12.

Effective publication date: between 1 January and 18 March 1901. Setchell & Mason (1943, p. 95) list the date of publication as 18 February 1901 without supporting evidence.

Homotypic synonyms:

Lectotype: TRH, unnumbered (designated by Mason 1953, p. 431); includes slide 479.

Isotype: UC 341301.

Type locality and collection data: Monterey, California, USA; collector not indicated on TRH collection, May 1885.

TRH drawer: A-3; listed as *Lithophyllum neofarlowii* under *Lithophyllum farlowii* in Adey & Lebednik (1967, p. 17).

Previous references to typification: Mason 1953, p. 341 (as *Lithophyllum neofarlowii*); Dawson 1960, p. 45 (as *Lithophyllum neofarlowii*); Adey & Lebednik 1967, p. 17 (as *Lithophyllum neofarlowii*); Adey 1970, p. 13 (as *Pseudolithophyllum neofarlowii*).

Published illustrations of lectotype: Printz 1929, pl. 54, figs 5, 6 (as *Lithophyllum farlowii*).

Comments: Foslie (1901a) based *Lithophyllum farlowii* on four collections from western North America but did not designate a type. According to Mason (1953, p. 341), W. G. Farlow collected the material. Because *Lithophyllum farlowii* Foslie is a later homonym of *Lithophyllum farlowii* Heydrich (see following entry), Setchell & Mason (1943, p. 95) changed the name of the Foslie species to *Lithophyllum neofarlowii* nom. nov. Subsequently, Mason (1953, p. 341) lectotypified *Lithophyllum neofarlowii* with a Californian collection in TRH, without explaining the basis for her selection. The TRH lectotype consists of three specimens.

farlowii

Basionym & protologue: *Lithophyllum farlowii* Heydrich 1901b, p. 532.

Effective publication date: 11 January 1901 (date printed on title page of journal; manuscript was submitted in June 1900).

Holotype: PC, no. 15 (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Holotype fragment: TRH, no. 15 (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529); includes slide 663.

Type locality and collection data: Charles Island, Galapagos Islands; collector not indicated, June 1892.

TRH drawer: A-24; listed under *Lithophyllum claudescens* in Adey & Lebednik (1967, p. 44).

Previous references to typification: ?

Published illustrations of holotype: Heydrich 1901b, pl. 1, fig. 6 (as *Lithophyllum farlowii*).

Comments: Heydrich (1901b) based *Lithophyllum farlowii* on a single collection; TRH contains several holotype fragments, the largest

measuring 25 mm in greatest dimension. Foslie (1901d, p. 22) first considered *Lithophyllum farlowii* Heydrich to be a heterotypic synonym of *L. decussatum* (Ellis & Solander) Philippi but later (Foslie 1909b, p. 26) treated it as a heterotypic synonym of *L. claudescens* Heydrich. The PC portion of the holotype has not been examined during the present study.

fastigiata

Basionym & protologue: *Goniolithon strictum* f. *fastigiata* Foslie 1907a, p. 16.

Comments: *Goniolithon strictum* f. *fastigiata* is a superfluous substitute name for *Goniolithon strictum* f. *strictum*.

fastigiata

Basionym & protologue: *Lithophyllum hyperellum* f. *fastigiata* Foslie 1900a, p. 27.

Comments: *Lithophyllum hyperellum* f. *fastigiata* is a superfluous substitute name for *Lithophyllum hyperellum* f. *hyperellum*.

fastigiata

Basionym & protologue: *Lithothamnion fruticosum* f. *fastigiata* Foslie 1895, p. 46 (p. 18 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slides 158 and 159 and four unnumbered slides.

Type locality and collection data: Bejan, Beiskjæret, Norway; collected by M. F. Foslie, 6 July 1894.

TRH drawer: B-25; listed under *Lithothamnion fornicatum* in Adey & Lebednik (1967, p. 72).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 5, figs 5, 7 (as *Lithothamnion fruticosum* f. *fastigiata*).

Comments: Foslie (1895) based *Lithothamnion fruticosum* f. *fastigiata* on material from Bejan in Norway but did not designate a type. Subsequently, Foslie (1905c, p. 38) considered *Lithothamnion fruticosum* f. *fastigiata* to be conspecific with *Lithothamnion fornicatum* f. *dimorpha*, which explains the placement of specimens in Foslie's herbarium.

The specimens depicted in the protologue (Foslie 1895, pl. 5, figs 1-7) involve two collections from neighboring localities gathered on successive days. The collection designated here as lectotype element for *Lithothamnion fruticosum* f. *fastigiata* contains the specimens shown in figures 5 and 7 of the protologue and seven other specimens.

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 11) has not been determined during the present study.

ferox

Basionym & protologue: *Lithothamnion ferox* Foslie 1907b, p. 7.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slide 706.

Type locality and collection data: Natal, South Africa; collected by A. Weber van Bosse, no date indicated.

TRH drawer: B-15; listed under *Lithothamnion ferox* in Adey & Lebednik (1967, p. 64).

Previous references to typification: Adey & Lebednik 1967, p. 64 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 4, fig. 9 (as *Lithothamnion*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

fetum

Basionym & protologue: *Lithophyllum fetum* Foslie 1907a, p. 24.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Farlow no. 12; includes slides 1491 and 1492 (1492 is missing).

Type locality and collection data: Puerto de Corral, Chile; collected by R. Thaxter, 1905-1906; comm. W. Farlow.

TRH drawer: A-3.

Previous references to typification: Adey & Lebednik 1967, p. 18 (as *Lithophyllum*); Adey 1970, p. 13 (as *Pseudolithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 54, figs 7, 8 (as *Lithophyllum*).

Comments: The holotype element consists of three small fragments which can no longer be matched to the two pieces depicted in Printz (1929).

finitima

Basionym & protologue: *Goniolithon setchellii* f. *finitima* Foslie 1907a, p. 15.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 28); includes slides 960 and 961 (missing).

Type locality and collection data: Ocean Beach, Phillip Island, Victoria, Australia; collected by J. Gabriel, 1905.

TRH drawer: A-12; listed under *Goniolithon finitimum* in Adey & Lebednik (1967, p. 28).

Previous references to typification: Adey & Lebednik 1967, p. 28 (as *Goniolithon finitimum*); Adey 1970, p. 8 (as *Neogoniolithon finitimum*).

Published illustrations of lectotype: Printz 1929, pl. 47, figs 19-21 (as *Goniolithon finitimum*).

Comments: The basis for selection of the designated lectotype is explained

by Adey (1970, p. 8). It is difficult to match the material comprising the lectotype element with the specimens depicted in Printz (1929).

flabellatum

Basionym & protologue: *Lithothamnion flabellatum* Rosenvinge 1893, p. 772.

Effective publication date: ?

Syntype fragments: TRH, Rosenvinge no. 331; includes one unnumbered slide.

Type locality and collection data: Prøven, Greenland; collected by L. K. Rosenvinge, 21 July 1886.

TRH drawer: B-9; listed under *Lithothamnion glaciale* in Adey & Lebednik (1967, p. 60).

Previous references to typification: ?

Published illustrations of type material: Rosenvinge 1893, text figs 1, 2; 1894, text figs 1, 2 (as *Lithothamnion*).

Comments: Rosenvinge (1893) based *Lithothamnion flabellatum* on material from Prøven, Greenland but did not designate a type or indicate how many specimens were involved. Apparently the species has not been lectotypified. The syntype material in TRH is annotated by Rosenvinge and includes four fragments and one unnumbered slide. Syntype material presumed to be in C has not been examined during the present study. Foslie (1895, p. 70) subsequently coined the superfluous substitute name *Lithothamnion flabellatum* f. *rosenvingii* for *Lithothamnion flabellatum* f. *flabellatum*. Later, Foslie (1908d, p. 14) associated *Lithothamnion flabellatum* with *L. glaciale*, which explains placement of the specimens in Foslie's herbarium.

flabelliformis

Basionym & protologue: *Goniolithon frutescens* f. *flabelliformis* Foslie 1900g, p. 9.

Effective publication date: between 26 June and 31 December 1900.

Lectotype: BM, algal box collection no. 316 (designated here).

Lectotype fragment: TRH, British Museum no. A-46; includes slide 424.

Type locality and collection data: Fualopa, Funafuti Atoll, Tuvalu, collector and date not indicated.

TRH drawer: A-12; listed under *Goniolithon frutescens* in Adey & Lebednik (1967, p. 29).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 48, fig. 5 (as *Goniolithon frutescens* f. *flabelliformis*).

Comments: Foslie (1900g) described both the species and the form in the same account and cited five specimens but did not designate types for either the species or the form. Adey in Adey & Lebednik (1967, p. 29) lectotypified *Goniolithon frutescens* with specimen A12. Specimen A46 is designated here as lectotype of *Goniolithon frutescens* f. *flabelliformis*.

because the box is labelled as f. *flabelliformis* and because the intact specimen is figured in Printz (1929). Only fragments of the lectotype remain at TRH; the main portion of the collection is at BM (see Tittley *et al.* 1984, p. 7).

flabelliformis

Basionym & protologue: *Lithophyllum moluccense* f. *flabelliformis* Foslie 1901d, p. 24.

Effective publication date: between 27 July and 31 December 1901.

Syntype fragment: TRH, unnumbered; includes slide 652.

Type locality and collection data: Tami Island, New Guinea; collected by Bamler, date not indicated.

TRH drawer: A-4; listed under *Lithophyllum moluccense* in Adey & Lebednik (1967, p. 19).

Previous references to typification: ?

Published illustrations of type material: Heydrich 1897b, pl. 1, figs 5-7 (as *Lithothamnion tamiense* f. *typica*).

Comments: Foslie (1901d) based *Lithophyllum moluccense* f. *flabelliformis* on *Lithothamnion tamiense* f. *typica* Heydrich, and thus the type of *Lithophyllum moluccense* f. *flabelliformis* is also the type of *Lithothamnion tamiense* f. *typica* Heydrich (1897b, p. 1, pl. 1, figs 5-7). Additional information on the type of the Heydrich taxon is provided in the entry for *Lithothamnion tamiense* below.

The only specimen in TRH labelled *Lithophyllum moluccense* f. *flabelliformis* was collected from the Seychelles Islands in 1905 by Stanley Gardiner and is figured in Printz (1929, pl. 55, fig. 19). The other specimen of this taxon figured by Printz is in L.

flabelligera

Basionym & protologue: *Lithophyllum polyclonum* f. *flabelligera* Foslie 1905e, p. 18.

Effective publication date: between April 1905 and 24 August 1905.

Holotype: TRH, unnumbered; includes slides 958 and 959.

Type locality and collection data: West Indies; collected by H. Krebs, 1873; ex Botanical Museum and Herbarium, Copenhagen, 1905.

TRH drawer: A-19; listed under *Lithophyllum polyclonum* in Adey & Lebednik (1967, p. 41).

Previous references to typification: ?

Published illustrations of holotype: Printz, 1929, pl. 72, fig. 21 (as *Lithophyllum polyclonum* f. *typica*).

Comments: Printz (1929, p. 37 and pl. 72, figs 20, 21) has mislabelled figs 20 and 21; fig. 20 pertains to the holotype of *Lithophyllum polyclonum* f. *polyclonum* while fig. 21 pertains to the holotype of *Lithophyllum polyclonum* f. *flabelligera*. A portion of the specimen in fig. 21 is no longer present.

flabelligera

Basionym & protologue: *Lithothamnion coralloides* f. *flabelligera* Foslie 1895, p. 90 (p. 62 in independently paginated offprint), pl. 16, figs 32–37.

Comments: Foslie (1895) based *Lithothamnion coralloides* f. *flabelligera* on specimens from Morlaix, France sent by Bornet. Two collections with the name *Lithothamnion coralloides* f. *flabelligera* have been found amongst TRH collections listed under *Lithothamnion calcareum* (Adey & Lebednik 1967, pp. 74, 75), but neither is from the correct locality, and the specimens depicted in the protologue have not been located. Consequently, *Lithothamnion coralloides* f. *flabelligera* has not been typified during this study, and its status remains uncertain.

flavescens

Basionym & protologue: *Lithothamnion flavescens* Kjellman 1883b, p. 98. Effective publication date: ?

Syntype: TRH, unnumbered; includes slide 184.

Type locality and collection data: see below.

TRH drawer: B-3 (Adey & Lebednik 1967, p. 53).

Previous references to typification: ?

Published illustrations of syntypes: Kjellman 1883, pl. 6, figs 1–7 (as *Lithothamnion*); 1883b, pl. 6, figs 1–7 (as *Lithothamnion*).

Published illustrations of TRH syntype: Printz 1929, pl. 3, fig. 11 (as *Lithothamnion*).

Comments: Kjellman 1883a based *Lithothamnion flavescens* on specimens from various Arctic localities but did not designate a type, and apparently the species has not been lectotypified. The TRH syntype depicted in Printz (1929) was collected by Kjellman from Karlsøy, Norway on 18 June 1875. Fragments of a second Kjellman specimen collected in Spitzbergen in 1872–1873 also occur in TRH, but Kjellman does not list Spitzbergen as a locality in the protologue and thus this material cannot be considered as syntype.

flexuosa

Basionym & protologue: *Lithothamnion fruticosum* f. *flexuosa* Foslie 1895, p. 46 (p. 18 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Tromsø, Norway, collected by M. F. Foslie, 15 Aug 1890.

TRH drawer: B-27; listed under *Lithothamnion ungeri* in Adey & Lebednik (1967, p. 73).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 7, fig. 3 (as *Lithothamnion fruticosum* f. *flexuosa*); Printz 1929, pl. 27, fig. 3 (as *Lithothamnion ungeri* f. *typica*).

Comments: Foslie (1895) based *Lithothamnion fruticosum* f. *flexuosa* on specimens from several localities in Norway but did not designate a type. Subsequently, Foslie (1905c, p. 44) changed *Lithothamnion fruticosum* f. *flexuosa* to *Lithothamnion ungeri* f. *flexuosa* (also note the *nom. nud.* in Foslie 1900i, p. 11), and this is the name under which relevant specimens are filed in the Foslie herbarium. The specimen designated here as lectotype for *Lithothamnion fruticosum* f. *flexuosa* is depicted both in the protologue (Foslie 1895, pl. 7, fig. 3) and in Printz (1929, pl. 27, fig. 3).

flexuosa

Nomen nudum: *Lithothamnion ungeri* f. *flexuosa* Foslie 1900i, p. 11.

Comments: *Lithothamnion ungeri* f. *flexuosa* was first validly published by Foslie (1905c, p. 44) as a new combination for *Lithothamnion fruticosum* f. *flexuosa*.

floridanum

Basionym & protologue: *Lithothamnion floridanum* Foslie 1906b, p. 11.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, Farlow no. XXV; includes slides 3 and 499.

Type locality and collection data: Florida, USA; collected by Wordemann, date not indicated.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 81 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 12, figs 11, 12 (as *Lithothamnion*).

Comments: Foslie apparently obtained the specimen depicted in Printz 1929, pl. 12, fig. 11 directly from Farlow and the specimen depicted in Printz 1929, pl. 12, fig. 12 indirectly from Farlow via Bornet. It is obvious from the notations with the specimens, however, that they form part of a single collection and thus can collectively serve as holotype element for *Lithothamnion floridanum*.

foliacea

Basionym & protologue: *Lithothamnion expansum* f. *foliacea* Foslie 1897c, p. 3.

Comments: In the protologue for *Lithothamnion expansum* f. *foliacea*, Foslie (1897c, p. 4) explicitly indicates that he is providing a new name for the taxon which Hauck (1883, pl. 4, fig. 2) called *Lithophyllum expansum* β *agariciforme*. There is no Hauck material labelled *Lithophyllum expansum* in TRH, and it is not known whether Hauck specimens labelled *Lithophyllum expansum* β *agariciforme* occur at L. There is, however, one specimen in TRH identified as *L. expansum* f. *foliacea* (drawer A-25, Rodriquez, Menorca (Balears), June 1889, ex. herb.

Bornet), and if suitable Hauck material cannot be found, this specimen could be designated the neotype of *Lithothamnion expansum* f. *foliacea*.

fosliei

Basionym & protologue: *Lithothamnion fosliei* Heydrich 1897c, p. 58.

Effective publication date: ?

Lectotype: TRH, Heydrich no. 59 (designated by Woelkerling 1985, p. 148); includes slides 21 and 35.

Type locality and collection data: El Tor, Gulf of Suez, Egypt.

TRH drawer: A-14; listed under *Goniolithon fosliei* in Adey & Lebednik (1967, p. 31).

Previous references to typification: Adey *et al.* 1982, p. 25 (as *Neogoniolithon*); Woelkerling 1985, p. 148 (as *Neogoniolithon*); Woelkerling 1988, p. 140 (as *Neogoniolithon*); Penrose 1992b, p. 339 (as *Neogoniolithon*).

Published illustrations of lectotype: Foslie 1904b, pl. 9, fig. 1 (as *Goniolithon*), Printz (1929, pl. 46, fig. 1, as *Goniolithon*); Woelkerling 1985, figs 49-51 (as *Neogoniolithon*); Woelkerling 1988, fig. 135 (as *Neogoniolithon*); Penrose 1992b, figs 1-5 (as *Neogoniolithon*).

Comments: The basis for selection of the designated lectotype is explained by Woelkerling (1985, p. 148). Adey *et al.* (1982, p. 25) incorrectly refer to the lectotype as the holotype.

fornicatum

Basionym & protologue: *Lithothamnion fornicatum* Foslie 1891, p. 38 (p. 3 in independently paginated offprint).

Effective publication date: ?

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 71); includes slides 150 and 151.

Type locality and collection data: Mestervik, Malangen, Norway; collector not indicated, 20 September 1890.

TRH drawer: B-21.

Previous references to typification: Adey & Lebednik 1967, p. 71 (as *Lithothamnion*); Adey 1970, p. 20 (as *Lithothamnion*).

Published illustrations of lectotype: Foslie 1891, pl. 2, fig. 2 (as *Lithothamnion*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 20).

fragilis

Basionym & protologue: *Lithothamnion neglectum* f. *fragilis* Foslie 1905e, p. 16.

Effective publication date: between April 1905 and 24 August 1905.

Holotype: TRH, unnumbered.

Type locality and collection data: Royal Sound, Kerguelen; collected by H. Gundersen, 1898.

TRH drawer: B-18; listed under *Lithothamnion neglectum* in Adey &

Lebednik (1967, p. 70).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1908a, pl. 20, fig. 6 (as *Lithothamnion neglectum* f. *fragilis*); Printz 1929, pl. 9, fig. 3 (as *Lithothamnion neglectum* f. *fragilis*).

Comments: The holotype element consists of two shells with attached coralline material.

fragilissimum

Basionym & protologue: *Lithothamnion fragilissimum* Foslie 1904b, p. 13.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: L 943, 7-21 (Siboga Expedition collection 971-b-I) (designated by Verheij & Woelkerling 1992).

Isolectotypes: L 943, 7-21 [Siboga Expedition collections 971-b-II, 971-c (includes one slide), 408-a-I (includes one slide), 408-a-II, 408-b, 408-c].

Isolectotype fragments: TRH [Siboga Expedition collections 408-a, 408-b (slide only), 971-b-II & 971-c (one box with a mixture of fragments from the two collections and two slides labelled 971-b and 971-c)].

Type locality and collection data: Pulu Sebangkatan (Island), Borneo Bank, Indonesia; collected by A. Weber van Bosse, 14 June 1899 (Siboga Expedition station 81).

TRH drawer: B-18.

Previous references to typification: Adey & Lebednik 1967, p. 69 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*); Verheij & Woelkerling 1992, p. 278 (as *Lithothamnion*).

Published illustrations of lectotype: Foslie 1904b, pl. 1, figs 14-16 (as *Lithothamnion*); Printz 1929, pl. 8, figs 9-11 (as *Lithothamnion*).

Published illustrations of isolectotypes: Foslie 1904b, pl. 1 figs 11, 12 (collection 408-a-I), fig. 13 (collection 408-b) (as *Lithothamnion*); Printz 1929 pl. 8, figs 6, 7 (collection 408-a-I), fig. 8 (collection 408-b) (as *Lithothamnion*).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 278). The lectotype element is represented in L but not TRH. Fragments of three of the six isolectotypes and a slide of a fourth are in TRH.

fretense

Basionym & protologue: *Lithothamnion fretense* Foslie 1907a, p. 8.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Yendo no. 113; includes slide 404.

Type locality and collection data: Kaifuura, Etschigo Prov., Japan; collected by K. Yendo, 1899.

TRH drawer: C-15.

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion*); Adey 1970, p. 20 (as *Lithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 14, fig. 17 (as *Litho-*

thamnion).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

fretum

Nomen nudum: *Lithophyllum fretum* Foslie 1907a, p. 25.

Comments: The name *Lithophyllum fretum* was mentioned twice by Foslie (1907a, pp. 25, 26) but without diagnosis or description; it almost certainly is an orthographic variant of *Lithophyllum fetum* Foslie 1907a, p. 24.

frutescens

Basionym & protologue: *Goniolithon frutescens* f. *frutescens* Foslie 1900g, p. 9 (as f. *typica*).

Effective publication date: between 26 June and 31 December 1900.

Lectotype: TRH, British Museum no. A12 (designated by Adey in Adey & Lebednik 1967, p. 29); includes slides 430 & 431, and 43 unnumbered slides.

Type locality and collection data: Funafuti, Tuvalu; collector and date not indicated.

TRH drawer: A-12.

Previous references to typification: Adey & Lebednik 1967, p. 29 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*).

Published illustrations of lectotype: Printz 1929, pl. 48, fig. 2 (as *Goniolithon frutescens* f. *typica*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 9). In accordance with ICBN Art. 26.1, *Goniolithon frutescens* f. *typica* must be called *Goniolithon frutescens* f. *frutescens*.

fruticulosus

Basionym & protologue: *Spongites fruticulosus* Kützinger 1841, p. 33.

Effective publication date: ?

Holotype: L 943, 8-134.

Holotype fragment: TRH, unnumbered; includes slide 612.

Type locality and collection data: Mediterranean Sea; collector and date not indicated.

TRH drawer: B-6; listed under *Lithothamnion fruticulosum* in Adey & Lebednik (1967, p. 58).

Previous references to typification: Woelkerling 1985, p. 136 (as *Spongites*); Woelkerling 1988, p. 153 (as *Spongites*); Penrose 1991, p. 442 (as *Spongites*).

Published illustrations of holotype: Woelkerling 1985, figs 23-32 (as *Spongites*); Penrose 1991, figs 1-3 (as *Spongites*).

Comments: The Foslie herbarium contains two small holotype fragments, both with uniporate conceptacles. Accounts of the holotype collection are provided by Woelkerling (1985) and Penrose (1991).

fuegiana

Basionym & protologue: *Lithothamnion kerguelenum* f. *fuegiana* Foslie 1905e, p. 17.

Effective publication date: between April 1905 and 24 August 1905.

Lectotype: TRH, unnumbered; includes slide 846.

TRH drawer: B-17; listed under *Lithothamnion fuegianum* in Adey & Lebednik (1967, p. 68).

Previous references to typification: Adey & Lebednik 1967, p. 68 (as *Lithothamnion fuegianum*); Adey 1970, p. 24 (as *Mesophyllum fuegianum*).

Type locality and collection data: Port Louis, Berkeley Sound, Falkland Islands; collected by C. Skottsberg, 28 July 1902.

Published illustrations of lectotype: Foslie 1907c, pl. 1, fig. 4 (as *Lithothamnion kerguelenum* f. *fuegiana*); Printz 1929, pl. 6, figs 12-14 (as *Lithothamnion fuegianum*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 24). Specimens in the lectotype element have become rather fragmented. In 1906, Foslie (1906b, p. 9) raised *Lithothamnion kerguelenum* f. *fuegiana* to the rank of species, as *Lithothamnion fuegianum*.

fumigatum

Basionym & protologue: *Lithothamnion fumigatum* Foslie 1901a, p. 7.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, unnumbered; includes slide 359.

Type locality and collection data: Half-moon Bay, Port Phillip Bay, Victoria, Australia; collected by J. Gabriel, 1899.

TRH drawer: B-15.

Previous references to typification: Adey & Lebednik 1967, p. 64 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 4, fig. 2 (as *Lithothamnion*).

Comments: Of the four TRH collections labelled *Lithothamnion fumigatum* (see Adey & Lebednik 1967, p. 64), three pre-date the protologue, but only one comes from Half-moon Bay, the single locality cited by Foslie (1901a, p. 7) in the protologue. This collection must therefore be regarded as the holotype and not the lectotype as suggested by Adey (1970, p. 24). The specimen as depicted in Printz (1929) is now in fragments.

funafutiensis

Basionym & protologue: *Lithothamnion philippii* f. *funafutiensis* Foslie 1899b, p. 3.

Effective publication date: between 2 April and 31 December 1899.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 81); includes slides 315, 316, and 1547.

Type locality and collection data: Tutange, Funafuti, Tuvalu; no collector or date indicated; comm. J. Judd.

TRH drawer: C-16; listed under *Lithothamnion funafutiense* in Adey & Lebednik (1967, p. 81).

Previous references to typification: Adey & Lebednik 1967, p. 81 (as *Lithothamnion*); Adey 1970, p. 20 (as *Lithothamnion*).

Published illustrations of lectotype: Printz 1929, pl. 12, fig. 3 (as *Lithothamnion funafutiense* f. *typica*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 20). In 1901, Foslie (1901b, p. 17) raised *Lithothamnion philippii* f. *funafutiensis* to the rank of species, as *Lithothamnion funafutiense*.

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 12) has not been determined during the present study.

funduense

Basionym & protologue: *Lithophyllum funduense* Pilger 1908, p. 42.

Effective publication date: ?

Syntype fragments: TRH, unnumbered; includes slide 1726.

Type locality and collection data: Fundu Island (Pemba, British East Africa); collected by Voeltzkow, April 1903.

TRH drawer: A-27 (Adey & Lebednik 1967, p. 47).

Previous references to typification: ?

Published illustrations of TRH syntype: Printz 1929, pl. 67, figs 1, 2 (as *Lithophyllum funduense*).

Comments: Pilger (1908, p. 42, pl. 5 figs 4-7) based *Lithophyllum funduense* on material from Fundu Island but did not designate a type or indicate how many specimens were involved. Subsequently, Printz (1929, pl. 67, figs 1, 2) depicted two specimens and referred to them as types, but the whereabouts of these specimens is uncertain. According to Stafleu & Cowan (1985, p. 265), these specimens may have been destroyed in the bombing of the Berlin herbarium during World War II. TRH contains two syntype fragments and one slide which Adey & Lebednik (1967, p. 87) list the material but do not flag as type.

gabrielii

Basionym & protologue: *Lithothamnion gabrielii* Foslie 1905d, p. 3.

Effective publication date: between 25 August 1905 and 30 April 1906.

Holotype: TRH, unnumbered; includes slides 1003 and 1004.

Type locality and collection data: Ocean Beach, Phillip Island, Victoria, Australia; collected by J. Gabriel, April 1905.

TRH drawer: B-15.

Previous references to typification: Adey & Lebednik 1967, p. 64 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 5, figs 1, 2 (as *Lithothamnion*).

Comments: The holotype element contains plants on three stones, two of which are depicted in Printz (1929). About 50% of the stone depicted in Printz 1929, pl. 5, fig. 1 is no longer present.

galapagense

Basionym & protologue: *Goniolithon frutescens* f. *galapagense* Foslie 1907a, p. 18.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slide 896.

Type locality and collection data: Duncan Island, Galapagos Islands, collector not indicated, 1902?, ex herbarium A. Weber van Bosse.

TRH drawer: A-12; listed under *Goniolithon frutescens* in Adey & Lebednik (1967, p. 29).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 48, fig. 14 (as *Goniolithon frutescens* f. *galapagense*).

Comments: The holotype element consists of several specimens and fragments, one of which is figured in Printz (1929).

galapagense

Basionym & protologue: *Lithothamnion galapagense* Foslie 1907a, p. 9.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slide 1363 and one unnumbered slide.

Type locality and collection data: Wenman Island, Galapagos Islands; collected by *Snodgrass & Heller*, December 1888; comm. Farlow.

TRH drawer: B-1.

Previous references to typification: Adey & Lebednik 1967, p. 49 (as *Lithothamnion galapagense*); Adey 1970, p. 30 (as *Melobesia galapagense*). The changes in spelling of the specific epithets are treated here as orthographic variants.

Published illustrations of holotype: ?

Comments: Adey (1970, p. 30) has noted that the TRH holotype material is missing and that the slides are essentially useless. Adey (1970, p. 30) also suggested that photos which are in TRH could be used to typify the species, but these are unsuitable because they do not contain diagnostic information. It is not known whether a portion of this collection exists in the Farlow Herbarium at Harvard University.

gardineri

Basionym & protologue: *Lithophyllum gardineri* Foslie 1907a, p. 30.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 48); includes slides 1297-1299 (slides 1298 and 1299 are missing).

Type locality and collection data: Coevity Island, Indian Ocean; collected

by Stanley Gardiner, September 1905.

TRH drawer: A-28.

Previous references to typification: Adey & Lebednik 1967, p. 48 (as *Lithophyllum*); Adey 1970, p. 10 (as *Porolithon*); Adey *et al.* 1982, p. 10 (as *Porolithon*).

Published illustrations of lectotype: Foslie 1907e, pl. 15, fig. 4 (as *Lithophyllum*); Foslie 1907f, pl. 19, fig. 4 (as *Lithophyllum*); Printz 1929, pl. 70, fig. 8 (as *Lithophyllum gardineri* f. *typica*).

Comments: In the protologue, Foslie (1907a) provided descriptions for three entities [*Lithophyllum gardineri* f. *gardineri* (as f. *typica*), *Lithophyllum gardineri* f. *obpyramidata*, and *Lithophyllum gardineri* f. *subhemisphaerica*] but did not designate types or indicate which of the cited localities each of the entities was found. Subsequently, Foslie (1907e, 1907f) provided information on the localities at which each of the entities was found, and he also provided photographic figures of some of the specimens, but he still did not designate types. Most of these figures again appear in Printz (1929, pls 70, 71).

There is some conflict between the collection flagged in Adey & Lebednik (1967, p. 48) as type for the species and statements made subsequently by Adey (1970, p. 10). The flagged entry in Adey & Lebednik (1967, p. 48) groups together two collections which pertain to different taxa and, as noted by Adey (1970), lacks certain information. Using the Adey & Lebednik (1967) format, the correct entries should have been:

1. Gardiner, Indian Ocean, Coevity, 9.1905, LM70(8), Lith. Sealark Exp. 2(4).----- 1297-1299
2. Gardiner, Indian Ocean, Coevity, 9.1905, LM70(11), Lith. Sealark Exp. 2(7).----- 1296

(Slide 1296 is missing.)

The box containing the first collection is labelled *Lithophyllum gardineri* and the name has been underlined. It is this collection which is taken here as the lectotype of *Lithophyllum gardineri* f. *gardineri* (i.e. the type form of the species). Adey (1970, p. 11) suggested that some of the original collections were marked f. *typica*, but none of the material in TRH is marked in that fashion.

The box containing the second collection is clearly labelled *Lithophyllum gardineri* f. *obpyramidata*, and this collection has been designated the lectotype for that entity.

genuina

Basionym & protologue: *Goniolithon notarisii* f. *genuina* Foslie 1900a, p. 21.

Comments: *Goniolithon notarisii* f. *genuina* is a superfluous substitute name for *Goniolithon notarisii* f. *notarisii*, the type form of *Goniolithon notarisii* (Dufour) Foslie (see ICBN Arts 24.3, 26.1 and 63.1).

genuina

Basionym & protologue: *Lithophyllum expansum* f. *genuina* Foslie 1904d, p. 25.

Comments: *Lithophyllum expansum* f. *genuina* is a superfluous substitute name for *Lithophyllum expansum* f. *expansum*, the type form of *Lithophyllum expansum* Philippi (see ICBN Arts 24.3, 26.1 and 63.1). Foslie (1898b, p. 10; 1900i, p. 18) previously had used the name twice in the form of a nomen nudum.

genuina

Basionym & protologue: *Lithothamnion brasiliense* f. *genuina* Foslie 1900a, p. 4.

Comments: *Lithothamnion brasiliense* f. *genuina* is a superfluous name for *Lithothamnion brasiliense* f. *brasiliense*.

genuina

Basionym & protologue: *Lithothamnion expansum* f. *genuina* Foslie 1897c, p. 3.

Comments: *Lithothamnion expansum* f. *genuina* is a superfluous substitute name for *Lithothamnion expansum* f. *expansum*, the type form of *Lithothamnion expansum* (Philippi) Foslie (see ICBN Arts 24.3, 26.1 and 63.1).

genuina

Basionym & protologue: *Lithothamnion falsellum* f. *genuina* Foslie 1900a, p. 10.

Comments: *Lithothamnion falsellum* f. *genuina* is a superfluous substitute name for *Lithothamnion falsellum* f. *genuina*, the type form of *Lithothamnion falsellum* Heydrich (see ICBN Arts 24.3, 26.1 and 63.1).

genuina

Basionym & protologue: *Lithothamnion funafutiense* f. *genuina* Foslie 1901b, p. 19.

Comments: *Lithothamnion funafutiense* f. *genuina* is a superfluous substitute name for *Lithothamnion funafutiense* f. *funafutiense*, the type form of *Lithothamnion funafutiense* Foslie (see ICBN Arts 24.3, 26.1 and 63.1).

genuina

Nomen nudum: *Lithothamnion investiens* f. *genuina* Foslie 1900i, p. 11.

Comments: *Lithothamnion investiens* f. *genuina* is used without a diagnosis or description but almost certainly is a superfluous substitute name for *Lithothamnion investiens* f. *investiens*, the type form of *Lithothamnion investiens* Foslie.

genuina

Nomen nudum: *Lithothamnion kerguelena* f. *genuina* Foslie 1898b, p. 7.

Comments: *Lithothamnion kerguelena* f. *genuina* is used without a diagnosis or description but almost certainly is a superfluous substitute name for *Lithothamnion kerguelena* f. *kerguelena*, the type form of *Lithothamnion kerguelena* Dickie.

genuina

Nomen nudum: *Lithothamnion nodulosum* f. *genuina* Foslie 1900i, p. 13.

Comments: *Lithothamnion nodulosum* f. *genuina* is used without a diagnosis or description but almost certainly is a superfluous substitute name for *Lithothamnion nodulosum* f. *nodulosum*, the type form of *Lithothamnion nodulosum* Foslie.

genuina

Nomen nudum: *Lithothamnion norvegicum* f. *genuina* Foslie 1898b, p. 6 (also see Foslie 1900i, p. 13).

Comments: Foslie used *Lithothamnion norvegicum* f. *genuina* twice in publication (1898b, 1900i) and probably was referring to the type form of the species, which must be known as *Lithothamnion norvegicum* f. *norvegicum* in accordance with ICBN Art. 26.1.

genuina

Basionym & protologue: *Lithothamnion rugosum* f. *genuina* Foslie 1901a, p. 4.

Comments: *Lithothamnion rugosum* f. *genuina* is a superfluous substitute name for *Lithothamnion rugosum* f. *rugosum*, the type form of *Lithothamnion rugosum* Foslie (see ICBN Arts 24.3, 26.1 and 63.1).

gibbosum

Basionym & protologue: *Lithothamnion gibbosum* Foslie 1907a, p. 7.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slide 1291.

Type locality and collection data: Saya de Malha Bank, Indian Ocean; collected by Stanley Gardiner, August 1905.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 81 (as *Lithothamnion*); Adey 1970, p. 20 (as *Lithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 12, figs 14-17 (as *Lithothamnion gibbosum* f. *parvula*).

Comments: Foslie (1907a, p. 7) described *Lithothamnion gibbosum* without reference to forms and without designating a type. Subsequently, Foslie (1907e, p. 100; 1907f, p. 184) divided the species into f. *parvulum*, which he felt represented the type-form of the species, and f. *crassum*, represented by a single individual. In accordance with ICBN Arts 26.2 and 57.3, Foslie (1907e, 1907f) should have used the autonym *gibbosum*.

for *f. parvulum* since he regarded it to represent the type-form of the species. Thus *Lithothamnion gibbosum f. parvulum* is a superfluous substitute name for *L. gibbosum f. gibbosum* (ICBN Art 63.1).

Collections of both forms are grouped under a single entry for the species in Adey & Lebednik (1967, p. 81), and Adey (1970, p. 20) listed them as co-types of the species. Only the type of *f. gibbosum* can serve as the type of *Lithothamnion gibbosum*, however. The holotype element of *Lithothamnion gibbosum*, which was labelled *Lithothamnion gibbosum f. parvulum* by Foslie in his herbarium, contains 15 individuals, four of which are illustrated in Printz.

gibbsii

Basionym & protologue: *Melobesia gibbsii* Foslie 1907b, p. 26.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes one unnumbered slide.

Type locality and collection data: Gulf of California, Mexico; collected by *W. C. Bryant*, date not indicated.

TRH drawer: A-15.

Previous references to typification: Dawson 1960, p. 55 (as *Heteroderma*); Adey & Lebednik 1967, p. 34 (as *Melobesia*); Adey 1970, p. 16 (as *Heteroderma*).

Published illustrations of holotype: ?

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

glaciale

Basionym & protologue: *Lithothamnion glaciale* Kjellman 1883b, p. 93.

Effective publication date: ?

Syntypes: 1. TRH, unnumbered [leg. *Kjellman*, Spitzbergen 1872-1873 (drawer B-9), specimen depicted in Printz (1929)];

2. TRH, unnumbered [leg. *Kjellman*, Mosselbay, Spitzbergen, 29 October 1872 (drawer B-9)]; includes slide 379;

3. TRH, unnumbered [leg. *Kjellman*, Karlsøy, Norway, 1875 (drawer B-11)].

Type locality and collection data: see below.

TRH drawers: B-9 and B-11.

Previous references to typification: ?

Published illustrations of syntype material: Kjellman 1883b, pl. 2, figs 1-2, pl. 3, figs 1-14 (as *Lithothamnion*); 1883a, pl. 2, figs 1-2, pl. 3, figs 1-14 (as *Lithothamnion*); Printz 1929, pl. 24, fig. 2 (as *Lithothamnion*).

Comments: Kjellman (1883b) based *Lithothamnion glaciale* on material from a number of localities but did not designate a type or indicate how many collections were involved, and apparently the species has not been lectotypified to date. TRH contains four Kjellman collections of *Lithothamnion glaciale*. The three regarded here as syntypes come from

localities cited in the protologue. The fourth Kjellman collection (in drawer B-9) comes from Greenland, but while Greenland is cited in the protologue, Kjellman (1883b, p. 96) indicates that the Greenland specimens involved in the protologue were collected by Fries and not by himself.

Adey & Lebednik (1967, p. 60) listed the material but did not flag it as type.

globosa

Basionym & protologue: *Lithothamnion soriferum* f. *globosa* Foslie 1891, p. 41 (p. 6 in independently paginated offprint).

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Honningsvaag, Finnmark, Norway; collected by M. F. Foslie, 20 June 1882.

TRH drawer: C-11; listed under *Lithothamnion tophiiforme* in Adey & Lebednik (1967, p. 78).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1891, pl. 3, fig. 3, two left-hand specimens (as *Lithothamnion soriferum* f. *globosa*).

Comments: Foslie (1891) based *Lithothamnion soriferum* f. *globosa* on specimens from northern Norway but did not designate localities or a type. No boxes labelled *Lithothamnion soriferum* f. *globosa* were found in the Foslie herbarium, but two of the specimens depicted in the protologue were discovered in a box marked *Lithothamnion soriferum*, and these are designated here as the lectotype element for *Lithothamnion soriferum* f. *globosa*. The central-right specimen in pl. 3, fig. 3 of the protologue is contained in a box of four individuals in drawer C-13 (collected at Lebesby, Finnmark on 2 August 1882), but the specimens are very bleached and do not appear to be in good condition.

globulata

Basionym & protologue: *Lithothamnion norvegicum* f. *globulata* Foslie 1891, p. 42 (p. 7 in independently paginated offprint).

Effective publication date: ?

Holotype: TRH, unnumbered.

Type locality and collection data: Skorpen, Norway; collected by M. F. Foslie, 8 September 1890.

TRH drawer: B-8; listed under *Lithothamnion intermedium* in Adey & Lebednik (1967, p. 59).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1891, fig. 7 (as *Lithothamnion norvegicum* f. *globulata*).

Comments: In 1895, Foslie (1895, p. 82) changed the name *Lithothamnion norvegicum* f. *globulata* to *Lithothamnion apiculatum* f. *patula*. In accordance with ICBN Art. 56.1, the form name *globulata* must be

retained, and thus the form name *patula* is a superfluous substitute.

The only collection in TRH from Skorpen (the one locality mentioned in the protologue) labelled *Lithothamnion norvegicum* f. *globulata* was found in drawer B-8 amongst collections of *Lithothamnion intermedium*, but it does not contain all of the individuals shown in the protologue figure. All other data fit, however, and as a single collection is involved, it must be treated as the holotype element. It is not clear why Foslie placed the holotype with other collections of *Lithothamnion intermedium*.

glomerata

Basionym & protologue: *Lithothamnion fruticosum* f. *glomerata* Foslie 1895, p. 46 (p. 18 in independently paginated offprint), pl. 4, fig. 3.

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated by Printz 1929, pl. 22, legend to fig. 5); includes slides 160 and 161.

Type locality and collection data: Lyngø, Tromsø, Norway.

TRH drawer: B-8; listed under *Lithothamnion intermedium* in Adey & Lebednik (1967, p. 59).

Previous references to typification: Printz 1929, pl. 22, legend to fig. 5 (as *Lithothamnion fruticosum* f. *glomerata*).

Published illustrations of lectotype: Foslie 1895, pl. 4, fig. 3 (as *Lithothamnion fruticosum* f. *glomerata*); Printz 1929, pl. 22, fig. 5 (as *Lithothamnion intermedium* f. *glomerata*).

Comments: Foslie (1895) based *Lithothamnion fruticosum* f. *glomerata* on specimens from Lyngø and Vardø in Norway but did not designate a type. Subsequently, Foslie (1905c, p. 37) transferred *Lithothamnion fruticosum* f. *glomerata* to *Lithothamnion intermedium* f. *glomerata*, and later, Printz (1929, pl. 22, legend to fig. 5) designated the specimen depicted by Foslie (1895, pl. 4, fig. 3) in the protologue as (lecto-)type.

glomerata

Nomen nudum: *Lithothamnion ungeri* f. *glomerata* Foslie 1898b, p. 5.

Comments: The name *Lithothamnion ungeri* f. *glomerata* appeared in two Foslie publications (1898b, p. 5; 1900a, p. 11) but without diagnosis or description.

gracile

Basionym & protologue: *Lithophyllum gracile* Foslie 1907b, p. 28.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slide 922.

Type locality and collection data: St. Vincent, Cape Verde Islands; collected by Vanhöffen, 1901.

TRH drawer: A-23.

Previous references to typification: Adey & Lebednik 1967, p. 44 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 63, figs 28, 29 (as *Lithophyllum*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

gracilescens

Basionym & protologue: *Lithothamnion gracilescens* Foslie 1895, p. 87 (p. 59 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slides 97-99.

Type locality and collection data: Rotvold, Trondheimsfjord, Norway; collected by M. F. Foslie, 6 June 1894.

TRH drawer: C-6; listed under *Lithothamnion nodulosum* in Adey & Lebednik (1967, p. 77).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 15, figs 20-25 (as *Lithothamnion*); Printz 1929, pl. 26, figs 3-5 (as *Lithothamnion nodulosum* f. *gracilescens*).

Comments: Foslie (1895) based *Lithothamnion gracilescens* on material from three localities in Norway but did not designate a type. He also remarked that plants identified by Unger (1858, p. 19, pl. 5, figs 1-8) as *Lithothamnion byssoides* (Lamarck) Philippi probably belonged to this species. Subsequently, Foslie (1900i, p. 13; 1905c, p. 62) reduced *Lithothamnion gracilescens* to *Lithothamnion nodulosum* f. *gracilescens*, which accounts for the location of the specimens in Foslie's herbarium.

The designated lectotype contains fertile plants, is illustrated in both the protologue and Printz (1929), and forms a portion of the Rotvold material which is contained in three boxes in TRH. Adey & Lebednik (1967, p. 77) group these three boxes and an 1895 collection from the same locality under one entry.

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 11) has not been determined during the present study.

gracilis

Basionym & protologue: *Lithothamnion heterocladum* f. *gracilis* Foslie 1905e, p. 17.

Effective publication date: between April 1905 and 24 August 1905.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Beagle Channel, Tierra del Fuego; collected by Skottsberg, 15 March 1902.

TRH drawer: C-2; listed under *Lithothamnion heterocladum* in Adey & Lebednik (1967, p. 75).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1905e) concurrently established the species *Lithothamnion heterocladum* and two forms (*Lithothamnion heterocladum* f. *gracilis*

and *Lithothamnion heterocladum* f. *crassa*) without designating types. Of the four specimens originally cited in the protologue (Foslie 1905e, p. 17), two were subsequently identified by Foslie (1907c, p. 9) as f. *gracilis*, and the better of these two is designated here as the lectotype of *Lithothamnion heterocladum* f. *gracilis*.

grande

Basionym & protologue: *Lithothamnion grande* Foslie 1905c, p. 43.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Mandal, Risø Bank, Norway; collected by M. F. Foslie, 15 July 1904.

TRH drawer: B-14 (Adey & Lebednik 1967, p. 64).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1905c) based *Lithothamnion grande* on specimens from several localities in Norway but did not designate a type. The lectotype designated here is the best preserved of the TRH collections and includes five individuals and larger fragments, some of which have conceptacles. Adey & Lebednik (1967, p. 64) list the material but do not flag it as type.

grandifrons

Basionym & protologue: *Lithothamnion dehiscens* f. *grandifrons* Foslie 1895, p. 73 (p. 45 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slide 145 and two unnumbered slides.

Type locality and collection data: Herø, Norway; collector not indicated on herbarium material but listed as Kr. Schreiner in protologue (Foslie 1895, p. 78), 28 August 1894.

TRH drawer: B-23; listed under *Lithothamnion fornicatum* in Adey & Lebednik (1967, p. 72).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 13, fig. 3 (as *Lithothamnion dehiscens* f. *grandifrons*).

Comments: Foslie (1895) based *Lithothamnion dehiscens* f. *grandifrons* on material from Norway but did not designate a type specimen. Subsequently, Foslie (1900i, p. 12) considered *Lithothamnion dehiscens* f. *grandifrons* to be conspecific with *Lithothamnion fornicatum*, and he changed the form name from *grandifrons* to *tuberculata* (see also Foslie 1905c, p. 39). In accordance with ICBN Art. 56.1, the form name *grandifrons* must be retained, and thus the form name *tuberculata* is a superfluous substitute. Foslie's actions, however, account for the placement of specimens under *Lithothamnion fornicatum* in his herbarium.

In the protologue for *Lithothamnion dehiscens* f. *grandifrons*, Foslie

(1895, pl. 13, figs 1-3) depicted three specimens, all of which are in TRH. The one designated here as lectotype is the only one of the three to have associated slides, and it also has numerous conceptacles.

grandiuscula

Basionym & protologue: *Melobesia grandiuscula* Montagne 1846, p. 138.
 Effective publication date: not determined during the present study.
 Syntype fragments: TRH, unnumbered; includes slide 1656.
 Type locality and collection data: Algeria; collector and date not indicated.
 TRH drawer: A-25; listed under *Lithophyllum expansum* in Adey & Lebednik (1967, p. 46).

Previous references to typification: ?

Published illustrations of type material: ?

Comments: Montagne (1846) based *Melobesia grandiuscula* on material growing on red algae from Algeria but did not designate a type. TRH contains fragments of two specimens (in one box) from the Montagne herbarium; these are regarded here as syntype material for the species. *Melobesia grandiuscula* apparently has not been formally lectotypified, and the Montagne collections in PC have not been examined during the present study. Foslie (1905c, p. 119) treated *Melobesia grandiuscula* Montagne as a heterotypic synonym of *Lithophyllum pustulatum*, but it is not known why he filed Montagne's material with collections of *L. expansum* in his herbarium.

granii

Basionym & protologue: *Lithothamnion flabellatum* f. *granii* Foslie 1895, p. 98 (p. 70 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 78); includes slide 177.

Type locality and collection data: Drøbak, Norway; collected by H. H. Gran, 12 July 1893.

TRH drawer: C-10; listed under *Lithothamnion granii* in Adey & Lebednik (1967, p. 78).

Previous references to typification: Adey & Lebednik 1967, p. 78 (as *Lithothamnion granii*); Adey 1970, p. 20 (as *Lithothamnion granii*).

Published illustrations of lectotype: Foslie 1895, pl. 17, fig. 3, pl. 22, fig. 1 (as *Lithothamnion flabellatum* f. *granii*); Printz 1929, pl. 18, fig. 15 (as *Lithothamnion granii* f. *typica*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 20). Ten years after the protologue was published, Foslie (1905c, p. 59) raised *Lithothamnion flabellatum* f. *granii* to the rank of species [*Lithothamnion granii* f. *granii* (as f. *typica*)]. The nature of the reported type material in BM (Tittley *et al.* 1984, p. 11) has not been determined during the present study.

granii

Nomen nudum: *Lithothamnion glaciale* f. *granii* Foslie 1905c, p. 10.

Comments: The name *Lithothamnion glaciale* f. *granii* appeared once (Foslie 1905c) but without diagnosis or description. It is probably an error for *Lithothamnion flabellatum* f. *granii* Foslie (1895, p. 98).

granuliferum

Basionym & protologue: *Lithothamnion granuliferum* Foslie 1905e, p. 16.

Effective publication date: between April 1905 and 24 August 1905.

Holotype: TRH, unnumbered; includes slides 934 and 1189.

Type locality and collection data: Observatory Island, Antarctica; collected by C. Skottsberg, 6 January 1902.

TRH drawer: C-18.

Previous references to typification: Adey & Lebednik 1967, p. 83 (as *Lithothamnion*); Adey 1970, p. 30 (as *Leptophyllum*); Mendoza 1988, p. 180 (as *Lithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 4, figs 15, 16 (as *Lithothamnion*).

Comments: Mendoza (1988, p. 180) incorrectly refers to the holotype element as the lectotype.

grumosum

Basionym & protologue: *Lithothamnion grumosum* Foslie 1897c, p. 16.

Effective publication date: between 1 July and 31 December 1897.

Lectotype: TRH, Setchell no. 1594 (designated by Mason 1953, p. 339); includes slide 13.

Type locality and collection data: Pacific Grove, California, USA; collected by W. A. Setchell, January 1897.

TRH drawer: A-6.

Previous references to typification: Mason 1953, p. 339 (as *Lithophyllum*); Dawson 1960, p. 38 (as *Lithophyllum*); Adey & Lebednik 1967, p. 21 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 57, fig. 11 (as *Lithophyllum*).

Comments: Mason (1953, p. 339) designated the lectotype without explanation. The lectotype consists of a single specimen shown in Printz (1929).

gyrosa

Basionym & protologue: *Lithothamnion fasciculatum* f. *gyrosa* Foslie 1897c, p. 8.

Effective publication date: between 1 July and 31 December 1897.

Lectotype: TRH, unnumbered (designated here); includes slide 47.

Type locality and collection data: Roundstone Bay, Galway, Republic of Ireland; collected by McCalla, no date.

TRH drawer: A-24; listed under *Lithophyllum dentatum* in Adey & Lebednik (1967, p. 45).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 62, fig. 8 (as *Lithophyllum dentatum* f. *gyrosa*).

Comments: Foslie (1897c) based *Lithothamnion fasciculatum* f. *gyrosa* on McCalla specimens from Roundstone Bay and referred to one plant figured by Harvey (1847, pl. 74, fig. 2) under the name *Melobesia fasciculata*. Subsequently, Foslie (1900a, p. 32) referred f. *gyrosa* to *Lithophyllum dentatum*. In TRH, there is only one McCalla collection labelled *Lithophyllum dentatum* f. *gyrosa*, and it is designated here as lectotype of *Lithothamnion fasciculatum* f. *gyrosa*.

haingsisiana

Basionym & protologue: *Lithothamnion erubescens* f. *haingsisiana* Weber van Bosse et Foslie in Foslie 1901c, p. 4.

Effective publication date: between 27 July and 31 December 1901.

Lectotype: L 991, 239-220 (Siboga Expedition collection 17) (designated by Verheij & Woelkerling 1992).

Isolectotypes: L 943, 7-19 [Siboga Expedition collections 27, 287-292, 294, 300, 306-308, 312, 314, 316, 323 (19 specimens), 324, 345, 362-364, 371, 380, 381, 397]. The following additional isolectotypes appear to be missing: 16, 26, 30, 284, 290, 329, 331, 339, 342, 343, 355, 378, 860, and one unnumbered collection.

Isolectotypes: TRH [Siboga Expedition collections 29, 309, 323 (two specimens), 337, 350, 1285 (with one slide) and one unnumbered specimen (with slide 529)].

Type locality and collection data: Haingsisi, Samau Island, Timor; collected by A. Weber van Bosse, 2-5 February 1900 (Siboga Expedition station 60/303).

TRH drawer: C-15; listed under *Lithothamnion erubescens* in Adey & Lebednik (1967, pp. 79, 80).

Previous references to typification: Verheij & Woelkerling 1992, p. 279 (as *Lithothamnion erubescens* f. *haingsisiana*).

Published illustrations of lectotype: Foslie 1904b, pl. 3, fig. 13 (as *Lithothamnion erubescens* f. *haingsisiana*); Printz 1929, pl. 15, fig. 13 (as *Lithothamnion erubescens* f. *haingsisiana*).

Published illustrations of isolectotypes: Foslie 1904b, pl. 3, figs 1-7 (collection 324), figs 8-11 (collection 323), fig. 12 (collection 378), fig. 14 (collection 362), fig. 15 (collection 287), fig. 16 (unnumbered collection), fig. 17 (collection 364), fig. 18 (collection 296), fig. 19 (collection 339), and text fig. 17 (p. 35; prepared from slide 529) (all as *Lithothamnion erubescens* f. *haingsisiana*); Printz 1929, pl. 15, figs 1-12, 14, 15, 17-19 (information on collection numbers for figures identical to Foslie 1904b) (all as *Lithothamnion erubescens* f. *haingsisiana*).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 279).

haptericolum

- Basionym & protologue: *Lithothamnion haptericolum* Foslie 1906b, p. 8.
 Effective publication date: between 1 December 1906 and 30 March 1907.
 Holotype: TRH, Setchell no. 6351; includes two slides both numbered 1171 and one slide numbered 1172.
 Type locality and collection data: Bay of Islands, New Zealand; collected by W. A. Setchell, June 1904.
 TRH drawer: B-17.
 Previous references to typification: Adey & Lebednik 1967, p. 68 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).
 Published illustrations of holotype: Printz 1929, pl. 6, fig. 11 (as *Lithothamnion*).
 Comments: About 75% of the holotype as depicted in Printz (1929) is no longer present.

hariotii

- Basionym & protologue: *Goniolithon hariotii* Foslie 1907a, p. 13.
 Effective publication date: between 21 June and 29 June 1907.
 Holotype: TRH, P. Hariot, no. 17; includes slides 1435 and 1436.
 Type locality and collection data: Mangareva, Tahiti; collector not indicated; comm. P. Hariot, April 1907.
 TRH drawer: A-10.
 Previous references to typification: Adey & Lebednik 1967, p. 25 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*).
 Published illustrations of holotype: Printz 1929, pl. 46, figs 10, 11 (as *Goniolithon*).
 Comments: The holotype element consists of three specimens, two of which are depicted in Printz (1929). About 25% of each of the depicted specimens is no longer present.

harveyi

- Basionym & protologue: *Lithothamnion incrustans* f. *harveyi* Foslie 1895, p. 122 (p. 94 in independently paginated offprint).
 Effective publication date: 5 December 1895.
 Lectotype: TRH, unnumbered (designated here); includes two slides numbered 32, one slide numbered 53, and three unnumbered slides.
 Type locality and collection data: Cumbrae, Scotland, UK; collected by E. Batters, August 1891.
 TRH drawer: A-7; listed under *Lithophyllum incrustans* in Adey & Lebednik (1967, p. 22).
 Previous references to typification: ?
 Published illustrations of lectotype: Foslie 1895, pl. figs 12-15 (as *Lithothamnion incrustans* f. *harveyi*).
 Comments: Foslie established *Lithothamnion incrustans* f. *harveyi* for material from the British Isles, mentioning several specimens, but emphasizing a collection of Batters from Cumbrae. The Cumbrae

collection contains a number of individuals including those figured in the protologue, and the entire collection is designated here jointly with Y. M. Chamberlain as lectotype element. Foslie (1895, pp. 122, 127) noted that specimens placed by Harvey (1850, pl. 345) in *Melobesia polymorpha* also belonged to *f. harveyi* but added that no authentic Harvey specimens had been seen.

hauckii

Basionym & protologue: *Lithothamnion hauckii* Foslie 1895, p. 58 (p. 30 in independently paginated offprint).

Comments: *Lithothamnion hauckii* Foslie 1895, p. 58 is a later homonym of *Lithothamnion hauckii* Rothpletz 1891, p. 304 and thus is illegitimate (ICBN Art. 64.1). Both the Rothpletz and the Foslie names also represent new names (*nom. nov.*) for *Lithothamnion mamillosum* Hauck (1883, p. 272), a later homonym of *Lithothamnion mamillosum* Gumbel (1871, p. 41).

hemisphaerica

Basionym & protologue: *Corallina hemisphaerica* Foslie 1887, p. 175.

Effective publication date: ?

Holotype: TRH, unnumbered.

Type locality and collection data: Mellem Søndre Mela og Bø, Andøen, Norway; collected by F. M. Norman; no date given. TRH drawer: See below.

Previous references to typification: ?

Published illustrations of holotype: Foslie 1887, pl. 1 (as *Corallina hemisphaerica*).

Comments: Foslie based *Corallina hemisphaerica* on a single specimen, which is lodged in a cabinet adjacent to the rest of the Foslie coralline collections in TRH. It was not included in the Adey & Lebednik (1967) catalogue.

hermaphroditum

Basionym & protologue: *Perispermion hermaphroditum* Heydrich 1901a, p. 410 (as *Perispermum*, an orthographic variant of *Perispermion*).

Effective publication date: ?

Lectotype: TRH, unnumbered (designated by Woelkerling 1991, p. 136); includes slides 857 and 858.

Isolectotype: C, unnumbered.

Type locality and collection data: Tami Island, Huon Gulf, New Guinea.

TRH drawer: A-4 (Adey & Lebednik (1967, p. 19).

Previous references to typification: Woelkerling 1991, p. 136 (as *Perispermion*).

Published illustrations of lectotype: Woelkerling 1991, figs 1-13 (as *Perispermion*).

Comments: The basis for selection of the designated lectotype is explained

by Woelkerling (1991, p. 136), who refers the species to *Lithophyllum*. An isoelectotype in C possesses numerous sporangial conceptacles. In the protologue, Heydrich (1901a, figs 1-3) provides two drawings of germinating spores and one drawing of a gametangial conceptacle containing both male and female gametangia. Gametangial conceptacles do not occur in the lectotype or in the isoelectotype, however.

heterocladum

Basionym & protologue: *Lithothamnion heterocladum* Foslie 1905e, p. 16.

Effective publication date: between April 1905 and 24 August 1905.

Lectotype: TRH, unnumbered (designated here); includes slide 474.

Type locality and collection data: Isthmus Harbour, Straits of Magellan; collector not indicated, 1876, ex herb. Kew Gardens.

TRH drawer: C-2.

Previous references to typification: Adey & Lebednik 1967, p. 75 (as *Lithothamnion*); Adey 1970, p. 20 (as *Lithothamnion*).

Published illustrations of lectotype: Printz 1929, pl. 17, fig. 1 (as *Lithothamnion heterocladum* f. *crassa*).

Comments: Foslie (1905e) concurrently established the species *Lithothamnion heterocladum* and two forms (*Lithothamnion heterocladum* f. *gracilis* and *Lithothamnion heterocladum* f. *crassa*) without designating types or indicating which he considered to be the typical form of the species. In the protologue, Foslie (1905e, p. 17) cited four collections which are syntypes (ICBN Art. 7.7); all are present in TRH. The collection which Adey (in Adey & Lebednik 1967, p. 75) designated as lectotype (and was subsequently cited by Mendoza 1988, p. 175) was not one of the syntypes, and thus it cannot serve as lectotype for the species or for either form (see ICBN Art. 7.5 and Recommendation 7B).

It is apparent from a more detailed account of these taxa (Foslie 1907c, p. 9) that Foslie regarded f. *crassa* to be the typical form of the species, as he referred to f. *crassa* as f. *valida*. Thus, *Lithothamnion heterocladum* is lectotypified here by *Lithothamnion heterocladum* f. *crassa*. In accordance with ICBN Art. 26.1, *Lithothamnion heterocladum* f. *crassa* and *Lithothamnion heterocladum* f. *valida* are superfluous names for *Lithothamnion heterocladum* f. *heterocladum*. Of the collections originally cited in the protologue, Foslie (1907c, p. 9) regarded two to represent the typical form of the species, and the better of these is designated here as lectotype of *Lithothamnion heterocladum* f. *heterocladum*.

heteroidea

Basionym & protologue: *Lithophyllum hyperellum* f. *heteroidea* Foslie 1900a, p. 27.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated here by D. Penrose); includes slide 512.

TRH drawer: A-4; listed under *Lithophyllum hyperellum* in Adey & Lebednik (1967, p. 19).

Previous references to typification: ?

Type locality and collection data: Western Port, Victoria, Australia; collected by *J. Gabriel*, 1899.

Published illustrations of lectotype: ?

Comments: Foslie (1900a) concurrently described the species *Lithophyllum hyperellum* and two forms (*Lithophyllum hyperellum* f. *fastigiata* and *Lithophyllum hyperellum* f. *heteroidea*) without designating any type specimens or indicating which he considered to be the typical form of the species. Subsequently, Adey (in Adey & Lebednik 1967, p. 19; see also Adey 1970, p. 13) lectotypified the species with an 1899 Gabriel collection from Western Port, Victoria, Australia. The box housing this collection is marked *Lithophyllum hyperellum* f. *fastigiata*; thus f. *fastigiata* must be taken as the typical form of the species, and in accordance with ICBN Art 26.1, *Lithophyllum hyperellum* f. *fastigiata* is a superfluous substitute for *Lithophyllum hyperellum* f. *hyperellum*.

Foslie marked two TRH collections as *Lithophyllum hyperellum* f. *heteroidea*; the designated lectotype element contains the greater amount of material, and is in better condition. The entry in Adey & Lebednik (1967, p. 19) incorrectly indicates that specimens in the lectotype element are depicted in Printz (1929).

heteromorpha

Basionym & protologue: *Lithothamnion brasiliense* f. *heteromorpha* Foslie 1900a, p. 4.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, Ihering no. 1047; includes slide 414.

Type locality and collection data: São Sebastião, Brasil; collected by *H. Ihering*, September 1896.

TRH drawer: C-16; listed under *Lithothamnion heteromorphum* in Adey & Lebednik (1967, p. 81).

Previous references to typification: Adey & Lebednik 1967, p. 81 (as *Lithothamnion heteromorphum*); Adey 1970, p. 20 (as *Lithothamnion heteromorphum*).

Published illustrations of holotype: Printz 1929, pl. 12, fig. 20 (as *Lithothamnion heteromorphum*).

Comments: In 1908, Foslie (1908d, p. 10) raised *Lithothamnion brasiliense* f. *heteromorpha* to the rank of species, as *Lithothamnion heteromorphum*.

heterophylla

Basionym & protologue: *Lithothamnion lichenoides* f. *heterophylla* Foslie 1900a, p. 13.

Comments: Within the taxonomic rank of form, *Lithothamnion lichenoides* f. *heterophylla* is a superfluous substitute name (see ICBN Arts 11.3 & 63.1) for *Lithothamnion agariciforme* f. *decussata* (Ellis & Solander)

Foslie. The type of *Lithothamnion agariciforme* f. *decussata* (Ellis & Solander) Foslie is the type of *Millepora decussata* Ellis & Solander (1786, p. 131) and is considered to be lost (Dixon 1960); further details on this taxon are provided by Woelkerling (1983, pp. 304–307).

hibernica

Basionym & protologue: *Lithothamnion agariciforme* f. *hibernica* Foslie 1897c, p. 5.

Effective publication date: between 1 July and 31 December 1897.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Isle of Man, United Kingdom; collector not indicated on container; June 1890.

TRH drawer: B-19; listed under *Lithothamnion agariciformis* in Adey & Lebednik (1967, p. 71).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1897c) based *Lithothamnion agariciforme* f. *hibernica* on several collections from Ireland sent by Johnson and on an Isle of Man collection obtained from Batters. The Batters collection is designated here jointly with Y. M. Chamberlain as lectotype for *Lithothamnion agariciforme* f. *hibernica* because it is explicitly labelled with that name (the Johnson collections are labelled only as *L. agariciforme*) and it has conceptacle-bearing thalli. Foslie (1897c, p. 6) obtained the collection from E.A.L. Batters.

hibernicum

Basionym & protologue: *Lithophyllum hibernicum* Foslie 1906b, p. 24.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, unnumbered; includes slide 1148.

Type locality and collection data: Ballynakil Harbour, Fahy Bay, Republic of Ireland; collected by H. Hanna, August 1899.

TRH drawer: A-23.

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 63, figs 11–13 (as *Lithophyllum*).

Comments: In addition to the individuals figured in Printz (1929), the holotype element contains a number of smaller fragments. Foslie (1906b, p. 24) listed *Lithophyllum fasciculatum* f. *subtilis* Foslie (1897c, p. 8) as a synonym of *Lithophyllum hibernicum*, but because a name does not have priority outside its own rank (ICBN Art. 60), the epithet *hibernicum* is available for use. Effectively, Foslie (1906b) described a new species which can have a new type specimen, and this is the case because the holotype material of *hibernicum* was collected two years after *Lithophyllum fasciculatum* f. *subtilis* was described.

Adey & Lebednik (1967, p. 44) list the material but do not flag it as type.

hildenbrandtioides

Basionym & protologue: *Hapalidium hildenbrandtioides* P. L. Crouan et H. M. Crouan 1867, p. 149.

Effective publication date: ?

Syntype fragment: TRH, unnumbered; there are no associated slides.

Type locality and collection data: France.

TRH drawer: B-1; listed under *Melobesia hildenbrandioides* in Adey & Lebednik (1967, p. 49).

Previous references to typification: ?

Published illustrations of syntypes: ?

Comments: Crouan & Crouan (1867) based *Hapalidium hildenbrandtioides* on material from France but did not designate a type or indicate how many specimens were involved. The species apparently has not been lectotypified. TRH contains a fragment (6 mm long) of one specimen from the Crouan herbarium (CO).

hyperellum

Basionym & protologue: *Lithophyllum hyperellum* Foslie 1900a, p. 27.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 19); includes slide 511.

Type locality and collection data: Western Port, Victoria, Australia; collected by J. Gabriel, 1899.

TRH drawer: A-4.

Previous references to typification: Adey & Lebednik 1967, p. 19 (as *Lithophyllum*); Adey 1970, p. 13 (as *Pseudolithophyllum*).

Published illustrations of lectotype: ?

Comments: Foslie (1900a) concurrently described the species *Lithophyllum hyperellum* and two forms (*Lithophyllum hyperellum* f. *fastigiata* and *Lithophyllum hyperellum* f. *heteroidea*) without designating any type specimens or indicating which form he considered to be the typical form of the species. Subsequently, Adey in Adey & Lebednik (1967, p. 19; see also Adey 1970, p. 13) lectotypified the species with an 1899 Gabriel collection from Western Port, Victoria, Australia. The box housing this collection is unequivocally marked *Lithophyllum hyperellum* f. *fastigiata*. This means that f. *fastigiata* must be taken as the typical form of the species, and in accordance with ICBN Art 26.1, *Lithophyllum hyperellum* f. *fastigiata* is a superfluous substitute for *Lithophyllum hyperellum* f. *hyperellum*. The lectotype element contains seven stones covered with specimens.

hypoleuca

Basionym & protologue: *Melobesia hypoleuca* Harvey 1849b, p. 108.

Effective publication date: ?

Lectotype: TCD, unnumbered (designated by Woelkerling 1980, p. 238).

Type fragments: TRH, unnumbered.

Type locality and collection data: Port Natal, South Africa; collected by Gueinzius, date not indicated.

TRH drawer: A-1.

Previous references to typification: Woelkerling 1980, p. 238 (as *Mastophora*).

Published illustrations of lectotype: ?

Comments: Harvey (1849b, pl. 41, *Melobesia hypoleuca* figs 1-3) based *Melobesia hypoleuca* on specimens collected by Dr. Gueinzius from Port Natal. Woelkerling (1980) lectotypified the species with a specimen in TCD which earlier had been labelled as type by H. W. Johansen. TRH contains fragments of one of the TCD specimens collected by Gueinzius, but it is not possible to determine whether these fragments came from the designated lectotype specimen or from one of the isolectotypes in TCD, and consequently they are considered here in general terms as type fragments. Adey & Lebednik (1967, p. 14) list the material but do not flag it as type.

imbicilla

Basionym & protologue: *Goniolithon propinquum* f. *imbicilla* Foslie 1908f, p. 4.

Effective publication date: between 23 December 1908 and 14 January 1909.

Lectotype: TRH, Howe no. 2693 (designated here); includes one unnumbered slide.

Type locality and collection data: Santurce, San Juan Island, Puerto Rico; collected by M. A. Howe, 27 May 1903.

TRH drawer: A-11; listed under *Goniolithon propinquum* in Adey & Lebednik (1967, p. 27).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 45, fig. 15 (as *Goniolithon propinquum* f. *imbicilla*).

Comments: Foslie (1908f) based *Goniolithon propinquum* f. *imbicilla* on Howe specimens from Santurce, San Juan, Puerto Rico. Of the two specimens labelled *Goniolithon propinquum* from this locality, only the one designated here as lectotype is also labelled as f. *imbicilla*.

imbricata

Basionym & protologue: *Lithothamnion engelhartii* f. *imbricata* Foslie 1900a, p. 18.

Comments: *Lithothamnion engelhartii* f. *imbricata* is a superfluous substitute name for *Lithothamnion engelhartii* f. *engelhartii*.

imbricatum

Basionym & protologue: *Lithothamnion imbricatum* Dickie 1877, p. 486.

Effective publication date: ?

Holotype: BM.

Holotype fragment: TRH, British Museum no. 13; includes slides 339 and 1610.

Type locality and collection data: Papeete Harbour, Tahiti; collected by *H. Mosley*; no date indicated.

TRH drawer: C-15.

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 14, fig. 18 (as *Lithothamnion*).

Comments: Foslie (1900a, p. 7) used the name *Lithothamnion dickiei*, believing that Dickie's name *Lithothamnion imbricatum* was an herbarium name. Subsequently, however, Foslie (1906b, p. 12) corrected his mistake and recognized that the epithet *dickiei* was superfluous. The TRH portion of the holotype consists of a few fragments and two slides. The BM portion of the holotype (see Tittley *et al.* 1984, p. 10 under *Lithothamnion dickiei*, and p. 11 under *Lithothamnion imbricatum*) has not been examined during the present study.

imitans

Basionym & protologue: *Lithophyllum imitans* Foslie 1909b, p. 13.

Effective publication date: between 1 June and 18 December 1909.

Holotype: TRH, Collins 1901 no. A; includes slide 579.

Holotype fragment: UC 397500.

Type locality and collection data: Pacific Beach, San Diego, California, USA; collected by *E. Snyder*, no date; comm. F. S. Collins 1901.

TRH drawer: A-3.

Previous references to typification: Mason 1953, p. 340 (as *Lithophyllum*); Dawson 1960, p. 41 (as *Lithophyllum*); Adey & Lebednik 1967, p. 18 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 54, figs 10, 11 (as *Lithophyllum*).

Comments: The holotype element consists of three small pieces which cannot easily be matched to the two fragments depicted in Printz (1929).

impar

Basionym & protologue: *Lithophyllum impar* Foslie 1909b, p. 13.

Effective publication date: between 1 June and 18 December 1909.

Holotype: TRH, unnumbered; includes slides 649-651.

Type locality and collection data: Natal or Cape of Good Hope, South Africa; collected by *A. Weber van Bosse*, 1893.

TRH drawer: A-3.

Previous references to typification: Adey & Lebednik 1967, p. 18 (as *Lithophyllum*); Adey 1970, p. 13 (as *Pseudolithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 54, figs 18-21 (as *Lithophyllum*).

Comments: *Lithophyllum impar* was first described as *Lithophyllum*

marlothii f. *subplicata* (Foslie 1902b, p. 19) and subsequently (Foslie 1909b, p. 13) was changed to *Lithophyllum impar* when it was redescribed as a species. Although retention of an epithet (in this case *subplicata*) is recommended by the ICBN (Recommendation 61A.3), it is not required, and since a name does not have priority outside its own rank (ICBN Art. 60.1), Foslie's change from *subplicata* to *impar* is allowable.

impressum

Basionym & protologue: *Lithophyllum impressum* Foslie 1906c, p. 21 (p. 5 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Lectotype: TRH, unnumbered (selected by Lebednik; designated here); includes two unnumbered slides prepared by P. A. Lebednik. The three slides prepared by Foslie (720, 722 and 723) are in fragments.

Isolectotypes: TRH, unnumbered; UC 397499.

Type locality and collection data: Port Renfrew (Port San Juan), Vancouver Island, Canada; collected by K. Yendo, June–July 1901.

TRH drawer: A-5 (Adey & Lebednik (1967, p. 20).

Previous references to typification: Mason 1953, p. 338 (as *Lithophyllum*); Steneck & Paine 1986, p. 223 (as *Lithophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 57, fig. 6 (as *Lithophyllum*).

Published illustrations of isolectotype: Steneck & Paine 1986, p. 222, figs 3, 4 (as *Lithophyllum*).

Comments: Foslie (1906c) based *Lithophyllum impressum* on a single collection containing specimens on four rocks. In February 1976, Lebednik (unpublished) selected material on the rock figured in Priz (1929) to serve as lectotype and placed it in a separate labelled box. Mason (1953, p. 338) referred to the UC collection as an isotype, while Steneck & Paine (1986, p. 223) incorrectly referred to the UC collection as the holotype.

improcerum

Basionym & protologue: *Goniolithon improcerum* Foslie et Howe in Foslie 1907b, p. 24.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, Howe no. 4760b; includes slides 1405, 1406, 1513 and 1514 (2 slides are marked 1514).

Isotypes: USNC, no. FT-119; NY.

Type locality and collection data: Montego Bay, Jamaica; collected by M. A. Howe, 5 January 1907.

TRH drawer: A-14.

Previous references to typification: Adey & Lebednik 1967, p. 31 (as *Goniolithon*); Adey 1970, p. 11 (as *Hydrolithon*); Townsend & Adey 1990,

p. 99 (as *Goniolithon*).

Published illustrations of holotype: Printz 1929, pl. 52, figs 12-13 (as *Goniolithon*).

Published illustrations of NY isotype: Townsend & Adey 1990, figs 6, 8 (as *Goniolithon*).

Comments: The holotype is one of two collections of this species in TRH identified by Foslie.

incertum

Basionym & protologue: *Lithothamnion incertum* Foslie 1904c, p. 5.

Effective publication date: between 24 December 1904 and 11 January 1905.

Holotype: TRH, Farlow no. XVIII; includes slide 491.

Type locality and collection data: Bermuda; collector and date unknown; comm. Farlow, 1900.

TRH drawer: C-15.

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).

Published illustrations of holotype: ?

Comments: Foslie (1904c) based *Lithothamnion incertum* on his earlier taxon *Lithothamnion erubescens* f. *prostrata* (Foslie 1901a, p. 3), and *Lithothamnion erubescens* f. *prostrata* is based on a single named collection from Bermuda (Farlow XVIII). As a consequence, the Farlow XVIII collection must be considered the holotype for both *Lithothamnion erubescens* f. *prostrata* and *Lithothamnion incertum*. The collection flagged by Adey & Lebednik (1967, p. 80) and referred to as the holotype by Adey (1970, p. 24) is not the true holotype but another Farlow collection from Bermuda.

incisa

Basionym & protologue: *Lithothamnion patena* f. *incisa* Foslie 1906b, p. 6.

Effective publication date: between 1 December 1906 and 30 March 1907.

Lectotype: TRH, Setchell no. 6354 (designated by Woelkerling & Harvey 1992); includes two slides numbered 1175.

Type locality and collection data: Bay of Islands, New Zealand; collected by W. A. Setchell, June 1904.

TRH drawer: B-17; listed under *Lithothamnion incisum* in Adey & Lebednik (1967, p. 68).

Previous references to typification: Adey & Lebednik 1967, p. 68 (as *Lithothamnion incisum*); Adey 1970, p. 24 (as *Mesophyllum incisum*); Woelkerling & Harvey 1992, p. 382 (as *Mesophyllum incisum*).

Published illustrations of lectotype: Printz 1929, pl. 10, figs 10-13 (as *Lithothamnion incisum*); Woelkerling & Harvey 1992, fig. 1 (as *Mesophyllum incisum*).

Comments: The basis for selection of the designated lectotype is explained by Woelkerling & Harvey (1992). All of the specimens in the lectotype

element are rather badly fragmented, including those depicted in Printz (1929). In 1907, Foslie (1907b, p. 12) raised *Lithothamnion patena* f. *incisa* to the rank of species, as *Lithothamnion incisum*.

inconspicuum

Basionym & protologue: *Lithothamnion inconspicuum* Foslie 1907b, p. 19.
Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, Yendo no. 785; includes slide 692.

Type locality and collection data: Hinga, Japan; collected by K. Yendo, August 1900.

TRH drawer: C-15.

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 14, fig. 16 (as *Lithothamnion*).

Comments: About 60% of the holotype depicted in Printz (1929) is no longer present.

incrassata

Basionym & protologue: *Lithophyllum incrustans* f. *incrassata* Foslie 1900a, p. 29.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, unnumbered; includes slide 347.

Type locality and collection data: Cape of Good Hope, South Africa; no collector given, 1899; comm. H. Becker.

TRH drawer: A-6; listed under *Lithophyllum incrassatum* in Adey & Lebednik (1967, p. 21).

Previous references to typification: Printz 1929, pl. 57, legend to fig. 13 (as *Lithophyllum incrassatum*); Adey & Lebednik 1967, p. 21 (as *Lithophyllum incrassatum*); Adey 1970, p. 5 (as *Lithophyllum incrassatum*).

Published illustrations of holotype: Printz 1929, pl. 57, fig. 13 (as *Lithophyllum incrassatum*).

Comments: In 1909, Foslie (1909b, p. 18) raised *Lithophyllum incrustans* f. *incrassata* to the rank of species (as *Lithophyllum incrassatum*), and in a footnote explained his protologue error (Foslie 1900a, p. 28) of using the epithet *lobata* instead of the epithet *incrassata*.

incrassata

Basionym & protologue *Lithothamnion fasciculatum* f. *incrassata* Foslie 1897c, p. 8.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here); includes slides 42 and 43.

Type locality and collection data: Roundstone Bay, Galway, Republic of Ireland; collected by W. McCalla, date not indicated.

TRH drawer: A-23; listed under *Lithophyllum fasciculatum* in Adey &

Lebednik (1967, p. 44).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1897c) based *Lithothamnion fasciculatum* f. *incrassata* on McCalla specimens from Roundstone Bay, but did not designate a type. TRH contains two McCalla collections (nos 75 & 80) labelled *Lithothamnion fasciculatum* f. *incrassata*; the one designated here as lectotype contains two specimens.

indica

Basionym & protologue: *Litholepis indica* Foslie 1907a, p. 21.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Jadin no. 542; includes slides 1364 and 1426 (slide 1426 is missing).

Type locality and collection data: Réunion; collected by F. Jadin, April 1900.

TRH drawer: A-16.

Previous references to typification: Adey & Lebednik 1967, p. 36 (as *Litholepis*); Adey 1970, p. 15 (as *Lithoporella*).

Published illustrations of holotype: ?

Comments: The holotype element consists of three pieces of rock with attached plants of *Litholepis indica*.

indicum

Basionym & protologue: *Lithothamnion indicum* f. *indicum* Foslie 1907a, p. 7 (as *Lithothamnion indicum* f. *typica*).

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated here); includes slides 444 and 445.

Type locality and collection data: Corner Inlet, Victoria, Australia; collected by J. Gabriel, 1897.

TRH drawer: B-7.

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1904d, pl. 1, fig. 7 (as *Lithothamnion fruticosum* f. *crassiuscula*); Printz 1929, pl. 13, fig. 29 (as *Lithothamnion indicum* f. *typica*). Both figures are of the same specimen.

Comments: Foslie (1907a) established *Lithothamnion indicum* f. *indicum* (as *Lithothamnion indicum* f. *typica*) for plants which earlier (Foslie 1903c, 1904b, 1904d) had been referred to *Lithothamnion fruticosum* f. *crassiuscula*. Foslie (1907a) did not designate a type, but he did refer to an earlier paper (Foslie 1904d) in which photographs of particular specimens were published. Amongst collections placed in *Lithothamnion indicum* at TRH (see Adey & Lebednik 1967, pp. 58, 59) are two which are depicted in the figures cited by Foslie and are labelled *Lithothamnion indicum* with *Lithothamnion fruticosum* f. *crassiuscula* crossed out. The one designated here as lectotype includes two slides, has intact

conceptacles, and was figured by Printz (1929).

Adey & Lebednik (1967, p. 58) list the lectotype material but do not flag it as type.

inops

Basionym & protologue: *Lithophyllum inops* Foslie 1907b, p. 27.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, unnumbered; includes slides 1161 and 1520.

Type locality and collection data: San Stefano (now Yesilköy), Sea of Marmara, Turkey; collected by J. Nemetz, 1897.

TRH drawer: A-2.

Previous references to typification: Adey & Lebednik 1967, p. 16 (as *Lithophyllum*); Adey 1970, p. 28 (as *Phymatolithon*).

Published illustrations of holotype: Printz 1929, pl. 53, fig. 4 (as *Lithophyllum natalense*).

Comments: The holotype element includes plants on four stones, one of which is depicted in Printz (1929, pl. 53, fig. 4). The name used by Printz in the figure legend is almost certainly an error, because in the text Printz (1929, p. 35) uses the name *Lithophyllum inops*.

insidiosa

Basionym & protologue: *Lithophyllum insidiosum* Solms-Laubach 1881, p. 15.

Effective publication date: ?

Syntype: TRH, slides 613 and 880.

Type locality and collection data: Gulf of Neapel, Italy; collector and date not indicated.

TRH drawer: A-10; listed under *Goniolithon notarisii* in Adey & Lebednik (1967, p. 26).

Previous references to typification: ?

Published illustrations of syntype material: Solms-Laubach 1881, pl. 1, figs 2, 3; pl. 2, fig. 30 (as *Lithophyllum insidiosum*).

Comments: Solms-Laubach (1881) based *Lithophyllum insidiosum* on material from the Gulf of Neapel but did not designate a type. TRH contains two syntype slides, one prepared from material in PC and the other prepared from material from the Neapel Zoological Station. Foslie (1904d, p. 22; 1909b, p. 5) treated *Lithophyllum insidiosum* as a form of *Goniolithon notarisii* (Dufour) Foslie.

insigne

Basionym & protologue: *Lithothamnion insigne* Foslie 1906b, p. 9.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, Setchell no. 6343; includes slides 1165 and 1166.

Type locality and collection data: Bay of Islands, New Zealand; collected by W. A. Setchell, June 1904.

TRH drawer: B-16.

Previous references to typification: Adey & Lebednik 1967, p. 66 (as *Lithothamnion*); Adey 1970, p. 24 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 5, fig. 10 (as *Lithothamnion*).

Comments: The holotype element contains plants on five pieces of rock, one of which is depicted in Printz (1929).

insignis

Basionym & protologue: *Lithophyllum decussatum* f. *insignis* Foslie 1909b, p. 22.

Effective publication date: between 1 June and 18 December 1909.

Holotype: BM(?); TRH, British Museum 1899 no. 1; includes slides 330 and 331.

Type locality and collection data: Unknown.

TRH drawer: A-24; listed under *Lithophyllum decussatum* in Adey & Lebednik (1967, p. 44).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 61, fig. 1 (as *Lithophyllum*).

Comments: Foslie (1909b) based *Lithophyllum decussatum* f. *insignis* on a specimen (figured in Printz 1929) in BM which he had earlier (Foslie 1900a, pp. 33, 34) described in detail under the name *Lithophyllum decussatum* f. *typica*. TRH contains only a few fragments of the holotype; according to Printz (1929, legend to fig. 1 on pl. 61), the remainder of the specimen possibly is in BM, but it is not listed by Tittley *et al.* (1984). Woelkerling (1984, p. 68) incorrectly interpreted f. *insignis* as a superfluous substitute name.

intermedia

Basionym & protologue: *Lithophyllum africanum* f. *intermedia* Foslie 1900h, p. 3.

Comments: Foslie (1900h) concurrently established *Lithophyllum africanum*, *Lithophyllum africanum* f. *intermedia* and *Lithophyllum africanum* f. *truncata* based on specimens from the west coast of Africa at Cape Verde sent by Henriques (no. 23) and Bouvier. Foslie (1900h) did not designate types for any of these entities, nor did he indicate which specimens belonged to each of the new taxa. In TRH, the Henriques (no. 23) material is divided into two boxes (grouped as a single entry in Adey & Lebednik, 1967, p. 47) and the Bouvier material is contained in one box. All boxes are clearly labelled as to which species or form is present. None of the boxes, however, is labelled as *Lithophyllum africanum* f. *intermedia*, nor is there any information within the boxes which links any of the material to this taxon. Thus the identity of *Lithophyllum africanum* f. *intermedia* remains uncertain and no type specimen is designated at present. The use of this name by Printz (1929, p. 32 and pl.

68) cannot be linked to labels on relevant specimens in TRH. There is another Henriques collection from São Tomé Island labelled *Lithophyllum africanum* f. *intermedia*, but this collection was sent to Foslie in 1901, the year after publication of the protologue, and thus cannot be considered as lectotype or holotype material. Further studies are required to determine whether this collection should be used to neotypify *Lithophyllum africanum* f. *intermedia*.

intermedia

Basionym & protologue: *Lithophyllum pustulatum* f. *intermedia* Foslie 1905c, p. 117.

Effective publication date: between 25 August 1905 and 30 April 1906.

Lectotype: C, Rosenvinge no. 4116 (designated by Athanasiadis and Chamberlain (in Chamberlain 1991, pp. 50, 53, 55).

Isolectotype: TRH, Rosenvinge no. 4116.

Type locality and collection data: Hirtsholm, Denmark; collected by L. K. Rosenvinge, 21 September 1893, collection 4116.

TRH drawer: A-17; listed under *Melobesia* (*Dermatolithon*) *pustulatum* in Adey & Lebednik (1967, p. 38).

Previous references to typification: Chamberlain 1991, pp. 50, 53, 55 (as *Lithophyllum pustulatum* f. *intermedia*).

Published illustrations of lectotype: Chamberlain 1991, figs 164, 165, 201 (as *Lithophyllum pustulatum* f. *intermedia*).

Comments: The TRH isoelectotype contains eight pieces of the host *Fucus* with over 100 attached individuals of *Lithophyllum pustulatum* f. *intermedia*.

intermedia

Basionym & protologue: *Phymatolithon polymorphum* f. *intermedia* Foslie 1908d, p. 10.

Effective publication date: between 1 September and 28 September 1908.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Ballstad, Lofoten, Norway; collected by M. F. Foslie, 21 September 1881.

TRH drawer: C-23; listed under *Phymatolithon polymorphum* in Adey & Lebednik (1967, p. 89).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 39, fig. 10 (as *Phymatolithon polymorphum* f. *intermedia*).

Comments: Foslie (1908d) based *Phymatolithon polymorphum* f. *intermedia* on collections from several localities in Norway but did not designate a type. Of the three collections in TRH labelled *Phymatolithon polymorphum* f. *intermedia*, the one designated here as lectotype is the only one with obvious conceptacles.

intermedium

- Basionym & protologue: *Goniolithon intermedium* Foslie 1901a, p. 15.
 Effective publication date: between 1 January and 18 March 1901.
 Holotype: TRH, Farlow no. XXI; includes slide 494.
 Type locality and collection data: Bermuda; collected by Wordsworth, 1890, ex herb Farlow 1900.
 TRH drawer: A-13; listed under *Goniolithon spectabile* in Adey & Lebednik (1967, p. 29).
 Previous references to typification: ?
 Published illustrations of holotype: Printz 1929, pl. 49, fig. 12 (as *Goniolithon spectabile* f. *intermedia*).
 Comments: Foslie (1907a, p. 19) commented on the difficulties in separating *Goniolithon intermedium* from *G. spectabile*, and in Printz (1929, p. 31, pl. 49, fig. 12), *Goniolithon intermedium* is reduced to *Goniolithon spectabile* f. *intermedia*. Adey & Lebednik (1967, p. 29) list the collection under *Goniolithon spectabile* without reference to *Goniolithon intermedium*.

intermedium

- Basionym & protologue: *Lithophyllum intermedium* Foslie 1906b, p. 23.
 Effective publication date: between 1 December 1906 and 30 March 1907.
 Lectotype: TRH, Børgesen no. 2196 (designated by Adey in Adey & Lebednik 1967, p. 21); includes slides 1218, 1219, and 1256.
 Type locality and collection data: Cruz Bay, St. John Island, US Virgin Islands; collected by F. Børgesen, 24 March 1906.
 TRH drawer: A-6.
 Previous references to typification: Adey & Lebednik 1967, p. 21 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*).
 Published illustrations of lectotype: Printz 1929, pl. 57, figs 7, 8 (as *Lithophyllum*).
 Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 5). The lectotype element contains a mixture of species, as noted by Printz (1929, pl. 57, legend to figs 7, 8).

intermedium

- Basionym & protologue: *Lithothamnion intermedium* Kjellman 1883a, p. 127.
 Effective publication date: ?
 Lectotype: TRH, unnumbered (designated by Printz (1929, pl. 22, legend to fig. 1); includes slides 175 and 176.
 Type locality and collection data: Lebesby, Finnmark, Norway.
 TRH drawer: B-8.
 Previous references to typification: Printz 1929, pl. 22, legend to fig. 1 (as *Lithothamnion intermedium* f. *typica*); Adey & Lebednik 1967, p. 59 (as *Lithothamnion intermedium*); Adey 1970, p. 20 (as *Lithothamnion intermedium*).

Published illustrations of lectotype: Kjellman 1883, pl. 4, fig. 2 (as *Lithothamnion intermedium*); Printz 1929, pl. 22, fig. 1 (as *Lithothamnion intermedium* f. *typica*).

Comments: Kjellman (1883a, pl. 4, figs 1-10) based *Lithothamnion intermedium* on specimens collected by Foslie in northern Norway but did not designate a type. The specimen depicted by Kjellman (1883a, pl. 4, fig. 2) is now at TRH and was used to (lecto-)typify the species by Printz (1929, legend to fig. 1, pl. 22). Subsequently, Adey (1970, p. 20) noted that the other specimen depicted by Kjellman (1883a, pl. 4, fig. 1) could not be found at the University of Uppsala or at the Riksmuseum in Stockholm. The right half of the specimen as shown in Printz is no longer present in TRH.

investiens

Basionym & protologue: *Lithothamnion investiens* Foslie 1895, p. 157 (p. 129 in independently paginated offprint).

Comments: The epithet *investiens* in *Lithothamnion investiens* is a superfluous substitute for the epithet *zonatum* in the name *Lithophyllum zonatum*.

irregulare

Basionym & protologue: *Lithothamnion irregulare* Foslie 1907a, p. 6.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Univ. Bot. Mus. Coimbra no. 26; includes slides 798, 799 and 864.

Type locality and collection data: São Tomé Island; collected by A. Møller, June 1885.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 81 (as *Lithothamnion*); Steentoft 1967, p. 128 (as *Lithophyllum*); Adey 1970, p. 13 (as *Pseudolithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 12, fig. 22 (as *Lithothamnion*); Lawson & John 1982, pl. VII, fig. B (as *Pseudolithophyllum*); Lawson & John 1987, pl. VII, fig. B (as *Pseudolithophyllum*).

Comments: The holotype element now contains two specimens, one of which is depicted in Printz (1929). Steentoft (1967, p. 128) indicated, however, that the holotype element once consisted of three large specimens and a number of fragments.

irregularis

Basionym & protologue: *Lithothamnion varians* f. *irregularis* Foslie 1895, p. 110 (p. 82 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slide 135 and two unnumbered slides.

Type locality and collection data: Berlevåg, Finnmark, Norway; collector not indicated, 30 June 1882.

TRH drawer: C-26; listed under *Phymatolithon investiens* in Adey & Lebednik (1967, p. 92).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 18, figs 6, 8 (as *Lithothamnion varians* f. *irregularis*).

Comments: Foslie (1895) based *Lithothamnion varians* f. *irregularis* on material from northern Norway but did not designate a type specimen. The only collection in TRH which contains a label identifying the specimens as *Lithothamnion varians* f. *irregularis* is one in which the name has been crossed out in pencil and the name *investiens* has been pencilled in. This collection, which is designated here as lectotype of *Lithothamnion varians* f. *irregularis*, contains eight specimens including those depicted in figures 6 and 8 of the protologue. The collections containing the specimens depicted in figures 7 and 9 of the protologue could not be located.

islei

Basionym & protologue: *Lithothamnion islei* Heydrich 1901b, p. 538.

Effective publication date: 11 January 1901 (date printed on title page of journal; manuscript was submitted in June 1900).

Holotype: PC, no. 24 (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Holotype fragment: TRH, no. 24; includes slide 670.

Type locality and collection data: Tongatapu Island (Amsterdam Island), Tonga; collected by G. de l'Isle, 20 December 1874.

TRH drawer: B-1.

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 2, fig. 10 (as *Lithothamnion islei*).

Comments: Heydrich (1901b) based *Lithothamnion islei* on a single collection. TRH contains several holotype fragments, all less than 12 mm in greatest dimension. Foslie (1901d, p. 25) considered *Lithothamnion islei* to be a heterotypic synonym of *L. californicum* Foslie. The PC portion of the holotype has not been examined during the present study.

Adey & Lebednik (1967, p. 49) list the material but do not flag it as type.

japonica

Basionym & protologue: *Lithophyllum okamurai* f. *japonica* Foslie 1901f, p. 18.

Comments: Foslie (1901f) described a series of forms of *Lithophyllum okamurai*, explicitly indicating that f. *japonica* was the main (typical) form of the species (see also Foslie 1909b, p. 30). In accordance with ICBN Art. 26.1, *Lithophyllum okamurai* f. *japonica* is an illegitimate name for *Lithophyllum okamurai* f. *okamurai* and thus must be abandoned.

japonicum

Basionym & protologue: *Lithothamnion japonicum* Foslie 1900a, p. 6.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, Miyabe no. 7; includes slides 391 and 1158.

Type locality and collection data: Mororan, Iburu Prov., Japan; collected by Miyabe, 21 March 1897.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 81 (as *Lithothamnion*); Adey 1970, p. 20 (as *Lithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 14, fig. 1 (as *Lithothamnion*).

Comments: About 50% of the holotype depicted in Printz (1929) is no longer present in TRH.

jugatum

Basionym & protologue: *Lithophyllum jugatum* Foslie 1906b, p. 26.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, Setchell no. 6039; includes slide 1143 and one unnumbered side.

Type locality and collection data: Bay of Islands, New Zealand; collected by W. A. Setchell, June 1904.

TRH drawer: A-2.

Previous references to typification: Adey & Lebednik 1967, p. 16 (as *Lithophyllum*); Adey 1970, p. 13 (as *Pseudolithophyllum*).

Published illustrations of holotype: ?

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

kaiserii

Basionym & protologue: *Lithothamnion kaiserii* Heydrich 1897c, p. 64.

Effective publication date: ?

Syntype: TRH, Heydrich no. 60; includes slides 6 and 1150.

Type locality and collection data: El Tor, Red Sea; collected by Kaiser, date not indicated.

TRH drawer: A-20; listed under *Lithophyllum kotschyanum* in Adey & Lebednik (1967, p. 42).

Previous references to typification: ?

Published illustrations of TRH syntype: Printz 1929, pl. 65, fig. 2 (as *Lithophyllum kotschyanum* f. *typica*).

Comments: Heydrich (1897, p. 64, pl. 3, figs 8, 12, 13) based *Lithothamnion kaiserii* on material from the Red Sea but did not designate a type or indicate how many specimens were involved. Heydrich's herbarium is presumed to be destroyed (Stafleu & Cowan 1979, p. 187), and thus the total number of specimens involved can no longer be determined. The TRH syntype specimen is now broken into two pieces.

kerguelana

Basionym & protologue: *Melobesia kerguelena* Dickie 1876, p. 51.

Effective publication date: ?

Holotype: BM.

Holotype fragments: TRH, unnumbered; includes slide 361.

Type locality and collection data: Kerguelen; collected by A. E. Eaton, December 1874–February 1875.

TRH drawer: B-18.

Previous references to typification: Adey & Lebednik 1967, p. 68 (as *Lithothamnion*).

Published illustrations of holotype: Foslie 1908a, text fig. 2 (as *Lithothamnion*); Printz 1929, pl. 9, figs 5, 6 (as *Lithothamnion*).

Comments: Dickie (1876) based *Melobesia kerguelena* on a single collection.

TRH contains three holotype fragments, all less than 5 mm in greatest dimension. The BM portion of the holotype (see Tittley *et al.* 1984, p. 13) has not been examined during the present study.

kotschyanum

Basionym & protologue: *Lithophyllum kotschyanum* Unger 1858, p. 22.

Effective publication date: ?

Holotype: TRH, unnumbered; includes slide 1720.

Type locality and collection data: Gulf of Bahrain, Persian Gulf; collected by Th. Kotschy, date not indicated.

TRH drawer: A-20.

Previous references to typification: Printz 1929, pl. 65, legend to fig. 1 (as *Lithophyllum kotschyanum* f. *typica*); Adey *et al.* 1982, p. 40 (as *Lithophyllum*).

Published illustrations of holotype: Unger 1858, pl. 5, figs 15, 16 (as *Lithothamnium kotschijanum*); Printz 1929, pl. 65, fig. 1 (as *Lithophyllum kotschyanum* f. *typica*).

Comments: Unger (1858, p. 22, pl. 5, figs 15, 16) based *Lithophyllum kotschyanum* (as *Lythophyllum kotschyanum* in text and as *Lithothamnium kotschijanum* in figure legends) on a specimen collected by Kotschy from the Gulf of Bahrein. This specimen is now in TRH, but according to annotations on the box cover and slide, it originally was in W (Naturhistorisches Museum, Vienna, Austria). Whether part of the specimen is still in W has not been determined during the present study.

Adey & Lebednik (1967, p. 42) list the holotype material but do not flag it as type.

kuetzingii

Basionym & protologue: *Lithothamnion fruticosum* f. *kuetzingii* Foslie 1907b, p. 21.

Comments: *Lithothamnion fruticosum* f. *kuetzingii* is a superfluous substitute name for *Lithothamnion fruticosum* f. *ramulosa* (Philippi) Foslie 1900i, p. 13.

labradorensis

Basionym & protologue: *Lithothamnion labradorensis* Heydrich 1901b, p. 538.

Effective publication date: 11 January 1901 (date printed on title page of journal; manuscript was submitted in June 1900).

Holotype: PC, no. 17 (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Holotype fragment: TRH, no. 17; includes slides 657 and 1011.

Type locality and collection data: Labrador; collected by *Laman-Piquot*, date not indicated.

TRH drawer: A-28.

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: Heydrich (1901b) based *Lithothamnion labradorensis* on a single collection. TRH contains a number of holotype fragments obtained from PC in one box and one fragment obtained from Kew Gardens in a second box (algae from K now are housed at BM). These two boxes have now been placed into a single larger box along with a TRH photo of the holotype in PC (not seen during this study). Foslie (1905c, p. 31, footnote) questioned whether the stated type locality was correct. Adey & Lebednik (1967, p. 48) incorrectly list the collector as Diguet.

laccadivica

Basionym & protologue: *Goniolithon brassica-florida* f. *laccadivica* Foslie 1903c, p. 469.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated by Foslie 1904b, pl. 9, legend to fig. 10); includes slide 765.

Type locality and collection data: Minikoi atoll, Laccadive Islands; collected by *J. Stanley Gardiner*, July 1899.

TRH drawer: A-14; listed under *Goniolithon laccadivicum* in Adey & Lebednik (1967, p. 31).

Previous references to typification: Foslie 1904b, pl. 9, legend to fig. 10 (as *Goniolithon brassica-florida* f. *laccadivica*); Adey & Lebednik 1967, p. 31 (as *Goniolithon laccidivicum*); Adey 1970, p. 9 (as *Neogoniolithon laccidivicum*).

Published illustrations of lectotype: Foslie 1903c, pl. 25, fig. 7 (as *Goniolithon brassica-florida* f. *laccadivica*); 1904b, pl. 9, legend to fig. 10 (incorrect locality given) (*Goniolithon brassica-florida* f. *laccadivica*); Printz 1929, pl. 46, fig. 12 (as *Goniolithon laccadivicum* f. *typica*).

Comments: Foslie (1903c) based *Goniolithon brassica-florida* f. *laccadivica* on two collections but did not designate a type. Subsequently, however, Foslie (1904b, pl. 9, legend to fig. 10) designated a (lecto-)type.

lacunosa

Basionym & protologue: *Melobesia minutula* f. *lacunosa* Foslie 1905c, p. 108.

Effective publication date: between 25 August 1905 and 30 April 1906.

Lectotype: TRH, unnumbered (designated here); includes two unnumbered slides.

Type locality and collection data: Norra Koster, Sweden; collected by F. Kjellman & K. Bovallius, 28 May 1870.

TRH drawer: A-15; listed under *Melobesia minutula* in Adey & Lebednik (1967, p. 35).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1905c) based *Melobesia minutula* f. *lacunosa* on material from Norway and on material of Kjellman & Bovallius from Sweden. No Norwegian material marked *Melobesia minutula* f. *lacunosa* could be found in TRH, but the Kjellman & Bovallius collection is clearly marked *Melobesia minutula* f. *lacunosa* and thus has been designated here as lectotype.

laevigatum

Basionym & protologue: *Lithothamnion laevigatum* Foslie 1895, p. 167 (p. 139 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 91).

Type locality and collection data: Helgoland, Germany; collected by P. Kuckuck, date not indicated.

TRH drawer: C-25.

Previous references to typification: Adey & Lebednik 1967, p. 91 (as *Phymatolithon*); Adey 1970, p. 29 (as *Phymatolithon*).

Published illustrations of lectotype: Foslie 1895, pl. 19, figs 21, 23 (as *Lithothamnion*); Printz 1929, pl. 39, fig. 14 (as *Phymatolithon*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 29). In the protologue, Foslie (1895, p. 167) lists *Lithothamnion crustaceum* Batters herb. as a synonym, but this herbarium name was not formally published and thus has no nomenclatural status.

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 11) has not been determined during the present study.

lamellatum

Basionym & protologue: *Lithothamnion lamellatum* Setchell et Foslie in Foslie 1903a, p. 4.

Effective publication date: 31 December 1903.

Holotype: TRH, Setchell no. 3075; includes slides 825 and 826.

Type locality and collection data: Cypress Point, Monterey, California, USA; collected by W. A. Setchell & R. E. Gibbs, 9 January 1899.

TRH drawer: B-17.

Previous references to typification: Mason 1953, p. 330 (as *Lithothamnion*); Dawson 1960, p. 19 (as *Lithothamnion*); Adey & Lebednik 1967, p. 68 (as *Lithothamnion*); Adey 1970, p. 25 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 8, figs 4, 5 (as *Lithothamnion*).

Comments: The holotype is the only collection of this species in TRH identified by Foslíe.

lapidea

Basionym & protologue: *Mastophora lapidea* Foslíe 1906b, p. 27.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, unnumbered; includes slides 1144 and 1145.

Type locality and collection data: Caspian Sea; collected by A. Henckel, 19 April 1904.

TRH drawer: A-1.

Previous references to typification: Adey & Lebednik 1967, p. 14 (as *Mastophora*); Adey 1970, p. 15 (as *Lithoporella*).

Published illustrations of holotype: Printz 1929, pl. 73, figs 5-7 (as *Mastophora*).

Comments: Adey (1970, p. 15) states that the holotype specimens are apparently lithified with little remaining organic material.

laxa

Basionym & protologue: *Lithothamnion colliculosum* f. *laxa* Foslíe 1895, p. 103 (p. 75 in independently paginated offprint).

Effective publication date: 5 December 1895.

Holotype: TRH, unnumbered; includes slide 143 and two unnumbered slides.

Type locality and collection data: Rockport, Massachusetts, USA; collected by F. S. Collins, no date.

TRH drawer: B-9.

Previous references to typification: ?

Published illustrations of holotype: Foslíe 1895, pl. 17, fig. 11 (as *Lithothamnion colliculosum* f. *laxa*).

Comments: The holotype specimen is in a box labelled with the name *Lithothamnion glaciale*, but slide 143 is labelled *Lithothamnion colliculosum* f. *laxa* with the name crossed out and replaced with *Lithothamnion glaciale*. There are no indications in Foslíe's publications for this change of taxonomic opinion; the only mention of *Lithothamnion colliculosum* f. *laxa* other than that in the protologue is in a species list (Foslíe 1898b, p. 4).

Adey & Lebednik (1967, p. 61) list the holotype material but do not flag it as type.

lemniscatum

- Basionym & protologue: *Lithothamnion lemniscatum* Foslie 1907b, p. 11.
 Effective publication date: between 30 September 1907 and 27 January 1908.
 Holotype: TRH, unnumbered; includes slide 1041 (broken).
 Type locality and collection data: Cape Jaffa, South Australia; collected by A. Engelhart, 1899.
 TRH drawer: B-16.
 Previous references to typification: Adey & Lebednik 1967, p. 66 (as *Lithothamnion*); Adey 1970, p. 25 (as *Mesophyllum*).
 Published illustrations of holotype: Printz 1929, pl. 7, fig. 11 (as *Lithothamnion*).
 Comments: The entire holotype element is depicted in Printz (1929). Foslie (1900a, p. 18) first ascribed this collection to *Lithothamnion muelleri* f. *neglecta*, but this earlier identification is not mentioned in the protologue for *Lithothamnion lemniscatum* (Foslie 1907b, p. 11). However, the box containing the holotype has the name *Lithothamnion muelleri* f. *neglecta* crossed out and replaced by the name *Lithothamnion lemniscatum*, all in Foslie's script.

leptura

- Basionym & protologue: *Melobesia leptura* Foslie 1906b, p. 16.
 Effective publication date: between 1 December 1906 and 30 March 1907.
 Lectotype: TRH, Setchell no. 6105a (designated by Adey in Adey & Lebednik 1967, p. 35).
 Type locality and collection data: Bay of Islands, New Zealand; collected by W. A. Setchell, June 1904.
 TRH drawer: A-15.
 Previous references to typification: Adey & Lebednik 1967, p. 35 (as *Melobesia*); Adey 1970, p. 16 (as *Heteroderma*).
 Published illustrations of lectotype: ?
 Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 16).

limitata

- Basionym & protologue: *Melobesia lejolissii* f. *limitata* Foslie 1905c, p. 102.
 Effective publication date: between 25 August 1905 and 30 April 1906.
 Lectotype: TRH, Rosenvinge no. 3807 (designated by Adey in Adey & Lebednik 1967, p. 34).
 Type locality and collection data: Røn, Lendrup, Limfjord, Denmark; collected by L. K. Rosenvinge, 22 August 1893.
 TRH drawer: A-15.
 Previous references to typification: Adey & Lebednik 1967, p. 34 (as *Fosliella limitata*); Adey 1970, p. 16 (as *Heteroderma limitata*).
 Published illustrations of lectotype: ?

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 16).

lithophylloides

Basionym & protologue: *Lithophyllum lithophylloides* f. *lithophylloides* Heydrich 1901b, p. 531 (as f. *phylloides*).

Effective publication date: 11 January 1901 (date printed on title page of journal; manuscript was submitted in June 1900).

Holotype: PC, no. 10 (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Holotype fragments: TRH, no. 10; includes slide 667.

Type locality and collection data: Bay de la Paz, Baja California, Mexico; collected by Digue, 1894.

TRH drawer: A-28; listed under *Lithophyllum lithophylloides* in Adey & Lebednik (1967, p. 48).

Previous references to typification: Dawson 1960, p. 43 (as *Lithophyllum*); Adey & Lebednik 1967, p. 48 (as *Lithophyllum*).

Published illustrations of holotype: ?

Comments: Heydrich (1901b) concurrently described the species *Lithophyllum lithophylloides* and two forms: f. *phylloides* and f. *brachiata*. It is clear from the protologue that Heydrich regarded f. *phylloides* to be the typical form of the species, and in accordance with ICBN Art. 26.1, *Lithophyllum lithophylloides* f. *phylloides* must be known as *Lithophyllum lithophylloides* f. *lithophylloides*.

Heydrich (1901b) based *Lithophyllum lithophylloides* f. *lithophylloides* on a single collection. The TRH portion of the holotype consists of 8 fragments housed in a single box; the largest fragment is 16 mm in greatest dimension.

Foslie (1901d, p. 21) treated *Lithophyllum lithophylloides* f. *lithophylloides* (as f. *phylloides*) as a heterotypic synonym of *Lithothamnion rugosum* Foslie. Adey & Lebednik (1967, p. 48) grouped together under a single entry the types of *Lithophyllum lithophylloides* f. *lithophylloides* and *Lithophyllum lithophylloides* f. *brachiata* and neglected to list the no. 10 collection along with the no. 14 collection. The PC portion of the holotype has not been examined during the present study, nor has the 'isotype' reported by Dawson (1960, p. 43) to be in UC.

litoralis

Basionym & protologue: *Goniolithon mamillare* f. *litoralis* Foslie 1902a, p. 7.

Effective publication date: between 11 September and 20 November 1902.

Lectotype: TRH, Collins 1901 no. 6 (designated here); includes slide 644.

Type locality and collection data: Pacific Beach, near San Diego, California; collected by E. Snyder, no collection date, comm. F. S. Collins 1901.

TRH drawer: A-14; listed under *Goniolithon laccadivicum* in Adey & Lebednik (1967, p. 31).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 46, fig. 17 (as *Goniolithon laccadivicum* f. *litoralis*).

Comments: Foslie (1902a) based *Goniolithon mamillare* f. *litoralis* on collections of Setchell (no. 1147) and Snyder (comm. Collins) from California but did not designate a type. Subsequently, Foslie (1909b, p. 11) treated *Goniolithon mamillare* f. *litoralis* as *Goniolithon laccadivicum* f. *litoralis*, and this is the name which appears on the specimen boxes and was adopted by Printz (1929, p. 30, pl. 46, figs 17-18). The Snyder material is contained in seven small, round boxes, each with a separate Collins number. Of the two specimens illustrated by Printz (1929), Collins no. 6 (i.e. Printz 1929, pl. 46, fig. 17), has been designated here as lectotype because it contains numerous conceptacles.

lobata

Nomen nudum: *Lithothamnion delapsium* f. *lobata* Foslie 1895, p. 80 (p. 52 in independently paginated offprint).

Comments: The name *Lithothamnion delapsium* f. *lobata* appeared once but without diagnosis or description.

lobata

Basionym & protologue: *Lithophyllum incrustans* f. *lobata* Foslie 1900a, p. 28.

Comments: In the protologue of *Lithophyllum incrustans* f. *lobata*, Foslie (1900a, p. 28) refers only to plants Harvey (1849b, p. 110) identified as *Melobesia polymorpha* without mention of other specimens. On the next page, however, Foslie (1900a, p. 29) proceeds to describe f. *incrassata* based on material from the Cape of Good Hope. Subsequently, Foslie (1909b, p. 18, footnote) stated that the epithet *lobata* was used in error on p. 28 (of Foslie 1900a) and that the epithet *incrassata* was the intended name. As there is no other evidence that Foslie accepted the epithet *lobata* in the 1900a publication and as there are no specimens in TRH labelled as *Lithophyllum incrustans* f. *lobata*, it would appear that the epithet *lobata* is not validly published in accordance with ICBN Art. 34.1.

loculosum

Basionym & protologue: *Lithothamnion loculosum* Kjellman 1889, p. 21.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated by Lebednik 1977, p. 73); includes slide 220 and two unnumbered slides prepared by P. A. Lebednik.

Type locality and collection data: Bering Strait, Arctic Ocean; collected by F. R. Kjellman, no date; Vega Expedition.

TRH drawer: C-21.

Previous references to typification: Lebednik 1977, p. 71 (as *Clathromorphum*).

Published illustrations of lectotype: Printz 1929, pl. 41, fig. 17 (as *Clathromorphum loculosum* f. *typica*); Lebednik 1977, p. 72, figs 6a-6d (as *Clathromorphum loculosum*).

Comments: The basis for selection of the designated lectotype is explained by Lebednik (1977, p. 73). Adey & Lebednik (1967, p. 87) list the material but do not flag it as type.

macallana

Basionym & protologue: *Lithophyllum dentatum* f. *macallana* Foslie 1900a, p. 32.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated here); includes slide 226.

Type locality and collection data: Roundstone Bay, Galway, Republic of Ireland; collected by McCalla, no date; ex herb. Sc. Art Mus. Dublin, 1899.

TRH drawer: A-24; listed under *Lithophyllum dentatum* in Adey & Lebednik (1967, p. 45).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 62, fig. 13 (as *Lithophyllum dentatum* f. *macallana*).

Comments: Foslie (1900a) based *Lithophyllum dentatum* f. *macallana* on McCalla specimens from Roundstone Bay. Two McCalla collections labelled *Lithophyllum dentatum* f. *macallana* occur in TRH; the lectotype designated here is the larger of the two collections and was figured in Printz (1929).

macroblastum

Basionym & protologue: *Lithothamnion macroblastum* Foslie 1897c, p. 16.

Effective publication date: between 1 July and 31 December 1897.

Holotype: TRH, unnumbered; includes slide 191.

Type locality and collection data: Gulf of Naples, Italy; collector and date not indicated; comm. Zool. St.

TRH drawer: B-16.

Previous references to typification: Adey & Lebednik 1967, p. 66 (as *Lithothamnion*); Adey 1970, p. 25 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 6, fig. 1 (as *Lithothamnion*).

Comments: About 50% of the holotype as depicted in Printz (1929) is no longer present in TRH.

macrocarpa

Basionym & protologue: *Melobesia macrocarpa* Rosanoff 1866, p. 74.

Effective publication date: ?

Lectotype: CHE, Le Jolis - Algues marines de Cherbourg no. 276 (designated by Y. M. Chamberlain, 1986, p. 205).

Isolectotype: TRH, Le Jolis - Algues marines de Cherbourg, no. 276;

includes slide 574.

Type locality and collection data: Rochers des Flamands, Cherbourg, France; collector not indicated, 19 March 1863.

TRH drawer: A-17; listed under *Melobesia* (*Dermatolithon*) *macrocarpum* in Adey & Lebednik (1967, p. 38).

Previous references to typification: Chamberlain 1986 (as *Titanoderma macrocarpum*); Chamberlain 1991, pp. 34, 36 (as *Titanoderma pustulatum* var. *macrocarpum*).

Published illustrations of lectotype: Chamberlain 1986, figs 12-21 (as *Titanoderma macrocarpum*).

Published illustrations of TRH isoelectotype: ?

Comments: The basis for selection of the designated lectotype is explained by Chamberlain (1986). The TRH isoelectotype includes the original Le Jolis printed label and there is a notation that the specimen is from the herbarium of Bornet.

macrospora

Nomen nudum: *Lithothamnion laeve* f. *macrospora* Foslie 1898b, p. 7.

Comments: The name *Lithothamnion laeve* f. *macrospora* appeared in four Foslie publications (1898b, p. 7; 1900i, p. 15; 1902a, p. 5; 1905c, p. 18) but without diagnosis or description, and it ultimately was rejected by Foslie (1905c, p. 18).

macrospora

Basionym & protologue: *Lithothamnion stroemfeltii* f. *macrospora* Foslie 1895, p. 173 (p. 145 in independently paginated offprint), pl. 22, fig. 12.

Comments: Foslie (1895) established *Lithothamnion stroemfeltii* f. *macrospora* without specifying a type or listing localities. Subsequently, Foslie (1905c, pp. 17, 18) considered *Lithothamnion stroemfeltii* f. *macrospora* to be conspecific with *Lithothamnion laeve* Strömfelt. No specimens labelled *Lithothamnion stroemfeltii* f. *macrospora* could be found at TRH. Consequently, *Lithothamnion stroemfeltii* f. *macrospora* has not been typified during this study and its status is uncertain.

madagascarensis

Basionym & protologue: *Lithothamnion madagascarensis* Heydrich 1902, p. 473.

Effective publication date: ?

Lectotype: PC (designated by Printz 1929, pl. 65, legend to fig. 7).

Lectotype fragment: TRH, unnumbered; includes slides 848 and 849.

Type locality and collection data: Fort Dauphin, Madagascar; Ferlus, date not indicated.

TRH drawer: A-20.

Previous references to typification: Printz 1929, pl. 65, legend to fig. 7, (as *Lithophyllum kotschyannum* f. *madagascarensis*); Adey & Lebednik 1967, p. 42 (as *Lithophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 65, fig. 7 (as *Lithophyllum kotschyanum* f. *madagascarensis*).

Comments: Heydrich (1902) described *Lithothamnion madagascarens* without listing specimens or localities. Subsequently, Foslie (1909b, p. 34) reduced *Lithothamnion madagascarens* to *Lithophyllum kotschyanum* f. *madagascarensis*. Later, Printz (1929, pl. 65, legend to fig. 7) (lecto)typified *Lithothamnion madagascarens* with a PC collection (not examined during the present study). The specimen is regarded here as lectotype because it has not been determined whether additional Heydrich material exists in PC. The lectotype fragment in TRH is 12 mm in greatest dimension.

madagascarensis

Basionym & protologue: *Lithothamnion erubescens* f. *madagascarensis* Foslie 1901e, p. 3.

Effective publication date: between 27 July and 31 December 1901.

Holotype: TRH, unnumbered; includes slide 689.

Type locality and collection data: Madagascar; collector and date not indicated; comm. P. Hariot, ex PC.

TRH drawer: C-15; listed under *Lithothamnion madagascarensis* in Adey & Lebednik (1967, p. 80).

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion madagascarensis*); Adey 1970, p. 25 (as *Mesophyllum madagascarensis*); Adey *et al.* 1982, p. 60 (as *Mesophyllum madagascarensis*).

Published illustrations of holotype: Printz 1929, pl. 14, fig. 15 (as *Lithothamnion madagascarens*).

Comments: Only a small fragment of the holotype specimen depicted in Printz (1929) is in TRH. The 'isotype' mentioned by Adey *et al.* (1982, p. 60) has not been examined during the present study.

magellanicum

Basionym & protologue: *Lithothamnion magellanicum* Foslie 1896, p. 8.

Effective publication date: ?

Holotype: TRH, Hariot no. 6; includes slides 198 and 416, and one unnumbered slide.

Type locality and collection data: Straits of Magellan, no collector or date; comm. P. Hariot.

TRH drawer: B-2.

Previous references to typification: ?

Published illustrations of holotype: Foslie 1896, fig. 8 on an unnumbered plate (as *Lithothamnion*); Printz 1929, pl. 2, fig. 1 (as *Lithothamnion*).

Comments: About 30% of the holotype specimen depicted in the published illustrations is no longer present. Adey & Lebednik (1967, p. 52) list the holotype material but do not flag it as type.

maheica

Basionym & protologue: *Lithophyllum yendoi* f. *maheica* Foslie 1906b, p. 19.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, unnumbered; includes slide 901.

Type locality and collection data: Mahe, Seychelles Islands; collector and date not given.

TRH drawer: A-1; listed under *Lithophyllum yendoi* in Adey & Lebednik (1967, p. 15).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: The holotype material is fragmentary but has uniporate conceptacles.

major

Basionym & protologue: *Lithothamnion byssoides* f. *major* Foslie 1895, p. 147 (p. 119 in independently paginated offprint).

Comments: *Lithothamnion byssoides* f. *major* is a provisional name that Foslie (1897c, p. 12) subsequently rejected, and thus is invalid (ICBN Art. 34.1).

malaysica

Basionym & protologue: *Lithophyllum yendoi* f. *malaysica* Foslie 1906b, p. 19.

Effective publication date: between 1 December 1906 and 30 June 1907.

Lectotype: L 943, 7-7 (Siboga Expedition collection 930) (designated by Verheij & Woelkerling 1992); includes three slides.

Lectotype fragment: TRH (Siboga Expedition collection 930); includes one slide. An additional fragment was sent to BO (Herbarium Bogoriense, Lambaga Biologi Nasional, Bogor, Indonesia).

Type locality and collection data: Piapis Bay (Telok Sapira), northwest coast of Waigeu Island, Indonesia; collected by A. Weber van Bosse, 14 August 1899 (Siboga Expedition station 155).

TRH drawer: A-1; listed under *Lithophyllum yendoi* in Adey & Lebednik (1967, p. 15).

Previous references to typification: Verheij & Woelkerling 1992, p. 280 (as *Lithophyllum yendoi* f. *malaysica*).

Published illustrations of lectotype: Foslie 1904b, pl. 11, fig. 2 (as *Lithophyllum yendoi*); Verheij & Woelkerling 1992, fig. 1 (as *Lithophyllum yendoi* f. *malaysica*).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992). The lectotype as depicted in fig. 2, pl. 11 in Foslie (1904b) is no longer intact; about 80% is in L, about 1% is in TRH, and an undetermined amount (not seen) is in BO (unpublished notes of Weber van Bosse).

maldivicum

Basionym & protologue: *Lithothamnion maldivicum* Foslie 1903b, p. 23.

Effective publication date: between April 1903 and 22 June 1903.

Holotype: TRH, unnumbered; includes slide 768.

Type locality and collection data: South Nilandu, Maldives Islands; collected by J. Stanley Gardiner, 20 April 1900.

TRH drawer: B-15.

Previous references to typification: Adey & Lebednik 1967, p. 64 (as *Lithothamnion*); Adey 1970, p. 20 (as *Lithothamnion*).

Published illustrations of type: Printz 1929, pl. 5, fig. 9 (as *Lithothamnion*).

Comments: The entire holotype element is depicted in Printz (1929).

mamillaris

Basionym & protologue: *Melobesia mamillaris* Harvey 1849b, p. 109.

Effective publication date: ?

Syntypes: See below.

Syntype fragments: TRH, Darwin no. 3854 and Darwin no. 3855.

Type locality and collection data: See below.

TRH drawer: A-11.

Previous references to typification: ?

Published illustrations of syntypes: Printz 1929, pl. 47, fig. 15 (as *Goniolithon mamillare* f. *typica*).

Comments: Harvey (1849b, p. 109, pl. 41, *Melobesia mamillaris* figs 1-5) based *Melobesia mamillaris* on specimens from Brazil, Tierra del Fuego, Cape Verde, and South Africa but did not designate a type. Printz (1929, pl. 47, legend to fig. 15, as *Goniolithon mamillare* f. *typica*) designated a lectotype from Bahia, Brazil, but this specimen appears to be missing both from TRH and TCD (see Porter 1987, p. 200). The only specimens from Bahia, Brazil cited in the protologue (Harvey 1849b) are three Darwin collections (3854, 3855, 3856), but Printz (1929) does not indicate which of these the depicted specimen (pl. 47, fig. 15) relates to. The Foslie herbarium (see Adey & Lebednik 1967, p. 26) contains fragments of two syntype specimens: Darwin 3854 (four fragments; the largest measures 8 mm in greatest dimension), and Darwin 3855 (six fragments; the largest measures 13 mm in greatest dimension).

mamillosum

Basionym & protologue: *Lithothamnion mamillosum* Hauck 1883, p. 272.

Effective publication date: November 1883 (see Stafleu & Cowan 1979, p. 101).

Syntype: TRH, unnumbered; includes slide 5 and two slides numbered 21.

Type locality and collection data: Adriatic Sea; collector and date not indicated.

TRH drawer: A-11; listed under *Goniolithon mamillosum* in Adey & Lebednik (1967, pp. 26, 27).

Previous references to typification: ?

Published illustrations of syntype: Hauck 1883, pl. 3, fig. 3; pl. 5, fig. 1 (as *Lithothamnion mamillosum*).

Comments: Hauck (1883) based *Lithothamnion mamillosum* on specimens from the Adriatic Sea and illustrated two specimens but not designate a type. *Lithothamnion mamillosum* apparently has not been formally lectotypified, and whether the specimens depicted by Hauck occur in L or elsewhere has not been determined during the present study. TRH contains fragments of two collections of Hauck material which are treated here as syntype material. Foslie (1895, p. 58) almost certainly was referring to these in stating he had seen authentic material of the species. *Lithothamnion mamillosum* Hauck is a later homonym of *Lithothamnion mamillosum* Gumbel (1871, p. 41).

marginata

Basionym & protologue: *Melobesia marginata* Setchell et Foslie in Foslie 1902a, p. 10.

Effective publication date: between 11 September and 20 November 1902.

Lectotype: TRH, R.E.G. no. 68 (designated by Mason 1953, p. 321); includes slide 1348.

Isotype: UC 194576.

Type locality and collection data: Bodega Bay, California; collected by R. E. Gibbs, 10 December 1898.

TRH drawer: B-1.

Previous references to typification: Mason (1953, p. 321, as *Melobesia*);

Dawson (1960, p. 6, as *Melobesia*); Adey & Lebednik (1967, p. 49, as

Melobesia); Adey (1970, p. 30, as *Melobesia*).

Published illustrations of lectotype: ?

Published illustrations of isotype: ?

Comments: Foslie (1902a) based *Melobesia marginata* on specimens from two localities but did not designate a type. Subsequently, Mason (1953, p. 321) lectotypified *Melobesia marginata* with a Bodega Bay collection. Further comments on this lectotypification are provided by Adey (1970, p. 30).

marlothii

Basionym & protologue: *Lithothamnion marlothii* Heydrich 1897c, p. 61.

Effective publication date: ?

Syntype: TRH, Heydrich no. 80; includes slide 417 (apparently missing).

Type locality and collection data: ?

TRH drawer: A-4.

Previous references to typification: ?

Published illustrations of syntypes: Heydrich 1897c, pl. 3, figs 1-3 (as *Lithothamnion*); Printz 1929, pl. 55, fig. 4 (as *Lithophyllum*).

Comments: Heydrich (1897c) based *Lithothamnion marlothii* on specimens from several localities in South Africa but did not designate a type. The specimens depicted in the protologue (Heydrich 1897c, pl. 3, figs 1-3) are

presumed to be destroyed (Stafleu & Cowan 1979, p. 187). The syntype specimen in TRH was collected at Champsbay (no date indicated), was growing on rock, and is 25 mm in greatest dimension.

Adey & Lebednik (1967, p. 19) list the syntype material but do not flag it as type.

mauritiana

Basionym & protologue: *Melobesia farinosa* f. *mauritiana* Foslie 1905d, p. 4.

Effective publication date: ?

Holotype: TRH, Jadin no. 496; includes one slide also numbered Jadin 496.

Type locality and collection data: Mauritius; collected by F. Jadin, June 1890.

TRH drawer: A-15; listed under *Melobesia farinosa* in Adey & Lebednik (1967, p. 33; collector given as Jodin).

Previous references to typification: ?

Published illustrations of holotype: ?

mauritianum

Basionym & protologue: *Lithophyllum mauritianum* Foslie 1907a, p. 32.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Jadin no. 531; includes slides 34 and 1365 and one unnumbered slide.

Type locality and collection data: Mauritius; collected by F. Jadin, August 1890.

TRH drawer: A-16.

Previous references to typification: Adey & Lebednik 1967, p. 36 (as *Melobesia maruitana*); Adey 1970, p. 5 (as *Lithophyllum*).

Published illustrations of holotype: ?

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

mediocre

Nomen nudum: *Epilithon mediocre* Foslie et Nichols 1909b, p. 55.

Comments: The name *Epilithon mediocre* appeared once in Foslie's publications but without diagnosis or description. It is likely to represent a new combination for *Lithophyllum zosteriolum* f. *mediocris* Foslie (1900h), but no reference to the basionym is provided by Foslie (1909b).

mediocris

Basionym & protologue: *Lithophyllum zosteriolum* f. *mediocris* Foslie 1900h, p. 5.

Comments: Foslie (1900h) based *Lithophyllum zosteriolum* f. *mediocris* on a collection made by Dr. Anderson at Santa Cruz, California. This collection, however, cannot be found in TRH and was not listed by Adey & Lebednik (1967, p. 83). The collection is mentioned by Mason (1953,

p. 320) and Dawson (1960, p. 7), but a search by P. C. Silva at UC (personal communication) has failed to locate it. Consequently, the type collection is presumed to be missing, and careful study is now required before a suitable neotype can be selected for *Lithophyllum zostericum* f. *mediocris*. Foslie (1907b, p. 26) subsequently raised *Lithophyllum zostericum* f. *mediocris* to the rank of species, as *Lithophyllum mediocre*.

mediterranea

Basionym & protologue: *Litholepis mediterranea* Foslie 1906b, p. 17.
 Effective publication date: between 1 December 1906 and 30 March 1907.
 Holotype: TRH, unnumbered; includes slides 1124 and 1125.
 Type locality and collection data: Banyuls sur Mer, France; collected by C. Sauvageau, June 1906.
 TRH drawer: A-16.
 Previous references to typification: Adey & Lebednik 1967, p. 36 (as *Litholepis*); Adey 1970, p. 15 (as *Lithoporella*).
 Published illustrations of holotype: ?
 Comments: The holotype is one of two collections of this species in TRH identified by Foslie.

megalocystum

Basionym & protologue: *Goniolithon megalocystum* Foslie 1904b, p. 48.
 Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).
 Holotype: L 991, 239-234 (Siboga Expedition collection 965).
 Holotype fragment: TRH (Siboga Expedition collection 965); includes one unnumbered slide.
 Type locality and collection data: Kawio and Karuboling Islands, Indonesia; collected by A. Weber van Bosse, 22-23 July 1899 (Siboga Expedition station 129).
 TRH drawer: A-10.
 Previous references to typification: Foslie 1904b, pl. 9, legend to fig. 8; Printz 1929, pl. 46, legend to fig. 9; Adey & Lebednik 1967, p. 25 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*); Womersley & Bailey 1970, p. 311 (as *Neogoniolithon*); Verheij & Woelkerling 1992, p. 281 (as *Goniolithon*).
 Published illustrations of holotype: Foslie 1904b, text fig. 20A & pl. 9, fig. 8 (as *Goniolithon*); Printz 1929, pl. 46, fig. 9 (as *Goniolithon*).
 Comments: Foslie (1904b, pl. 9, legend to fig. 8) typified *Goniolithon megalocystum* with a single fragmentary specimen from Siboga Expedition station 129. About 99% of this specimen is in L; both the L and the TRH holotype fragments appear to be sterile.

melobesioides

Basionym & protologue: *Lithothamnion melobesioides* Foslie 1904c, p. 4.

Comments: *Lithothamnion melobesioides* is a superfluous substitute name for *Lithothamnion monostromaticum*.

melobesioides

Basionym & protologue: *Mastophora melobesioides* Foslie 1903b, p. 24.

Effective publication date: between April 1903 and 22 June 1903.

Lectotype: TRH, unnumbered (designated by Foslie 1904b, p. 74); includes slide 770 (two slides with same number) and one unnumbered slide.

Adey & Lebednik (1967, p. 15) incorrectly list the slide number as 700.

Type locality and collection data: South Nilandu, Maldives Islands; collected by J. Stanley Gardiner, 20 April 1900.

TRH drawer: A-1.

Previous references to typification: Foslie 1904b, p. 74 (as *Mastophora*); Adey & Lebednik 1967, p. 15 (as *Mastophora*); Adey 1970, p. 15 (as *Lithoporella*); Womersley & Bailey 1970, p. 310 (as *Lithoporella*); Adey *et al.* 1982, p. 34 (as *Lithoporella*); Woelkerling 1988, p. 127 (as *Lithoporella*).

Published illustrations of lectotype: Foslie 1904b, text figs 30A, 31A (as *Mastophora*); Printz 1929, pl. 73, fig. 1 (as *Mastophora*); Turner & Woelkerling 1982, fig. 2 (as *Lithoporella*).

Comments: Foslie (1903b) described *Mastophora melobesioides* without reference to localities or specimens, but subsequently Foslie (1904b, p. 74) designated a type specimen. Because Foslie also had specimens of *Mastophora melobesioides* available from the Siboga expedition when the protologue was published, his 1904b designation must be interpreted as a lectotypification. Turner & Woelkerling (1982, p. 204) and Adey *et al.* (1982, p. 34) incorrectly refer to the type as a holotype, and Woelkerling (1988, p. 127) attributed the lectotypification to Adey & Lebednik (1967) rather than Foslie (1904b).

mesomorphum

Basionym & protologue: *Lithothamnion mesomorphum* Foslie 1901a, p. 5.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, Farlow no. XI; includes slides 485 and 840.

Type locality and collection data: Bermuda; collector not indicated, January 1879.

TRH drawer: B-18.

Previous references to typification: Adey & Lebednik 1967, p. 70 (as *Lithothamnion*); Adey 1970, p. 25 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 9, figs 7-8 (as *Lithothamnion mesomorphum* f. *typica*).

Comments: The holotype element now contains the specimen depicted in pl. 9, fig. 7 of Printz (1929) and a few fragments; the specimen depicted in fig. 8 is no longer present.

microcarpa

Basionym & protologue: *Goniolithon mamillosum* f. *microcarpa* Foslie 1907b, p. 24.

Effective publication date: between 30 September 1907 and 27 January 1908.

Lectotype: TRH, unnumbered (designated here); includes slides 918 and 920.

Type locality and collection data: St. Vincente, Cape Verde Islands; collected by *Vanhöffen*, September 1901.

TRH drawer: A-11; listed under *Goniolithon mamillosum* in Adey & Lebednik (1967, p. 27).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: In the protologue of *Goniolithon mamillosum* f. *microcarpa*, Foslie (1907b) does not mention any specimens but states that a more detailed account (Foslie 1908a) is in press. In the 1908a account, Foslie cites collections from Cape Blanco (collected by *Weber van Bosse*) and St. Vincente, Cape Verde Islands (collected by *Vanhöffen*); both are present in TRH and labelled f. *microcarpa*. The designated lectotype is the larger of the two collections.

microspora

Basionym & protologue: *Lithothamnion californicum* f. *microspora* Foslie 1902a, p. 5.

Effective publication date: between 11 September and 20 November 1902.

Lectotype: TRH, unnumbered (designated by P. A. Lebednik); includes slide 583.

Type locality and collection data: Pacific Beach near San Diego, California, collected by *E. Snyder*, no collection date; comm. F. S. Collins, 1901.

TRH drawer: B-2; listed under *Lithothamnion microsporum* in Adey & Lebednik (1967, p. 52).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1902a), based *Lithothamnion californicum* f. *microspora* on specimens from Pacific Beach near San Diego, California collected by *E. Snyder*. Four collections of material labelled *Lithothamnion californicum* f. *microspora* are at TRH (two have been grouped under a single entry in Adey & Lebednik, 1967, p. 52). In 1976, P. A. Lebednik (unpublished) designated the collection involving slide 583 as lectotype.

minuta

Nomen nudum: *Lithothamnion calcareum* f. *minuta* Foslie 1905c, p. 69.

Comments: The name *Lithothamnion calcareum* f. *minuta* appeared once in Foslie's publications but without diagnosis or description.

minuta

Basionym & protologue: *Lithothamnion coralloides* f. *minuta* Foslie 1899c, p. 7.

Effective publication date: 5 January 1899.

Holotype: TRH, unnumbered; includes slides 277 and 1157.

Type locality and collection data: Holavre Island, Gulf of Morbihan, France; no collector given, 20 August 1872.

TRH drawer: C-2; listed under *Lithothamnion solutum* in Adey & Lebednik (1967, p. 75).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 17, fig. 17 (as *Lithothamnion solutum* f. *typica*).

Comments: While Foslie (1899c, p. 9) definitely accepted f. *minuta*, he only provisionally referred it to *Lithothamnion coralloides*. Subsequently, Foslie (1908a, p. 214) treated *Lithothamnion coralloides* f. *minuta* as a heterotypic synonym of *Lithothamnion solutum*, which accounts for the use of this name by Printz (1929).

minuta

Basionym & protologue: *Lithothamnion siamense* f. *minuta* Foslie 1901b, p. 19.

Comments: *Lithothamnion siamense* f. *minuta* is a superfluous substitute name for *Lithothamnion siamense* f. *siamense*.

minutula

Basionym & protologue: *Lithothamnion australe* f. *minutula* Foslie 1904b, p. 24.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: L 991, 239-231 (designated by Verheij & Woelkerling) (Siboga Expedition collection 673, portion in L; the portion in TRH is an isolectotype); includes one slide.

Isolectotypes: L 943, 5-147 (Siboga Expedition collections 1 and 34); includes one slide.

Isolectotypes: TRH (Siboga Expedition collection 673, portion in TRH; the portion in L is the lectotype); includes one slide.

Type locality and collection data: Tual, Kei Islands, Indonesia; collected by A. Weber van Bosse, 12-16 December 1899 (Siboga Expedition station 258).

TRH drawer: C-17; listed under *Lithothamnion australe* in Adey & Lebednik (1967, p. 82).

Previous references to typification: Verheij & Woelkerling 1992, p. 281 (as *Lithothamnion australe* f. *minutula*).

Published illustrations of lectotype: Foslie 1904b, pl. 2, figs 51-63 (as *Lithothamnion australe* f. *minutula*); Printz 1929, pl. 17, figs 71-83 (as *Lithothamnion australe* f. *minutula*).

Comments: The basis for selection of the designated lectotype is explained

by Verheij & Woelkerling (1992). The lectotype element contains over 150 specimens.

minutula

Basionym & protologue: *Melobesia minutula* Foslie 1904c, p. 8.

Effective publication date: between 24 December 1904 and 11 January 1905.

Holotype: TRH, unnumbered; includes slides 878 and 885 and three unnumbered slides.

Type locality and collection data: Galtene, Hvaløene, Norway; collector not indicated, 25 July 1903.

TRH drawer: A-15.

Previous references to typification: Dawson 1960, p. 56 (as *Heteroderma*); Adey & Lebednik 1967, p. 35 (as *Melobesia*); Adey 1970, p. 16 (as *Heteroderma*).

Published illustrations of holotype: ?

Comments: The host (*Corallina*) on which the holotype occurs is badly fragmented.

mirabile

Basionym & protologue: *Archaeolithothamnion mirabile* Foslie 1899c, p. 3.

Effective publication date: 5 January 1899.

Holotype: TRH, unnumbered; includes slides 63, 64 and 515 and four unnumbered slides.

Type locality and collection data: Corner Inlet, Victoria, Australia; collected by *J. Gabriel*, January–February 1897.

TRH drawer: B-2.

Previous references to typification: Adey & Lebednik 1967, p. 52 (as *Lithothamnion*); Adey 1970, p. 20 (as *Lithothamnion*).

Published illustrations of holotype: ?

Comments: The holotype element contains 13 stones and shells and some small fragments with attached plants. The nature of reported type specimens in BM (Tittley *et al.* 1984, p. 6) has not been investigated during the present study.

misakiense

Basionym & protologue: *Goniolithon misakiense* Foslie 1905d, p. 4.

Effective publication date: between 25 August 1905 and 30 April 1906.

Holotype: TRH, unnumbered; includes slides 1008 and 1009.

Type locality and collection data: Misaki, Japan; collected by *K. Yendo*, April 1905.

TRH drawer: A-10.

Previous references to typification: Adey & Lebednik 1967, p. 25 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 45, figs 22–24 (as *Goniolithon*).

Comments: Rock pieces in the holotype element cannot easily be matched with the pieces depicted in Printz (1929).

mollis

Basionym & protologue: *Sporolithon ptychoides* f. *mollis* Heydrich 1897c, p. 67.

Effective publication date: ?

Syntype: TRH, Heydrich no. 11.

Type locality and collection data: El Tor, Red Sea; collected by Kaiser, date not indicated.

TRH drawer: C-19; listed under *Archaeolithothamnion erythraeum* in Adey & Lebednik (1967, p. 85).

Previous references to typification: ?

Published illustrations of TRH syntype: Foslie 1904b, pl. 6, fig. 1 (as *Sporolithon ptychoides* f. *mollis*).

Comments: Heydrich (1897c, p. 67, pl. 3, figs 15-19) based *Sporolithon ptychoides* f. *mollis* on material from the Red Sea but did not designate a type or indicate how many specimens were involved. Heydrich's herbarium is presumed to be destroyed (Stafleu & Cowan 1979, p. 187), and thus the number of specimens that Heydrich based *Sporolithon ptychoides* f. *mollis* on can no longer be determined. The TRH syntype consists of the small fragment depicted in Foslie (1904b). Heydrich (1897a, pp. 416, 417) divided *Sporolithon ptychoides* f. *mollis* into two species (*Sporolithon molle* and *S. crassum*), retaining the plants depicted in Heydrich (1897c, figs 16, 18, 19) within *S. molle*. Foslie (1904b, p. 38) considered *Sporolithon ptychoides* f. *mollis* to be a form of *Archaeolithothamnion erythraeum*, which accounts for placement of the specimen in the Foslie herbarium.

moluccense

Basionym & protologue: *Lithothamnion moluccense* Foslie 1897c, p. 12.

Effective publication date: between 1 July and 31 December 1897.

Holotype: TRH, unnumbered; includes slide 432 and 29 unnumbered slides prepared by Prof. M. Möbius.

Type locality and collection data: Moluccas Islands; collected by Kükenthal, no date; comm. M. Möbius.

TRH drawer: A-4.

Previous references to typification: Adey & Lebednik 1967, p. 19 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*); Womersley & Bailey 1970, p. 309 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 55, fig. 14 (as *Lithophyllum moluccense* f. *typica*).

Comments: Approximately 90% of the holotype as depicted in Printz (1929) is no longer present in TRH.

monostromaticum

Basionym & protologue: *Lithothamnion monostromaticum* Foslie 1903a, p. 3.

Effective publication date: 31 December 1903.

Holotype: TRH, unnumbered; includes two unnumbered slides.

Type locality and collection data: New Zealand; collected by *Laing*, date not indicated; ex herb. Reinbold.

TRH drawer: B-1.

Previous references to typification: Adey & Lebednik 1967, p. 50 (as *Lithothamnion*); Adey 1970, p. 16 (as *Heteroderma*).

Published illustrations of holotype: ?

Comments: In 1904, Foslie (1904c, p. 4) changed the name *Lithothamnion monostromaticum* to *Lithothamnion melobesioides*. In accordance with ICBN Art, 63.1, the latter is superfluous and illegitimate.

montereyicum

Basionym & protologue: *Lithothamnion montereyicum* Foslie 1906b, p. 14.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, Setchell no. 2064; includes slides 1176 and 1177.

Type locality and collection data: Monterey, California, USA; collected by *H. P. Johnson*, July 1897.

TRH drawer: C-17.

Previous references to typification: Mason 1953, p. 325 (as *Lithothamnion*); Adey & Lebednik 1967, p. 82 (as *Lithothamnion*); Adey 1970, p. 21 (as *Lithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 17, figs 28, 29 (as *Lithothamnion*).

Comments: The specimens depicted in Printz (1929) have become fragmented.

munitum

Basionym & protologue: *Lithophyllum munitum* Foslie et Howe 1906b, p. (132).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 4023.

Isotype: TRH, Howe no. 4023; includes three slides also numbered 4023.

Isotype: BM.

TRH drawer: A-4.

Previous references to typification: Adey & Lebednik 1967, p. 20 (as *Lithophyllum*); Adey 1970, p. 9 (as *Neogoniolithon*).

Type locality and collection data: Cave Cays, Exuma Chain, Bahamas; collected by *M. A. Howe*, 19 February 1905.

Published illustrations of holotype: Foslie & Howe 1906b, pls 86, 88, and 89 (as *Lithophyllum munitum*).

Published illustrations of isotype: Printz 1929, pl. 56, figs 16-17 (as *Lithophyllum munitum*).

Comments: Foslie & Howe (1906b) based *Lithophyllum munitum* on a single named collection and explicitly state [1906b, p. (128)] that the main specimens are in NY and that duplicates were sent to Trondheim (TRH). The NY holotype has not been examined during the present study. Adey (1970, p. 9) incorrectly suggests that the holotype is in TRH. The TRH isotype element contains two pieces of rock with attached thalli and a number of small plant fragments. Neither of the larger pieces matches the specimens depicted in Printz (1929), contrary to suggestions in the entry for this taxon in Adey & Lebednik (1967) and information on the box cover for the collection. The BM isotype (see Tittley *et al.* 1984, p. 9) has not been examined during the present study.

muricatum

Basionym & protologue: *Phymatolithon muricatum* Foslie 1906c, p. 19 (p. 3 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Holotype: TRH, unnumbered; includes slides 715, 717-719, 721 and 727.

Isotype: UC 736389.

Type locality and collection data: Port Renfrew, Vancouver Island, British Columbia, Canada; collected by K. Yendo, June-July 1901.

TRH drawer: A-3.

Previous references to typification: Mason 1953, p. 326 (as *Lithothamnion*); Adey & Lebednik 1967, p. 18 (as *Lithophyllum*); Adey 1970, p. 29 (as *Phymatolithon*).

Published illustrations of holotype: Printz 1929, pl. 54, figs 24-26 (as *Lithophyllum*).

Comments: The holotype element consists of plants on 9(-10) stones and two shells, three of which are depicted in Printz (1929). The stone depicted in pl. 54, fig. 26 is in fragments and is contained in a small box within the larger box housing all of parts of the holotype element. Adey (1970, p. 29) incorrectly used the term co-types for all parts of the holotype element, and there is no indication of any isotyping of material used for slide 721 in the TRH collection. The isotype in UC has not been examined during the present study. Slide 716, listed in Adey & Lebednik (1967, p. 18), is missing from TRH, but there are two slides with the number 719.

mutabile

Nomen nudum: *Lithothamnion mutabile* Foslie 1894b, p. 114 (p. 1 in independently paginated offprint).

Comments: The name *Lithothamnion mutabile* appeared once in publication (Foslie 1894b) but without diagnosis or description.

myriocarpon

Orthographic variant: *Goniolithon myriocarpon* Foslie 1904b, p. 45.

Comments: The specific epithet *myriocarpon* is an orthographic variant of

the specific epithet *myriocarpum* in the name *Lithothamnion myriocarpum* Foslie 1897c, p. 19. Foslie used the variant in a number of publications with the generic names *Goniolithon* and *Lithothamnion* (see Woelkerling 1984, p. 80 for references).

myriocarpum

Basionym & protologue: *Lithothamnion myriocarpum* Foslie 1897c, p. 19.
Effective publication date: between 1 July and 31 December 1897.

Holotype: TRH, unnumbered; includes slides 557, 1706, 1707, and one unnumbered slide.

Type locality and collection data: Massanah, Red Sea; collected by K. M. Levander, 1894-1895, comm. F. Elfring.

TRH drawer: A-10.

Previous references to typification: Adey & Lebednik 1967, p. 25 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*); Womersley & Bailey 1970, p. 311 (as *Neogoniolithon*).

Published illustrations of holotype: Foslie 1904b, pl. 9, fig. 6 (as *Goniolithon*); Printz 1929, pl. 46, fig. 6 (as *Goniolithon*).

Comments: The holotype is one of a number of collections of this species in TRH identified by Foslie.

nana

Basionym & protologue: *Goniolithon spectabile* f. *nana* Foslie.

Comments: This name was never published by Foslie, but rather by Printz (see Printz 1929, p. 31 and legend heading for pl. 49, figs 8-11), and it represents a new combination rather than a basionym. Further information is provided in the entry for *Goniolithon strictum* var. *nanum* Foslie et Howe below.

nana

Basionym & protologue: *Lithothamnion intermedium* f. *nana* Foslie 1891, p. 41 (p. 6 in independently paginated offprint), pl. 3, fig. 5.

Effective publication date: ?

Holotype: TRH, unnumbered.

Type locality and collection data: Skorpen, Kvænangen, Norway; collected by M. F. Foslie, 8 September 1890.

TRH drawer: B-8; listed under *Lithothamnion intermedium* in Adey & Lebednik (1967, p. 59).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1891, pl. 3, fig. 3 (as *Lithothamnion intermedium* f. *nana*).

Comments: The specimens comprising the holotype element were found in three small boxes which have been placed in one larger container; collectively the holotype element includes 14 of the 16 individuals shown in the protologue photo. Foslie's collection data on the box covers is written faintly in pencil and is now only barely discernible.

nana

Nomen nudum: *Lithothamnion ungeri* f. *nana* Foslie 1898b, p. 5.

Comments: *Lithothamnion ungeri* f. *nana* was mentioned twice by Foslie (1898b, p. 5; 1900i, p. 13) but without a description or diagnosis.

nanum

Basionym & protologue: *Goniolithon strictum* var. *nanum* Foslie et Howe 1906b, p. (131).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 2235.

Isotype: TRH, Howe no. 2235; includes one slide also numbered 2235.

Type locality and collection data: San Juan, Puerto Rico; collected by M. A. Howe, 28 May 1903.

TRH drawer: A-13; listed under *Goniolithon spectabile* in Adey & Lebednik (1967, p. 30).

Previous references to typification: ?

Published illustrations of holotype: Foslie & Howe 1906b, pl. 82, fig. 1 (as *Goniolithon strictum* var. *nanum*).

Published illustrations of isotype: Printz 1929, pl. 49, fig. 8 (as *Goniolithon spectabile* f. *nana*).

Comments: Foslie & Howe (1906b) based *Goniolithon strictum* var. *nanum* on collection 2235 of Howe from Puerto Rico and explicitly state [1906b, p. (128)] that the main specimens are in NY and that duplicates were sent to Trondheim (TRH). The NY holotype has not been examined during the present study. The TRH isotype consists of three pieces. One is figured in the protologue (the left most specimen in the lower row of pl. 82, fig. 1 in Foslie & Howe 1906b), and a second one appears in Printz (1929, pl. 49, fig. 8) under the name *Goniolithon spectabile* f. *nana* Foslie. Foslie never published *Goniolithon spectabile* f. *nana* Foslie, however, and thus the name must be attributed to Printz as a new combination, namely *Goniolithon spectabile* f. *nana* (Foslie et Howe) Foslie ex Printz (1929, p. 31 & legend heading for figs 8-11 on pl. 49).

natalense

Basionym & protologue: *Lithophyllum natalense* Foslie 1907a, p. 24.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 16); includes slide 703.

Type locality and collection data: Natal (or Port Nolloth?), South Africa; collected by A. Weber van Bosse, date not indicated.

TRH drawer: A-16.

Previous references to typification: Adey & Lebednik 1967, p. 16 (as *Lithophyllum*); Adey 1970, p. 13 (as *Pseudolithophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 53, fig. 6 (as *Lithophyllum*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 13).

neglecta

Basionym & protologue: *Lithothamnion muelleri* f. *neglecta* Foslie 1900a, p. 17.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 70); includes slide 360.

Type locality and collection data: Kerguelen; collected by *Eaton*, date not indicated.

TRH drawer: B-18; listed under *Lithothamnion neglectum* in Adey & Lebednik (1967, p. 70).

Previous references to typification: Adey & Lebednik 1967, p. 70 (as *Lithothamnion neglectum*); Adey 1970, p. 25 (as *Mesophyllum neglectum*).

Published illustrations of lectotype: Printz 1929, pl. 9, fig. 4 (as *Lithothamnion neglectum* f. *typica*).

Comments: Foslie (1900a) based *Lithothamnion muelleri* f. *neglecta* on specimens from several localities but did not designate a type. Subsequently, Foslie (1902b, p. 19) raised *Lithothamnion muelleri* f. *neglecta* to the rank of species, as *Lithothamnion neglectum*. Adey in Adey & Lebednik (1967, p. 70) lectotypified *Lithothamnion muelleri* f. *neglecta* with the Kerguelen collection, noting (Adey 1970, p. 25) that it was the only one in TRH clearly identified with the form name. The TRH collection contains only a few fragments of the specimen depicted in Printz (1929), who indicates that the main part of the specimen is in BM (transferred from K). Tittley *et al.* (1984), however, do not list any type material of *Lithothamnion muelleri* f. *neglecta* as being present in BM.

nexilis

Basionym & protologue: *Lithophyllum pachydermum* f. *nexilis* Foslie et Howe in Foslie 1909b, p. 41.

Effective publication date: between 1 June and 18 December 1909.

Holotype: TRH, Howe no. 5410; includes slide 1695.

Type locality and collection data: Abraham Bay, Mariguana, Bahamas; collected by *M. A. Howe*, 6 December 1907.

TRH drawer: A-26; listed under *Lithophyllum pachydermum* in Adey & Lebednik (1967, p. 47).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 67, fig. 11 (as *Lithophyllum*).

Comments: Foslie (1909b) based *Lithophyllum pachydermum* f. *nexilis* on a single collection (Howe 5410). Adey & Lebednik (1967, p. 47) grouped the holotype with another Howe collection (5333) from a nearby location under one entry.

nitidum

Basionym & protologue: *Lithothamnion nitidum* Foslie 1901e, p. 4.

Effective publication date: between 27 July and 31 December 1901.

Holotype: TRH, Yendo no. 784; includes slides 691 and 1562.

Type locality and collection data: Misaki, Japan; collected by K. Yendo, August 1900.

TRH drawer: B-17.

Previous references to typification: Adey & Lebednik 1967, p. 69 (as *Lithothamnion*); Adey 1970, p. 25 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 6, fig. 10 (as *Lithothamnion*).

Comments: About 85% of the holotype specimen depicted in Printz is no longer present.

nodulosum

Basionym & protologue: *Lithothamnion nodulosum* Foslie 1895, p. 144 (p. 116 in independently paginated offprint), pl. 21, figs 1-6.

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slides 169, 170.

Type locality and collection data: Brækstad (Ørlandet), Norway; collected by M. Foslie, 18 July 1894.

TRH drawer: C-5; listed under *Lithothamnion nodulosum* in Adey & Lebednik (1967, p. 76).

Previous references to typification: Adey & Lebednik 1967, p. 76 (as *Lithothamnion*); Adey 1970, p. 21 (as *Lithothamnion*).

Published illustrations of lectotype: Foslie 1895, pl. 21, figs 1, 2, 4 (as *Lithothamnion nodulosum*); Printz 1929, pl. 25, fig. 3 (as *Lithothamnion nodulosum* f. *typica*).

Comments: Foslie (1895) based *Lithothamnion nodulosum* on specimens from four localities in Norway but did not designate a type. Adey (in Adey & Lebednik 1967, p. 67) flagged collections from two of these localities, and Adey (1970, p. 21) referred to these as co-types. These collections, in effect, represent two of the syntypes (ICBN Art. 7.7), and only one syntype can serve as lectotype. The Brækstad collection, which contains three individuals (all unattached rhodoliths), is selected here as lectotype element.

The collection date on the outside of the box containing the lectotype is erroneously given as 1896, the year after publication of the protologue in which photos of the specimens appear; the correct date of 1894 is given on the slide labels and in Adey & Lebednik (1967, p. 76).

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 12) has not been determined during the present study.

notarisii

Basionym & protologue: *Melobesia notarisii* Dufour 1861, p. 39.

Effective publication date: ?

Syntype: TRH, unnumbered; includes slides 19 and 21.

Type locality and collection data: ?

TRH drawer: A-10.

Previous references to typification: ?

Published illustrations of TRH syntypes: ?

Comments: Dufour (1861) based *Melobesia notaristii* on collections from S. Giuliano and from Antibes (France) but did not designate a type. The species apparently has not been lectotypified. The Foslie herbarium contains two syntype collections from Antibes which Foslie obtained from PC. The Italian material consists only of a prepared slide (no. 21); the Antibes material includes a small stone (28 mm in greatest dimension) covered with coralline material, some additional fragments, and a slides (no. 19). Adey & Lebednik (1967, pp. 25, 26) list the collections but do not flag them as type.

notatum

Basionym & protologue: *Lithothamnion notatum* Foslie 1906b, p. 4.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, Yendo no. 352; includes slide 1248 (broken, with the portion containing the specimen missing).

Type locality and collection data: Marine Laboratory at Sagami Prov., Japan; collected by K. Yendo, 1899.

TRH drawer: B-1.

Previous references to typification: Adey & Lebednik 1967, p. 50 (as *Lithothamnion*); Adey 1970, p. 29 (as *Phymatolithon*).

Published illustrations of holotype: Printz 1929, pl. 1, fig. 13 (as *Lithothamnion*).

Comments: The holotype contains the single stone depicted in Printz (1929).

novae-zealandiae

Basionym & protologue: *Lithothamnion novae-zealandiae* Heydrich 1897c, p. 63.

Effective publication date: ?

Syntype: TRH, Heydrich no. 1; includes slides 88, 89, and 1629.

Type locality and collection data: Bay of Islands, New Zealand; collector and date not indicated.

TRH drawer: C-17.

Previous references to typification: ?

Published illustrations of TRH syntype: Printz 1929, pl. 17, figs 26, 27 (as *Lithothamnion novae-zealandiae*).

Comments: Heydrich (1901b, p. 63, pl. 3, figs 6, 7) based *Lithothamnion novae-zealandiae* on specimens from the Bay of Islands, but did not designate a type, and the specimens depicted in the protologue are considered to be destroyed (Stafleu & Cowan 1979, p. 187). The syntype material in TRH consists of several fragments which collectively appear

to constitute the specimen depicted in Printz (1929, pl. 17, fig. 27). The specimen depicted in Printz (1929, pl. 17, fig. 26) is no longer present in TRH. Adey & Lebednik (1967, p. 82) list the material but do not flag it as type.

obcrateriformis

Basionym & protologue: *Lithothamnion fornicatum* f. *obcrateriformis* Foslie 1905c, p. 39.

Comments: *Lithothamnion fornicatum* f. *obcrateriformis* is a superfluous substitute name for *Lithothamnion fornicatum* f. *fornicatum*.

obpyramidata

Basionym & protologue: *Lithophyllum gardineri* f. *obpyramidata* Foslie 1907a, p. 30.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated here); includes slide 1296.

Type locality and collection data: Coevity Island, Indian Ocean; leg J. Stanley Gardiner, September 1905.

TRH drawer: A-28; listed under *Lithophyllum gardineri* in Adey & Lebednik (1967, p. 48).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1907e, pl. 15, fig. 7 (as *Lithophyllum gardineri* f. *obpyramidata*); Foslie 1907f, pl. 19, fig. 7 (as *Lithophyllum gardineri* f. *obpyramidata*); Printz 1929, pl. 70, fig. 11 (as *Lithophyllum gardineri* f. *obpyramidata*).

Comments: Foslie (1907a) based *Lithophyllum gardineri* f. *obpyramidata* on material from the Indian Ocean but did not designate a type specimen. In TRH, there are several collections labelled *Lithophyllum gardineri* f. *obpyramidata* from localities mentioned in the protologue; the collection designated here as lectotype is the largest and appears to be the best preserved. Further information on this collection is provided in the account for *Lithophyllum gardineri*.

obtectula

Basionym & protologue: *Lithothamnion kerguelenum* f. *obtectula* Foslie 1899c, p. 10.

Effective publication date: 5 January 1899.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 64); includes slide 208.

Type locality and collection data: Royal Sound, Kerguelen; collected by J. Gundersen, 1898.

TRH drawer: B-15.

Previous references to typification: Adey & Lebednik 1967, p. 64 (as *Lithothamnion obtectulum*); Adey 1970, p. 27 (as *Clathromorphum obtectulum*).

Published illustrations of lectotype: Printz 1929, pl. 5, fig. 4 (as *Litho-*

thamnion obtectulum).

Comments: Foslie (1899c) based *Lithothamnion kerguelenum* f. *obtectula* on a single collection which is housed in four boxes in TRH. Subsequently, Foslie (1900f, p. 68; see also Foslie 1908a, p. 210) raised *Lithothamnion kerguelenum* f. *obtectula* to the rank of species, as *Lithothamnion obtectulum*.

Adey in (Adey & Lebednik 1967, p. 64) lectotypified *Lithothamnion kerguelenum* f. *obtectula* with the material in one of the four boxes. Subsequently, Adey (1970, p. 27) provided explanatory comments. The lectotype element consists of plants on 12 mollusc shells and some smaller fragments; one of the 12 is depicted in Printz (1929, pl. 5, fig. 4). This agrees with data on the outside of the box, but differs from the data for the entry of the flagged collection in Adey & Lebednik (1967, p. 64). Moreover, the flagged lectotype includes only slide 208; slide 1550 (also listed in Adey & Lebednik 1967, p. 64) was prepared from the mollusc shell depicted in Printz (1929, pl. 5, fig. 5) and is in another box. That box also is supposed to contain the shells depicted in pl. 5, figs 6 & 7 in Printz (1929), but these are not present.

occidentalis

Basionym & protologue: *Goniolithon mamillare* f. *occidentalis* Foslie 1906b, p. 15.

Effective publication date: between 1 December 1906 and 30 March 1907.

Lectotype: TRH, Børgesen no. 1879 (designated here); includes slides 1224, 1225 and 1252.

Type locality and collection data: Cruz Bay, St. John Island, US Virgin Islands; collected by F. Børgesen, 8 March 1906.

TRH drawer: A-11; listed under *Goniolithon mamillare* in Adey & Lebednik (1967, p. 26).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1906b) based *Goniolithon mamillare* f. *occidentalis* on Børgesen collections 1826 and 1879 from Cruz Bay (as Cruxbay). The lectotype designated here is the only one of these two now present at TRH. Adey & Lebednik 1967, p. 26 mistakenly report the Børgesen number as 1897.

occidentalis

Basionym & protologue: *Lithothamnion fruticulosus* f. *occidentalis* Foslie 1906b, p. 12.

Effective publication date: between 1 December 1906 and 30 March 1907.

Lectotype: TRH, Børgesen no. 1826 (designated here); includes slides 1226-1228.

Type locality and collection data: Cruz Bay, St. John Island, US Virgin Islands; collected by F. Børgesen, 6 March 1906.

TRH drawer: B-7; listed under *Lithothamnion occidentale* in Adey &

Lebednik (1967, p. 59).

Previous references to typification: Adey & Lebednik 1967, p. 59 (as *Lithothamnion*); Adey 1970, p. 21 (as *Lithothamnion*).

Published illustrations of lectotype: Printz 1929, pl. 13, figs 15, 17 (as *Lithothamnion occidentale* f. *typica*).

Comments: Foslie (1906b, pp. 12–14) based *Lithothamnion fruticosum* f. *occidentalis* on a series of Børgesen specimens from three localities in the West Indies (US Virgin Islands) but did not designate a type. Subsequently (Foslie 1908f, p. 3), the form was elevated to species level (as *Lithothamnion occidentale*).

Adey & Lebednik (1967, p. 59) flagged a single entry consisting of three Børgesen collections (Børgesen numbers 1826, 2003, 2072), and Adey (1970, p. 21) referred to these as co-types. These collections in effect represent three syntypes (ICBN Art 7.7); only one syntype can serve as lectotype, however. Other syntypes which could be considered are Børgesen collections numbered 1917, 2095, and 2221, details of which are listed in Adey & Lebednik (1967, p. 59). Adey (1970, p. 21) chose as co-types the three collections which had both slides and were illustrated in Printz (1929). Two of these three (2003 & 2072) have notations on the box covers in Foslie's script indicating that he considered (with a question mark) these specimens to belong to *Lithothamnion occidentale* f. *effusa* (Foslie) Foslie (1908f, p. 3; Basionym: *Lithothamnion solutum* f. *effusa* Foslie (1906b, p. 14), thus effectively eliminating them from consideration as lectotype of *L. fruticosum* f. *occidentalis*. (Børgesen collection 2003 has been designated here to lectotypify *Lithothamnion solutum* f. *effusa*. The third collection, Børgesen number 1826, however, was always regarded by Foslie (judging from his herbarium notations) to belong to f. *occidentalis*. Because of this and because it contains the greatest amount of material of any of the syntypes, it is designated here as lectotype element. The lectotype element contains five specimens in four small round boxes, only two of which are illustrated by Printz (1929).

ocellatum

Basionym & protologue: *Lithothamnion ocellatum* Foslie 1895, p. 140 (p. 112 in independently paginated offprint).

Effective publication date: 5 December 1895.

Holotype: TRH, unnumbered; includes slide 211.

Type locality and collection data: Lyngø, near Tromsø, Norway; collected by M. F. Foslie, 12 June 1882.

TRH drawer: C-26; listed under *Phymatolithon investiens* in Adey & Lebednik (1967, p. 92).

Previous references to typification: Adey & Lebednik 1967, p. 92 (as *Phymatolithon ocellatum*); Adey 1970, p. 92 (as *Phymatolithon ocellatum*).

Published illustrations of holotype: Foslie 1895, pl. 19, fig. 10 (as *Lithothamnion*); Printz 1929, pl. 40, fig. 2 (as *Phymatolithon investiens* f.

ocellata).

Comments: The holotype element was divided into two boxes, which have now been placed in a single larger box to serve as the holotype element. The smaller of the two boxes contained the fragment which was depicted by Foslie (1895, pl. 19, fig. 10) and Printz (1929, pl. 40, fig. 2). This fragment is missing, but the remainder of the holotype is in reasonably good condition and has numerous conceptacles. In 1905, Foslie (1905c, p. 81) reduced *Lithothamnion ocellatum* to *Phymatolithon investiens* f. *ocellata*, which accounts for placement of the specimen in the Foslie herbarium.

okamurai

Basionym & protologue: *Lithophyllum okamurai* Foslie 1900h, p. 4.

Effective publication date: between 26 June and 31 December 1900.

Lectotype: TRH, Yendo no. 408 (designated by Foslie 1904b, p. pl. 11, legend to fig. 11).

Type locality and collection data: Marine Laboratory at Sagami Prov., Japan; collected by K. Yendo, 1899.

TRH drawer: A-21.

Previous references to typification: Foslie 1904b, pl. 11, legend to fig. 11 (as *Lithophyllum*); Adey & Lebednik 1967, p. 42 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*); Womersley & Bailey 1970, p. 310 (as *Lithophyllum*).

Published illustrations of lectotype: Foslie 1904b, pl. 11, fig. 11 (as *Lithophyllum*).

Comments: Foslie (1900h) based *Lithophyllum okamurai* on a series of specimens from Japan but did not designate a type. Subsequently, however, Foslie (1904b, pl. 11, legend to fig. 11) (lecto)typified the species with the specimen indicated above.

oligocarpum

Basionym & protologue: *Lithophyllum oligocarpum* Foslie 1906c, p. 22 (p. 6 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Holotype: TRH, unnumbered; includes slide 1013.

Type locality and collection data: Puerto Orotava, Tenerife, Canary Islands; collected by C. Sauvageau, December 1904-February 1905.

TRH drawer: A-27.

Previous references to typification: Adey & Lebednik 1967, p. 47 (as *Lithophyllum*); Adey 1970, p. 10 (as *Porolithon*).

Published illustrations of holotype: Printz 1929, pl. 67, fig. 12 (as *Lithophyllum*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

onkodes

Basionym & protologue: *Lithothamnion onkodes* Heydrich 1897b, p. 6.

Effective publication date: ?

Lectotype: TRH, Heydrich no. 97 (designated by Adey *et al.* 1982, but see comments); includes slide 62.

TRH drawer: A-26.

Previous references to typification: Adey *et al.* 1982, p. 9 (as *Porolithon*); Penrose & Woelkerling 1988, pp. 162-166 (as *Porolithon*); Penrose & Woelkerling 1992, p. 83 (as *Hydrolithon*).

Type locality and collection data: Tami Island, Huon Gulf, New Guinea; collected by Bamler, March 1892.

Published illustrations of lectotype: Penrose & Woelkerling 1988, figs 10-14 (as *Porolithon*).

Comments: Heydrich (1897b, pl. 1, figs 11a, 11b) based *Lithothamnion onkodes* on specimens growing on corals from New Guinea but did not designate a type. The specimens depicted in the protologue (Heydrich 1897b, pl. 1, figs 11a, 11b) apparently have been destroyed (Stafleu & Cowan 1979, p. 187). Subsequently Adey *et al.* (1982, p. 9) referred to a Heydrich specimen in TRH (Penrose & Woelkerling 1988, fig. 10) as the holotype, but as this specimen is different from those depicted in the protologue (Heydrich 1897b, pl. 1, figs 11a, 11b), the TRH collection must be considered as the lectotype and not the holotype. Adey & Lebednik (1967, p. 46) list the collection but do not flag it as type.

orbiculatum

Basionym & protologue: *Lithothamnion orbiculatum* Foslie 1895, p. 171 (p. 143 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 21, but see comments); includes slide 207.

Type locality and collection data: Kristiansund, Norway; collected by F. L. Eckman, c. 1855; ex Naturhistoriska Riksmuseet, Stockholm (S).

TRH drawer: A-6.

Previous references to typification: Adey & Lebednik 1967, p. 21 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*); Chamberlain *et al.* 1991, p. 150 (as *Lithophyllum*).

Published illustrations of lectotype: Foslie 1895, pl. 22, figs 10, 11 (as *Lithothamnion*); Chamberlain *et al.* 1991, figs 1, 2 (as *Lithophyllum*).

Comments: Foslie (1895) based *Lithothamnion orbiculatum* principally on a collection from Norway but also mentioned a Batters collection from England, without specifying a type. Adey & Lebednik (1967, p. 21) typified *Lithothamnion orbiculatum* with the Norwegian collection, and Adey (1970, p. 5) and Chamberlain *et al.* (1991, p. 150) referred to it as the holotype. Because Foslie (1895) mentioned two collections in the protologue, however, the Norwegian collection must be treated as the lectotype rather than the holotype.

ornatum

Basionym & protologue: *Lithothamnion mesomorphum* var. *ornatum* Foslie et Howe 1906b, p. (129).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 4021. Foslie & Howe.

Isotype: TRH, Howe no. 4021; includes slide 1579 and two slides numbered Howe 4021.

Isotype: BM, Howe no. 4021.

Type locality and collection data: Cave Cays, Exuma Chain, Bahamas; collected by *M. A. Howe*, 19 February 1905.

TRH drawer: B-18; listed under *Lithothamnion mesomorphum* in Adey & Lebednik (1967, p. 70).

Previous references to typification: ?

Published illustrations of holotype: Foslie & Howe 1906b, pl. 80, fig. 2, pl. 90, fig. 2 (as *Lithothamnion mesomorphum* var. *ornatum*).

Published illustrations of isotype: Printz 1929, pl. 9, fig. 9 (as *Lithothamnion mesomorphum* var. *ornata*).

Comments: Foslie & Howe (1906b) based *Lithothamnion mesomorphum* var. *ornatum* on a single named collection and explicitly state [1906b, p. (128)] that the main specimens are in NY and that duplicates were sent to Trondheim (TRH). The NY holotype has not been examined during the present study. The TRH isotype element consists of two pieces, the smaller of which is depicted in Printz (1929). The BM isotype (Tittley *et al.* 1984, p. 12) has not been examined during the present investigation.

orotavicum

Basionym & protologue: *Goniolithon orotavicum* Foslie 1906c, p. 20 (p. 4 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Holotype: TRH, unnumbered; includes slides 1014, 1015 and 1055.

Type locality and collection data: Puerto Orotava, Tenerife, Canary Islands; collected by *C. Sauvageau*, December 1904–February 1905.

TRH drawer: A-10.

Previous references to typification: Adey & Lebednik 1967, p. 26 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*); Afonso-Carrillo 1984, p. 133 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 45, fig. 9 (as *Goniolithon*).

Comments: The holotype element includes four pieces, two of which form parts of the specimen depicted in Printz (1929).

pachydermum

Basionym & protologue: *Lithophyllum onkodes* f. *pachydermum* Foslie 1904c, p. 5.

Effective publication date: between 24 December 1904 and 11 January

1905.

Lectotype: TRH, Ørsted no. 548 (designated by Adey in Adey & Lebednik 1967, p. 47); includes slide 533.

Type locality and collection data: St. Croix (?), West Indies; collected by Ørsted, 1848.

TRH drawer: A-26.

Previous references to typification: Adey & Lebednik 1967, p. 47 (as *Lithophyllum pachydermum*); Adey 1970, p. 11 (as *Porolithon pachydermum*).

Published illustrations of lectotype: ?

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 11).

pacifica

Basionym & protologue: *Goniolithon notarisii* f. *pacifica* Foslie 1907a, p. 12.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, Yendo no. 783 (designated by Adey in Adey & Lebednik 1967, p. 26, but see comments); includes slide 690.

Type locality and collection data: Hinga Prov., Japan; collected by K. Yendo, August 1900.

TRH drawer: A-10; listed under *Goniolithon pacificum* in Adey & Lebednik (1967, p. 26).

Previous references to typification: Adey & Lebednik 1967, p. 26 (as *Goniolithon pacificum*); Adey 1970, p. 9 (as *Neogoniolithon pacificum*).

Published illustrations of lectotype: Printz 1929, pl. 45, fig. 16 (as *Goniolithon pacificum*).

Comments: Foslie (1907a) based *Goniolithon notarisii* f. *pacifica* on material from Japan without indicating localities or specifying a type. Subsequently, Adey (in Adey & Lebednik 1967, p. 31) flagged the collection from Hinga Prov., and Adey (1970, p. 9) later referred to this as the holotype. There are three collections in TRH which Foslie could have had at the time of protologue publication, however, and thus the collection flagged in Adey & Lebednik (1967) must be treated as the lectotype rather than the holotype. About 60% of the lectotype specimen as depicted in Printz (1929) is no longer present.

pacifica

Basionym & protologue: *Lithothamnion sonderi* f. *pacifica* Foslie 1902a, p. 4.

Effective publication date: between 11 September and 20 November 1902.

Lectotype: TRH, Setchell no. 1595 (designated Mason 1953, p. 328); includes slide 204.

Type locality and collection data: Pacific Grove, California; collected by W. A. Setchell, January 1897.

TRH drawer: B-15; listed under *Lithothamnion pacificum* in Adey &

Lebednik (1967, p. 64).

Previous references to typification: Mason 1953, p. 328 (as *Lithothamnion pacificum*); Dawson 1960, p. 22 (as *Lithothamnion pacificum*); Adey & Lebednik 1967, p. 64 (as *Lithothamnion pacificum*); Adey 1970, p. 21 (as *Lithothamnion pacificum*).

Published illustrations of lectotype: Printz 1929, pl. 4, fig. 14 (as *Lithothamnion pacificum* f. *typica*).

Comments: Foslie (1902a) based *Lithothamnion sonderi* f. *pacifica* on four collections from the west coast of North America but did not designate a type. Subsequently, Mason (1953, p. 328) lectotypified *Lithothamnion sonderi* f. *pacifica* with Setchell collection 1595 without giving reasons; Adey (1970, p. 21) provides further comments, however. Four years after the protologue was published, Foslie (1906b, p. 10) raised *Lithothamnion sonderi* f. *pacifica* to species rank, as *Lithothamnion pacificum*.

pacifica

Basionym & protologue: *Melobesia pacifica* Heydrich 1901b, p. 529.

Effective publication date: 11 January 1901 (date printed on title page of journal; manuscript was submitted in June 1900).

Holotype: PC, no. 49a (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Holotype fragment: TRH, no. 49a (as above); includes slides 653 and 654, and one unnumbered slide.

Type locality and collection data: Hawaiian Islands; collector and date not indicated.

TRH drawer: A-1.

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: The portion of the holotype element in TRH consists of a few very small fragments and three slides. Foslie (1903b, p. 25) transferred the species into *Mastophora* after previously (Foslie 1901d, p. 19) concluding that it belonged to the Peyssonneliaceae (as the Squamariaceae). The PC portion of the holotype has not been examined during the present study.

Adey & Lebednik (1967, p. 15) list the collection but do not flag it as type.

pallescens

Basionym & protologue: *Lithothamnion pallescens* Foslie 1896, p. 4.

Effective publication date: between 1 February and 30 June 1896.

Holotype: TRH, Hariot no. 5; includes slide 4 (missing).

Type locality and collection data: California, USA; collector and date not indicated; comm. P. Hariot.

TRH drawer: A-20.

Previous references to typification: Dawson 1960, p. 46 (as *Lithophyllum*);

Adey & Lebednik 1967, p. 42 (as *Lithophyllum*); Adey 1970, p. 5 (as

Lithophyllum); Adey *et al.* 1982, p. 41 (as *Lithophyllum*).

Published illustrations of holotype: Foslie 1896, figs 11-13 (as *Lithothamnion*); Printz 1929, pl. 64, figs 15, 16 (as *Lithophyllum*).

Comments: The piece of the holotype element depicted in Foslie 1896, fig. 13 (= Printz 1929, pl. 64, fig. 16) is no longer present in TRH. The 'isotypes' mentioned by Dawson (1960, p. 46) and Adey *et al.* (1982, p. 41) have not been seen during the present study.

palmatifida

Basionym & protologue: *Lithothamnion squarrulosum* f. *palmatifida* Foslie 1899c, p. 6.

Effective publication date: 5 January 1899.

Holotype: TRH, Rosenvinge no. 3387a; includes slides 90 and 91.

Type locality and collection data: Fladen, Kattegat, Denmark; collected by L. K. Rosenvinge, 12 May 1893.

TRH drawer: C-1; listed under *Lithothamnion calcareum* in Adey & Lebednik (1967, p. 75).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 16, fig. 20 (as *Lithothamnion calcareum* f. *compressa*).

Comments: In his herbarium, Foslie divided Rosenvinge's collection into two parts: 3387a, which is labelled *Lithothamnion calcareum* f. *palmatifida*; and 3387b, which is labelled *Lithothamnion calcareum* f. *valida*. It is the material in 3387a which is considered here to be the holotype element for *Lithothamnion squarrulosum* f. *palmatifida*. The holotype element includes nine individuals, one of which was depicted in Printz (1929) under the name *Lithothamnion calcareum* f. *compressa*.

In 1905, Foslie (1905c, p. 68) changed *Lithothamnion squarrulosum* f. *palmatifida* to *Lithothamnion calcareum* f. *palmatifida*, which accounts for the placement of this collections with others of *Lithothamnion calcareum* in the Foslie herbarium. It is not clear why Printz (1929) chose to include this specimen within *Lithothamnion calcareum* f. *compressa* because Foslie (1905c, p. 68) recognized f. *palmatifida* and f. *compressa* as distinct entities while Printz (1929) makes no mention of f. *palmatifida*.

Adey & Lebednik (1967) group three other collections with Rosenvinge 3387a under a single entry.

papillata

Basionym & protologue: *Lithothamnion polymorphum* f. *papillata* Foslie 1895, p. 115 (p. 87 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Helgoland, Germany; collected by P. Kuckuck, 23 January 1893.

TRH drawer: C-24; listed under *Phymatolithon polymorphum* in Adey &

Lebednik (1967, p. 90).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895a, pl. 17, fig. 23 (as *Lithothamnion polymorphum* f. *papillata*).

Comments: Foslie (1895) based *Lithothamnion polymorphum* f. *papillata* on collections of Wille from Mandal in Norway and of Kuckuck from Helgoland in Germany. Only the latter collection, which contains fertile plants, has been found and is designated here as lectotype element for *Lithothamnion polymorphum* f. *papillata*. The lectotype element consists of specimens in three small boxes which have been placed in a single larger box.

In 1905, Foslie (1905c, p. 76) placed the species *Lithothamnion polymorphum* into the genus *Phymatolithon* and changed the epithet *papillata* to the epithet *sublaevis*. Thus the epithet *sublaevis* is a superfluous substitute name for the epithet *papillata* (ICBN Art. 63.1).

paradoxum

Basionym & protologue: *Lithophyllum paradoxum* Foslie 1908d, p. 17.

Effective publication date: between 1 September and 28 September 1908.

Holotype: TRH, unnumbered; includes slide 1337 and one unnumbered slide.

Type locality and collection data: Port Prasein, New Ireland; collected by Bory de St. Vincent, date not indicated; ex PC, 1901.

TRH drawer: A-2.

Previous references to typification: Adey & Lebednik 1967, p. 16 (as *Lithophyllum*).

Published illustrations of holotype: ?

Comments: Foslie (1908d) based *Lithophyllum paradoxum* on a single collection obtained from PC which Heydrich (1901f) had referred to *Lithophyllum amplexifrons*.

parcum

Basionym & protologue: *Lithothamnion parcum* Setchell et Foslie in Foslie 1907b, p. 14.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, Setchell & Gibbs no. 3057b; includes slides 1576 and 1577.

Isotype: UC 745690 [see Mason 1953, p. 318 (as *Polyporolithon*) and Lebednik 1977, p. 88 (as *Clathromorphum*)].

Type locality and collection data: Monterey, California, USA; collected by Setchell & Gibbs, 10 January 1899.

TRH drawer: B-17.

Previous references to typification: Mason 1953, p. 318 (as *Polyporolithon*); Adey & Lebednik 1967, p. 69 (as *Lithothamnion*); Adey 1970, p. 27 (as *Clathromorphum*); Lebednik 1977, p. 88 (as *Clathromorphum*).

Published illustrations of holotype: Printz 1929, pl. 10, figs 18-23 (as

Lithothamnion).

Published illustrations of isotype: Mason 1953, pl. 28, 29a, 29b (as *Polyporolithon*).

Comments: The UC isotype has not been examined during the present study.

parvicocca

Basionym & protologue: *Lithothamnion apiculatum* f. *parvicocca* Foslie 1895, p. 82 (p. 54 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slides 74 and 75.

Type locality and collection data: Smølingraasa, Bejan, Trondheimsfjord, Norway, collected by M. F. Foslie, 7 July 1894.

TRH drawer: B-25; listed under *Lithothamnion fornicatum* in Adey & Lebednik (1967, p. 72).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 15, figs 7, 8 (as *Lithothamnion apiculatum* f. *parvicocca*).

Comments: Foslie (1895) based *Lithothamnion apiculatum* f. *parvicocca* on specimens from Bejan and depicted four individuals. Subsequently, Foslie (1905a, p. 38) subsumed *Lithothamnion apiculatum* f. *parvicocca* in *Lithothamnion fornicatum* f. *apiculata*. The specimens illustrated in pl. 15, figs 7 and 8 of the protologue (Foslie 1895) were labelled *Lithothamnion fornicatum* f. *apiculata*?, and collectively, they are designated here as the lectotype of *Lithothamnion apiculatum* f. *parvicocca*. The associated slides are clearly labelled *Lithothamnion apiculatum* f. *parvicocca*. The specimens illustrated in pl. 15, figs 5 and 6 have not been located.

parvula

Basionym & protologue: *Lithothamnion gibbosum* f. *parvula* Foslie 1907e, p. 100.

Comments: *Lithothamnion gibbosum* f. *parvula* is a superfluous substitute name for *Lithothamnion gibbosum* f. *gibbosum*.

patula

Basionym & protologue: *Lithothamnion apiculatum* f. *patula* Foslie 1895, p. 82 (p. 54 in independently paginated offprint).

Comments: The epithet *patula* in *Lithothamnion apiculatum* f. *patula* is a superfluous substitute name for the epithet *globulata* in *Lithothamnion norvegicum* f. *globulata*.

peruviense

Basionym & protologue: *Lithothamnion* (?) *peruviense* Heydrich 1901b, p. 545.

Effective publication date: 11 January 1901 (date printed on title page of

journal; manuscript was submitted in June 1900).

Holotype: PC, no. 59 (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Holotype fragments: TRH, no. 59 (as per above); includes slide 475.

Type locality and collection data: Coquimbo, Peru; collected by *Gaudichaud*, date not indicated.

TRH drawer: A-23.

Previous references to typification: ?

Published illustrations of holotype: Heydrich 1901b, pl. 9, fig. 5 [as *Lithothamnion* (?) *peruvienne*].

Comments: Foslie (1909b, p. 28) provided a detailed account of the TRH holotype fragments and referred the species to *Lithophyllum*. Adey & Lebednik (1967, p. 44) list the collection but do not flag it as type. The PC portion of the holotype has not been examined during the present study.

philippii

Basionym & protologue: *Lithothamnion philippii* Foslie 1897c, p. 7.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Gulf of Naples, Italy, collector and date not indicated, comm. Zoological Station Neapel, 1895.

TRH drawer: B-16.

Previous references to typification: Adey & Lebednik 1967, p. 67 (as *Lithothamnion*) and Adey 1970, p. 25 (as *Mesophyllum*).

Published illustrations of lectotype: ?

Comments: Foslie (1897c, p. 7) proposed *Lithothamnion philippii* for a series of specimens from the Gulf of Naples and other unspecified localities in the Mediterranean and included within this species plants that he felt had been misidentified as *Lithothamnion decussatum* by Solms-Laubach and by Hauck. Although Foslie (1897c) listed the taxon as *Lithothamnion philippii* nom. nov., he in effect described a new species without designating a type.

Adey & Lebednik (1967, p. 67) flagged a Vickers collection of 1900 from Naples which Adey (1970, p. 25) listed as lectotype. The collection box is labelled *L. philippii* f. *typica* in Foslie's script, and photographs of the Vickers specimen appear in a later publication of Foslie (1904d, pl. 1, fig. 1) and in Printz (1929, pl. 6, fig. 3). A second box is labelled *L. philippii*, Neapel 1900, collected by Anna Vickers and almost certainly forms part of the same collection.

The Vickers material cannot be used to typify *Lithothamnion philippii* because it was collected three years after publication of the protologue and because at least 10 other collections predating the protologue are in Foslie's herbarium. Four of these are labelled Naples or Gulf of Naples, the only locality explicitly mentioned in the protologue. One comes from the Hauck herbarium, but the specimen is small and has few

conceptacles. The remaining material was sent from the Zoological Station at Naples, and was obtained in 1895. Specimens in two of the three boxes collectively have been designated here as lectotype element because they contain both tetrasporangial and gametangial plants whose morphology closely resembles the 1900 Vickers plant labelled as *f. typica* by Foslie. These specimens are now housed in a single larger box. Material in the third box has not been included in the lectotype element because it is likely to represent a different species.

philippinensis

Basionym & protologue: *Litholepis indica* f. *philippinensis* Foslie 1908f, p. 9.

Effective publication date: between 23 December 1908 and 14 January 1909.

Holotype: TRH, unnumbered; includes slides 1715 and 1716.

Type locality and collection data: Adiagnao, Camarines Province, Luzon, Philippines; collected by C. B. Rorinson, 29 August 1908.

TRH drawer: A-16; listed under *Litholepis indica* in Adey & Lebednik (1967, p. 36).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: None.

phylloides

Basionym & protologue: *Lithophyllum lithophylloides* f. *phylloides* Heydrich 1901b, p. 531.

Comments: *Lithophyllum lithophylloides* f. *phylloides* is a superfluous substitute name for *Lithophyllum lithophylloides* f. *lithophylloides*.

phymatodeum

Basionym & protologue: *Lithothamnion phymatodeum* Foslie 1902a, p. 3.

Effective publication date: between 11 September and 20 November 1902.

Holotype: TRH, Algae of Puget Sound no. 653; includes slide 809.

Type locality and collection data: Whidbey Island, Washington, USA; collected by N. L. Gardner, July 1901.

TRH drawer: C-18.

Previous references to typification: Mason 1953, p. 327 (as *Lithothamnion*); Adey & Lebednik 1967, p. 83 (as *Lithothamnion*); Adey 1970, p. 21 (as *Lithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 4, figs 10, 11 (as *Lithothamnion phymatodeum* f. *typica*).

Comments: The isotypes mentioned by Mason (1953, p. 327) have not been examined during the present study.

pinguiense

Basionym & protologue: *Lithophyllum pinguiense* Heydrich 1901b, p. 535.
Effective publication date: 11 January 1901 (date printed on title page of journal; manuscript was submitted in June 1900).

Lectotype: PC, no. 25 (designated by Printz 1929, pl. 53, legend to fig. 15) (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Isolectotype: PC, no. 66a (this number may have been assigned by Hariot, whom Heydrich acknowledges on p. 529).

Lectotype fragment: TRH, unnumbered; includes slide 666.

Type locality and collection data: St. Paul Island, Indian Ocean; collected by G. de l'Isle, November 1874.

TRH drawer: A-2.

Previous references to typification: Printz 1929, pl. 53, legend to fig. 15 (as *Lithophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 53, fig. 15.

Comments: Heydrich (1901b) based *Lithophyllum pinguiense* on two collections of G. de l'Isle but did not designate a type. The species was lectotypified by Printz (1929, pl. 53, legend to fig. 15) with the collection from St. Paul Island. The PC portion of the lectotype has not been examined during the present study. Adey & Lebednik (1967, p. 16) list the collection but do not flag it as type.

planiuscula

Basionym & protologue: *Lithophyllum decussatum* f. *planiuscula* Foslie 1909b, p. 22.

Effective publication date: between 1 June and 18 December 1909.

Holotype: TRH, unnumbered; includes slide 784.

Type locality and collection data: Tangier, Morocco; collected by P. Kuckuck, 14 June 1901.

TRH drawer: A-24; listed under *Lithophyllum decussatum* in Adey & Lebednik (1967, p. 44).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 61, figs 3-7 (as *Lithophyllum decussatum* f. *planiuscula*).

Comments: Foslie (1909b) based *Lithophyllum decussatum* f. *planiuscula* on a single collection that he had previously (Foslie 1904d, p. 37) referred to *Lithophyllum expansum*. All of the holotype fragments are figured in Printz (1929).

platycarpum

Basionym & protologue: *Archaeolithothamnion platycarpum* Foslie 1898a, p. 3.

Comments: *Archaeolithothamnion platycarpum* is a provisional name and thus invalid (ICBN, Art. 34.1).

platyphyllum

- Basionym & protologue: *Goniolithon platyphyllum* Foslie 1899c, p. 13.
 Effective publication date: 5 January 1899.
 Holotype: TRH, unnumbered; includes slides 434 and 648, and one unnumbered slide.
 Type locality and collection data: St. Martin, Guadeloupe, West Indies; collected by Cleve, date not indicated.
 TRH drawer: A-23.
 Previous references to typification: Adey & Lebednik 1967, p. 44 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*).
 Published illustrations of holotype: Printz 1929, pl. 66, figs 8, 9 (as *Lithophyllum*).
 Comments: Foslie (1899c, p. 13) erroneously gives the type locality as West India.

plicata

- Basionym & protologue: *Lithothamnion falsellum* f. *plicata* Foslie 1900a, p. 10.
 Effective publication date: between 1 January and 25 June 1900.
 Holotype: TRH, BM 1899 no. 15; includes slide 341.
 Type locality and collection data: Cape of Good Hope, South Africa; collected by W. Tyson, 1894.
 TRH drawer: C-15; listed under *Lithothamnion prolixum* in Adey & Lebednik (1967, p. 80).
 Previous references to typification: ?
 Published illustrations of holotype: Printz 1929, pl. 14, fig. 13 (as *Lithothamnion prolixum* f. *plicata*).
 Comments: In 1908, Foslie (1908d, p. 9) transferred *Lithothamnion falsellum* f. *plicata* to *Lithothamnion prolixum* as *Lithothamnion prolixum* f. *plicata*.

polycephalum

- Basionym & protologue: *Lithophyllum polycephalum* Foslie 1905e, p. 16.
 Effective publication date: between April 1905 and 24 August 1905.
 Holotype: TRH, unnumbered; includes slides 910 and 911.
 Type locality and collection data: St. Vincent, Cape Verde Islands; collected by Vanhöffen, 1901.
 TRH drawer: A-19.
 Previous references to typification: Adey & Lebednik 1967, p. 41 (as *Lithophyllum*); Adey 1970, p. 7 (as *Tenarea*); Afonso-Carrillo 1984, p. 139 (as *Goniolithon*).
 Published illustrations of holotype: Printz 1929, pl. 72, fig. 18 (as *Lithophyllum*).
 Comments: Only a few fragments of the holotype as depicted in Printz (1929) are in TRH; the location of the rest of the specimen is unknown.

polyclonum

- Basionym & protologue: *Lithophyllum polyclonum* Foslie 1905e, p. 18.
 Effective publication date: between April 1905 and 24 August 1905.
 Holotype: TRH, unnumbered; includes slides 956 and 957.
 Type locality and collection data: West Indies; collected by H. Krebs, 1873; ex Botanical Museum and Herbarium, Copenhagen (C), 1905.
 TRH drawer: A-19.
 Previous references to typification: Adey & Lebednik 1967, p. 41 (as *Lithophyllum*); Adey 1970, p. 7 (as *Tenarea*).
 Published illustrations of holotype: Printz 1929, pl. 72, fig. 20 (as *Lithophyllum polyclonum* f. *flabelligera*).
 Comments: Foslie (1905e) used the name *Lithophyllum polyclonum* f. *typica*, but in accordance with ICBN Art. 24.3, this taxon must be known as *Lithophyllum polyclonum* f. *polyclonum*. Printz (1929, p. 37 and pl. 72, figs 20, 21) has mislabelled figs 20 and 21; fig. 20 pertains to the holotype of *Lithophyllum polyclonum* f. *polyclonum* while fig. 21 pertains to the holotype of *Lithophyllum polyclonum* f. *flabelligera*. Only a few fragments of the specimen pictured in fig. 20 remain, and there is no indication where the rest of the holotype has gone.

ponderosum

- Basionym & protologue: *Lithothamnion ponderosum* Foslie 1897c, p. 15.
 Effective publication date: between 1 July and 31 December 1897.
 Holotype: TRH, Henriques no. 28; includes slide 442.
 Type locality and collection data: São Tomé Island; no collector or date given; comm. Henriques.
 TRH drawer: A-27; listed under *Lithophyllum africanum* in Adey & Lebednik (1967, p. 47).
 Previous references to typification: Steentoft 1967, p. 128 (under *Lithophyllum africanum* f. *intermedia*).
 Published illustrations of holotype: ?
 Comments: In 1909, Foslie (1909b, p. 42) considered *Lithothamnion ponderosum* to be conspecific with *Lithophyllum africanum*, but he incorrectly adopted the 1900 name *africanum* rather than the 1897 name *ponderosum*. This explains why the type of *Lithothamnion ponderosum* is filed with specimens of *Lithophyllum africanum* at TRH. Adey & Lebednik incorrectly give the collector as Coimbra and list the locality as St. Thomas. Additional comments on the type are provided by Steentoft (1967, p. 128).

praetextatum

- Basionym & protologue: *Lithophyllum praetextatum* Foslie 1907a, p. 31.
 Effective publication date: between 21 June and 29 June 1907.
 Holotype: TRH, Farlow no. 16; includes slides 1497 and 1498.
 Type locality and collection data: Easter Island; collected by A. Agassiz, 21 December 1904; comm. Farlow, 1907.

TRH drawer: A-28.

Previous references to typification: Adey & Lebednik 1967, p. 48 (as *Lithophyllum*); Adey 1970, p. 11 (as *Porolithon*).

Published illustrations of holotype: Printz 1929, pl. 70, fig. 7 (as *Lithophyllum*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

proboscideum

Basionym & protologue: *Lithothamnion proboscideum* Foslie 1897c, p. 14. Effective publication date: between 1 July and 31 December 1897.

Lectotype: TRH, Setchell no. 1084A (designated by Mason 1953, p. 342); includes slide 440.

Type locality and collection data: Monterey, California; no collector or date indicated; comm. W. A. Setchell.

TRH drawer: A-23.

Isolectotype: UC 736383.

Previous references to typification: Mason 1953, p. 342 (as *Lithophyllum*); Dawson 1960, p. 48 (as *Lithophyllum*); Adey & Lebednik 1967, p. 44 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 63, figs 3, 4 (as *Lithophyllum*).

Comments: Foslie (1897c) based *Lithothamnion proboscideum* on two collections: Setchell no. 1084A from Monterey, California and Henriques no. 23 from Cape Verde, Africa. Subsequently, Mason (1953, p. 342) designated the Setchell collection as lectotype without giving reasons. Adey (1970, p. 5) stated that the Setchell collection was only one found in TRH. The Henriques collection, however, is filed with *Lithophyllum africanum* in drawer A-27. In 1900, Foslie (1900h, pp. 3, 4) removed the Henriques collection from *Lithothamnion proboscideum* and referred it to a new species, *Lithophyllum africanum*. The UC isolectotype has not been examined during the present study.

prolifer

Basionym & protologue: *Lithothamnion prolifer* Foslie 1904b, p. 18.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: L 943, 7-40 (Siboga Expedition collection 146) (designated by Verheij & Woelkerling 1992); includes two slides. The Leiden box L 943, 7-40 also contains the L isolectotype.

Lectotype fragment: TRH (Siboga Expedition collection 146; includes one slide).

Isolectotype: L 943, 7-40 (Siboga Expedition collection 139).

Isolectotype fragment: TRH (Siboga Expedition collection 139); includes one slide.

Type locality and collection data: Lumu-Lumu shoal, Borneo Bank, Indonesia; collected by A. Weber van Bosse, 10-11 June 1899 (Siboga

Expedition station 78).

TRH drawer: B-16.

Previous references to typification: Adey & Lebednik 1967, p. 67 (as *Lithothamnion*); Adey 1970, p. 25 (as *Mesophyllum*); Adey *et al.* 1982, p. 61 (as *Mesophyllum*); Verheij & Woelkerling 1992, p. 282 (as *Lithothamnion*).

Published illustrations of lectotype: Foslie 1904b, pl. 1, fig. 17 (as *Lithothamnion*); Printz 1929, pl. 8, fig. 12 (as *Lithothamnion*).

Published illustrations of isotype: Foslie 1904b, pl. 1, fig. 18 (as *Lithothamnion*); Printz 1929, pl. 8, fig. 13 (as *Lithothamnion*).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 282).

prolixum

Basionym & protologue: *Lithothamnion prolixum* Foslie 1908d, p. 9.

Effective publication date: between 1 September and 28 September 1908.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 80); includes slides 698 and 699.

TRH drawer: C-15.

Previous references to typification: Adey & Lebednik 1967, p. 80 (as *Lithothamnion*); Adey 1970, p. 25 (as *Mesophyllum*).

Type locality and collection data: Natal, South Africa; collected by A. Weber van Bosse, 1893.

Published illustrations of lectotype: Printz 1929, pl. 14, figs 9, 10 (as *Lithothamnion prolixum* f. *typica*).

Comments: Foslie (1908d) based *Lithothamnion prolixum* on specimens which he had earlier referred to *Lithothamnion falsellum* Heydrich. The basis for selection of the designated lectotype is explained by Adey (1970, p. 25). The lectotype element includes five specimens, two of which are depicted in Printz (1929).

prona

Basionym & protologue: *Lithophyllum coarctatum* f. *prona* Foslie 1909b, p. 45.

Comments: *Lithophyllum coarctatum* f. *prona* is a superfluous substitute name for *Lithophyllum coarctatum* f. *sandvicensis*.

propinqua

Basionym & protologue: *Goniolithon notarisii* f. *propinqua* Foslie 1900a, p. 21.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated here); includes slide 534.

Type locality and collection data: St. Croix, US Virgin Islands; collected by F. Børgesen, 1892.

TRH drawer: A-11; listed under *Goniolithon propinquum* in Adey & Lebednik (1967, p. 27).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1900a) described *Goniolithon notarisii* f. *propinqua* without citing any specimens localities for the form. Subsequently, however, Foslie (1908f, p. 4) raised the form to species level (as *Goniolithon propinquum*) and cited material of Hooper from Florida and material of Børgesen and Howe from the West Indies. Of these, only two Børgesen collections from the West Indies are explicitly labelled *Goniolithon notarisii* f. *propinqua* and are dated prior to the publication of the protologue. The collection designated here as lectotype element is the only one with an associated slide. In TRH, this material was housed in two small round boxes with identical information on the covers; these have now been placed in a single larger box to function collectively as the lectotype element.

propontidis

Basionym & protologue: *Lithothamnion propontidis* Foslie 1899c, p. 4.

Effective publication date: 5 January 1899.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 81); includes slides 1625 and 1626.

Type locality & collection data: Sea of Marmara, Turkey; collected by Andrussov, date not indicated.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 81 (as *Lithothamnion*); Adey 1970, p. 21 (as *Lithothamnion*).

Published illustrations of lectotype: Printz 1929, pl. 13, fig. 19 (as *Lithothamnion*).

Comments: Adey (in Adey & Lebednik 1967, p. 81) lectotypified *Lithothamnion propontidis* with a specimen that was referred to the species with doubt in the protologue account (Foslie 1899c, p. 6). The protologue is based principally on a series of specimens collected by J. Nemetz from San Stefano (now Yesilköy) Turkey, in the Sea of Marmara; most are dated 20 August 1896 but several are dated 1897. In Adey & Lebednik (1967, p. 81), all Nemetz specimens have been grouped under the 1896 collection date. Only about half of the specimen illustrated by Printz (1929) remains in the type collection; however, two additional pieces of material and some small fragments are also present in the lectotype box.

prostrata

Basionym & protologue: *Lithothamnion erubescens* f. *prostrata* Foslie 1901a, p. 3.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, Farlow no. XVIII; includes slide 491.

Type locality and collection data: Bermuda; collector and date unknown; comm. Farlow, 1900.

TRH drawer: C-15; listed under *Lithothamnion incertum* in Adey & Lebednik (1967, p. 80).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: The holotype element consists of two specimens, both with conceptacles. In 1904, Foslie (1904c, p. 5) concluded that *Lithothamnion erubescens* f. *prostrata* represented an independent species to which he gave the name *Lithothamnion incertum*. Thus the type of *Lithothamnion erubescens* f. *prostrata* is also the type of *Lithothamnion incertum*.

prototypum

Basionym & protologue: *Lithothamnion prototypum* Foslie 1897c, p. 18.

Effective publication date: between 1 July and 31 December 1897.

Holotype: TRH, unnumbered; includes slide 364 (missing).

Type locality and collection data: St. Croix, US Virgin Islands; collected by F. Børgesen, 1892.

TRH drawer: A-18.

Previous references to typification: Adey & Lebednik 1967, p. 40 (as *Lithophyllum*); Adey 1970, p. 7 (as *Tenarea*); Woelkerling & Campbell 1992 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 72, fig. 8 (as *Lithophyllum*); Woelkerling & Campbell 1992, figs 42A, 42C, 43A, 43C (as *Lithophyllum*).

Comments: Foslie (1897c, p. 19) mistakenly lists the type locality as St. Croix, West India.

prototypus

Nomen nudum: *Dermatolithon prototypus* Foslie 1900i, p. 22.

Comments: The name *Dermatolithon prototypus* appeared once in Foslie's publications (1900i) but without diagnosis or description. It probably is an orthographic variant of *Lithothamnion prototypum*.

prototypus

Nomen nudum: *Melobesia prototypus* Foslie 1898b, p. 11.

Comments: The name *Melobesia prototypus* appeared once in Foslie's publications (1898b) but without diagnosis or description. It probably is an orthographic variant of *Lithothamnion prototypum*.

pseudocrispata

Basionym & protologue: *Lithothamnion engelhartii* f. *pseudocrispata* Foslie 1901d, p. 27.

Effective publication date: between 27 July and 31 December 1901.

Holotype: PC (general herbarium), unnumbered.

Holotype fragment: TRH, unnumbered; includes slides 669, 1572 and 1573.

Type locality and collection data: Tasmania, Australia; collected by J. Milligan, 1864.

TRH drawer: B-18; listed under *Lithothamnion engelhartii* in Adey & Lebednik (1967, p. 69).

Previous references to typification: ?

Published illustrations of holotype: Heydrich 1901, pl. 11, figs 4,8 (as *Lithothamnion crispatum*); Printz 1929, pl. 7, fig. 18 (as *Lithothamnion*).

Comments: Foslie (1901d) based *Lithothamnion engelhartii* f. *pseudocrispata* on a collection from Tasmania that Heydrich (1901f, p. 540) had identified as *Lithothamnion crispatum*. The TRH portion of this collection constitutes a fragment from one of four specimens in PC that collectively constitute the holotype element. One of the PC specimens is depicted in Printz (1929) and two are depicted in Heydrich (1901).

pseudodentatum

Basionym & protologue: *Lithophyllum daedaleum* var. *pseudodentatum* Foslie et Howe, 1906b, p. (133), pl. 85, fig. 1.

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 2675.

Isotype: TRH, Howe no. 2675; includes one slide also numbered 2675.

Type locality and collection data: Salinas Bay, near Guánica, Puerto Rico; collected by M. A. Howe, 29 June 1903.

TRH drawer: A-22; listed under *Lithophyllum daedaleum* in Adey & Lebednik (1967, p. 43).

Previous references to typification: ?

Published illustrations of holotype: Foslie & Howe 1906b, pl. 85, fig. 1 (as *Lithophyllum*).

Published illustrations of isotype: Printz 1929, pl. 66, fig. 5 (as *Lithophyllum*).

Comments: Foslie & Howe (1906b) based *Lithophyllum daedaleum* var. *pseudodentatum* on a single collection and explicitly state [1906b, p. (128)] that the main specimens are in NY and that duplicates were sent to Trondheim (TRH). The NY holotype has not been examined during the present study. The TRH isotype consists of a single specimen, which is figured by Printz (1929).

pseudolichenoides

Basionym & protologue: *Lithophyllum pseudolichenoides* Heydrich 1902, p. 475.

Effective publication date: ?

Syntypes: PC.

Syntype fragments: TRH, unnumbered; includes slides 852, 1335 and 1719.

Type locality and collection data: See below.

TRH drawer: A-2.

Previous references to typification: ?

Published illustrations of syntypes: ?

Comments: Heydrich (1902) described *Lithophyllum pseudolichenoides* without listing specimens or localities; the syntype material in PC used

by Heydrich has not been examined during the present study. TRH contains a number of syntype fragments from Fort Dauphin, Madagascar identified by Heydrich; the largest measures 13 mm in greatest dimension. The fragments are housed in two small boxes (one pertaining to slide 1335 and one pertaining to slides 852 and 1719). These are listed under *Lithophyllum pseudolichenoides* and *Lithophyllum amplexifrons* in Adey & Lebednik (1967, pp. 15, 16) but have now been placed in a single larger box for purposes of typification.

pseudoramosa

Basionym & protologue: *Lithothamnion siamense* f. *pseudoramosa* Foslie 1904b, p. 10, pl. 1, figs 3-9.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: L 943, 7-15 (Siboga Expedition collection 673b) (designated by Verheij & Woelkerling 1992).

Isolectotypes: L 943, 7-38 (Siboga Expedition collections 673a and 675f); L 943, 7-42 (Siboga Expedition collection 3).

Isolectotypes: TRH (Siboga Expedition collection 1263); includes one slide.

Type locality and collection data: Tual, Kei Islands, Indonesia; collected by A. Weber van Bosse, 12-16 December 1899 (Siboga Expedition station 258).

TRH drawer: B-2; listed under *Lithothamnion siamense* in Adey & Lebednik (1967, p. 52).

Previous references to typification: Verheij & Woelkerling 1992, p. 282 (as *Lithothamnion siamense* f. *pseudoramosa*).

Published illustrations of lectotype: ?

Published illustrations of isolectotypes: Foslie 1904b, pl. 1, fig. 4 (collection 3, apparently missing), figs 5 & 6 (collection 673a), fig. 7 (collection 675f), figs 8 & 9 (collection 1263).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 283).

pteridoides

Basionym & protologue: *Lithothamnion fruticosum* f. *pteridoides* Foslie 1904b, p. 19.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: L 991, 239-236 (Siboga Expedition collection 178) (designated by Verheij & Woelkerling 1992).

Lectotype fragment: TRH (Siboga Expedition collection 178).

Isolectotypes: L 991, 239-239 (Siboga Expedition collection 176).

Isolectotypes: TRH [Siboga Expedition collections 179 (slide only) and 207].

Type locality and collection data: Banda Anchorage, Indonesia; collected by A. Weber van Bosse, November-December 1899 (Siboga Expedition station 240).

TRH drawer: B-7; listed under *Lithothamnion indicum* in Adey & Lebednik (1967, p. 59).

Previous references to typification: Verheij & Woelkerling 1992, p. 283 (as *Lithothamnion fruticulosum* f. *pteridoides*).

Published illustration of lectotype: Foslie 1904b, pl. 2, fig. 2.

Published illustration of isolectotype: Foslie 1904b, pl. 2, fig. 1.

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 283). The lectotype includes a single specimen, of which about 95% is in L and 5% in TRH.

ptychoides

Basionym & protologue: *Goniolithon notarisii* f. *ptychoides* Foslie 1904c, p. 5.

Effective publication date: between 24 December 1904 and 11 January 1905.

Lectotype: TRH, unnumbered (designated here); includes slide 845.

Type locality and collection data: Tangiers, Morocco; collected by P. Kuckuck, 4 June 1901.

TRH drawer: A-10; listed under *Goniolithon notarisii* in Adey & Lebednik (1967, p. 25).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1904c) based *Goniolithon notarisii* f. *ptychoides* on specimens mentioned in another paper (Foslie 1904d, p. 36; see also p. 22) which had smaller conceptacles than the type form of the species. Foslie (1904d, p. 36) stated that these collections came from Tangiers, and two such collections (grouped under a single entry in Adey & Lebednik 1967, p. 25) occur in TRH. The one designated here as lectotype is the larger of the two and has numerous conceptacles. There are also small amounts of a second coralline (probably *Lithophyllum lichenoides* Philippi) in this collection.

ptychoides

Basionym & protologue: *Lithophyllum okamurai* f. *ptychoides* Foslie 1907a, p. 29.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 42); includes slides 1283 and 1284.

Type locality and collection data: Saya de Malha, Indian Ocean; collected by Stanley Gardiner, August 1905.

TRH drawer: A-21.

Previous references to typification: Adey & Lebednik 1967, p. 42 (as *Lithophyllum ptychoides*); Adey 1970, p. 13 (as *Pseudolithophyllum ptychoides*).

Published illustrations of lectotype: Printz 1929, pl. 64, fig. 10 (as *Lithophyllum ptychoideum*).

Comments: The lectotype element consists of two specimens, one of which is depicted in Printz (1929). In 1909, Foslie (1909b, p. 32) raised

Lithophyllum okamurai f. *ptychoides* to species level, as *Lithophyllum ptychoides*. The nature of the type material in BM (Tittley *et al.* 1984, p. 9) has not been determined during the present study.

ptychoides

- Basionym & protologue: *Sporolithon ptychoides* Heydrich 1897a, p. 67.
 Effective publication date: ?
 Lectotype: TRH, Heydrich, no. 12 (designated by Woelkerling & Townsend in Woelkerling 1988, p. 207); includes slides 14 (2 slides) and 15.
 Type locality and collection data: El Tor, Red Sea; collector and date not indicated; comm. F. Heydrich.
 TRH drawer: C-19; listed under *Archaeolithothamnion erythraeum* in Adey & Lebednik (1967, p. 85).
 Previous references to typification: Woelkerling & Townsend in Woelkerling 1988, p. 207 (as *Sporolithon ptychoides*).
 Published illustrations of lectotype: Foslie 1904b, pl. 5, fig. 2 (as *Archaeolithothamnion erythraeum* f. *dura*); Printz 1929, pl. 42, fig. 1 (as *Archaeolithothamnion erythraeum* f. *dura*); Woelkerling 1988, figs. 239, 243, 245 (as *Sporolithon ptychoides*).
 Comments: The lectotype specimen of *Sporolithon ptychoides* f. *ptychoides* is also the lectotype specimen of *Sporolithon ptychoides* f. *dura* (see Silva *et al.* 1987, pp. 38, 39); in accordance with ICBN Arts 26.1 and 63.1, the name *Sporolithon ptychoides* f. *dura* is therefore superfluous for *Sporolithon ptychoides* f. *ptychoides*. Adey & Lebednik (1967, p. 85) group two collections under a single entry; the second collection pertains to type material of *Sporolithon ptychoides* f. *mollis*. Foslie (1904b, p. 38) regarded *Sporolithon ptychoides* to be a heterotypic synonym of *Archaeolithothamnion erythraeum*; this accounts for the placement of the material in the Foslie herbarium.

pulchrum

- Basionym & protologue: *Lithothamnion pulchrum* Weber van Bosse et Foslie in Foslie 1901c, p. 3.
 Effective publication date: between 27 July and 31 December 1901.
 Lectotype: TRH (Siboga Expedition collection 470) (designated by Verheij & Woelkerling 1992); includes one slide of specimen 470.
 Isolectotypes: TRH (Siboga Expedition collection 468). There also are fragments from collections 463 and 465 and prepared slides only of collections 462, 475, and 1264.
 Isolectotypes: L 943, 7-17 [Siboga Expedition collections 6 (includes two prepared slides), 25 (three prepared slides only), 454, 459, 460, 463, 465 (including one prepared slide), 468 (one prepared slide only), 469 (including one prepared slide), 472 (including one prepared slide), 477, 1264 and one box of fragments (unnumbered)].
 Isolectotype (?): USNC.
 Type locality and collection data: Sailus Besar, Celebes, Indonesia; collected

by A. Weber van Bosse, 17-18 February 1900 (Siboga Expedition station 315).

TRH drawer: C-2.

Previous references to typification: Adey & Lebednik 1967, p. 75 (as *Lithothamnion*); Adey *et al.* 1982, p. 53 (as *Lithothamnion*); Verheij & Woelkerling 1992, p. 284 (as *Lithothamnion*).

Published illustrations of lectotype: ?

Published illustrations of isolectotypes: Foslie 1904b, pl. 4, fig. 1 (collection 477), fig. 2 (collection 459), fig. 3 (collection 6; apparently missing), fig. 4 (collection 456; apparently missing), fig. 5 (collection 469), fig. 6 (collection 455), fig. 7 (collection 454), fig. 8 (collection 472), fig. 9 (collection 463), fig. 10 (collection 1264) (all as *Lithothamnion pulchrum*); Printz 1929, pl. 18, fig. 1 (collection 477), fig. 2 (collection 459), fig. 3 (collection 6; apparently missing), fig. 4 (collection 456; apparently missing), fig. 5 (collection 469), fig. 6 (collection 455), fig. 7 (collection 454), fig. 8 (collection 472), fig. 9 (collection 463) (all as *Lithothamnion pulchrum*). Collection 1264 is not illustrated in Printz (1929).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 284). The USNC isolectotype (see Adey *et al.* 1982, p. 53) has not been examined during the present study.

punctatum

Basionym & protologue: *Lithophyllum punctatum* Foslie 1906c, p. 22 (p. 6 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Holotype: TRH, unnumbered; includes slide 971.

Type locality and collection data: Trincomalee, Sri Lanka; collected by N. Svedelius, 17 April 1903.

TRH drawer: A-6.

Previous references to typification: Adey & Lebednik 1967, p. 22 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*); Adey *et al.* 1982, p. 47 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 57, fig. 17 (as *Lithophyllum*).

Comments: The holotype element contains plants attached to three stones, the largest of which is depicted in Printz (1929).

purpurascens

Basionym & protologue: *Lithothamnion funafutiense* f. *purpurascens* Foslie 1901b, p. 18.

Effective publication date: May 1901 (Stafleu & Cowan 1985, p. 253).

Lectotype: TRH, Bot. Mus. Hamb. no. VI (designated by Adey in Adey & Lebednik 1967, p. 64); includes slide 465.

Type locality and collection data: North side of Koh Chang, Gulf of Thailand, Thailand; collector not indicated, 7 March 1900.

TRH drawer: B-15; listed under *Lithothamnion purpurascens* in Adey &

Lebednik (1967, p. 64).

Previous references to typification: Adey & Lebednik 1967, p. 64 (as *Lithothamnion purpurascens*); Adey 1970, p. 26 (as *Mesophyllum purpurascens*); Adey *et al.* 1982, p. 61 (as *Mesophyllum purpurascens*).

Published illustrations of lectotype: Printz 1929, pl. 4, fig. 18 (as *Lithothamnion purpurascens*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 26). In Adey & Lebednik (1967, p. 64), the lectotype locality is given erroneously as Koh Mesan. In 1907, Foslie (1907e, p. 98) raised *Lithothamnion funafutiense* f. *purpurascens* to the rank of species, as *Lithothamnion purpurascens*.

pusilla

Basionym & protologue: *Lithothamnion colliculosum* f. *pusilla* Foslie 1905c, p. 35.

Effective publication date: between 25 August 1905 and 30 April 1906.

Lectotype: TRH, unnumbered (designated here); includes slides 76 and 77, and two unnumbered slides.

Type locality and collection data: Drøbak, Oslofjorden, Norway; collected by H. H. Gran, 12 July 1893.

TRH drawer: B-20; listed under *Lithothamnion colliculosum* in Adey & Lebednik (1967, p. 71).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1905c) based *Lithothamnion colliculosum* f. *pusilla* on material from localities in Norway and Sweden but did not designate a type. The only collection in TRH explicitly labelled *Lithothamnion colliculosum* f. *pusilla* and mentioned in the protologue is the Gran collection from Drøbak which is designated here as the lectotype. Adey & Lebednik group two Gran collections under one entry; the other is the designated lectotype of *Lithothamnion apiculatum* f. *connata*.

pusilla

Basionym & protologue: *Lithothamnion lichenoides* f. *pusilla* Foslie 1900a, p. 12.

Comments: *Lithothamnion lichenoides* f. *pusilla* is a superfluous substitute name for *Lithothamnion lichenoides* f. *epiphytica*.

pusilla

Basionym & protologue: *Lithothamnion norvegicum* f. *pusilla* Foslie 1900i, p. 13.

Comments: *Lithothamnion norvegicum* f. *pusilla* is a superfluous substitute name for *Lithothamnion norvegicum* f. *genuina* (Foslie 1898b, p. 6). Both of these names pertain to the typical form of the species (note comment of Foslie 1905c, p. 66), and in accordance with ICBN Arts 24.3 and 26.1,

this taxon must be known as *Lithothamnion norvegicum* (Areschoug) Kjellman f. *norvegicum*.

pygmaea

Basionym & protologue: *Mastophora pygmaea* Heydrich 1894, p. 300.

Effective publication date: ?

Syntype slide: TRH, includes one unnumbered slide.

Type locality and collection data: Kelung, Taiwan; collected by Warburg, January 1888 (see Heydrich 1894, p. 303).

TRH drawer: A-1.

Previous references to typification: ?

Published illustrations of type material: ?

Comments: Heydrich (1894) based *Mastophora pygmaea* on material from Kelung, Taiwan but did not designate a type or indicate how many specimens were involved. Heydrich's herbarium is presumed to be destroyed (Stafleu & Cowan 1979, p. 187), and thus the total number of specimens involved can no longer be determined. The TRH syntype consists only of a single unnumbered slide. Fan (1974) provides further comments on this species. Adey & Lebednik (1967, p. 15) list the collection but do not flag it as type.

ramosissima

Basionym & protologue: *Lithophyllum cristatum* f. *ramosissima* Heydrich 1902, p. 473.

Effective publication date: ?

Lectotype: PC (designated by Printz 1929, pl. 56, legend to fig. 15).

Lectotype fragment: TRH, unnumbered; includes slide 847.

Type locality and collection data: Algeria; collector and date not indicated.

TRH drawer: A-4; listed under *Lithophyllum byssoides* in Adey & Lebednik (1967, p. 19).

Previous references to typification: Printz 1929, pl. 56, legend to fig. 15 (as *Lithophyllum byssoides* f. *ramosissima*).

Published illustrations of lectotype fragment: Printz 1929, pl. 56, fig. 15 (as *Lithophyllum cristatum* f. *ramosissima*).

Comments: Heydrich (1902) described *Lithophyllum cristatum* f. *ramosissima* without listing specimens or localities. Subsequently, Printz (1929, pl. 56, legend to fig. 15) lectotypified the taxon with a collection in PC (not examined during the present study). The TRH portion of the lectotype consists of one larger piece (depicted in Printz 1929), a number of small fragments, and one slide. Foslie (1904c, p. 5; 1909b, p. 16) considered the Heydrich taxon to be a form of *Lithophyllum byssoides* (Lamarck) Foslie.

rasile

Basionym & protologue: *Lithophyllum rasile* Foslie 1907a, p. 34.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Hariot no. 25; includes slides 1444, 1473 and 1474.
 Type locality and collection data: Tahiti; collector and date not indicated; comm. P. Hariot, April 1907.
 TRH drawer: A-18.
 Previous references to typification: Adey & Lebednik 1967, p. 40 (as *Lithophyllum*); Adey 1970, p. 7 (as *Tenarea*).
 Published illustrations of holotype: Printz 1929, pl. 72, fig. 10 (as *Lithophyllum*).
 Comments: Adey & Lebednik (1967, p. 40) also list slide 1470, but this pertains to *Litholepis accola* according to information on the box cover; it is not with the holotype collection of *Lithophyllum rasile*.

reclinata

Basionym & protologue: *Lithothamnion conchatum* f. *reclinata* Setchell et Foslíe in Foslíe 1906b, p. 6.
 Effective publication date: between 1 December 1906 and 30 March 1907.
 Holotype: TRH, unnumbered; includes slides 728 and 1357.
 Type locality and collection data: Port Renfrew, Vancouver Island, British Columbia, Canada; collected by K. Yendo, July 1901.
 TRH drawer: B-17; listed under *Lithothamnion reclinatum* in Adey & Lebednik (1967, p. 69).
 Previous references to typification: Mason 1953, p. 319 (as *Polyporolithon reclinatum*); Adey & Lebednik 1967, p. 69 (as *Lithothamnion reclinatum*); Adey 1970, p. 28 (as *Clathromorphum*); Lebednik 1977, p. 94 (as *Clathromorphum*).
 Published illustrations of holotype: Printz 1929, pl. 10, figs 14-17 (as *Lithothamnion reclinatum*).
 Comments: In 1907, Foslíe (1907b, p. 14) raised *Lithothamnion conchatum* f. *reclinata* to the rank of species, as *Lithothamnion reclinatum*.

reducta

Basionym & protologue: *Lithothamnion granii* f. *reducta* Foslíe 1905c, p. 59.
 Effective publication date: between 25 August 1905 and 30 April 1906.
 Neotype: TRH, unnumbered (designated here).
 Type locality and collection data: Drøbak, Norway, collected by M. F. Foslíe, 10 August 1902.
 TRH drawer: C-10; listed under *Lithothamnion granii* in Adey & Lebednik (1967, p. 78).
 Previous references to typification: ?
 Published illustrations of neotype: ?
 Comments: Foslíe (1905c) based *Lithothamnion granii* f. *reducta* on collections from several localities without specifying a type. There are no collections in TRH labelled *Lithothamnion granii* f. *reducta* which predate 1905 and come from one of the localities listed in the protologue. However, there is one box that is labelled *Lithothamnion granii* f. *reducta*

in Foslie's hand and predates the protologue, but the specimens come from Drøbak, a locality not mentioned in the protologue. Because of the locality difference, the Drøbak collection is designated here as the neotype element of *Lithothamnion granii* f. *reducta* rather than lectotype. Adey & Lebednik (1967, p. 78) have grouped this collection under a single entry with a second collection from the same locality and date but labelled only *Lithothamnion granii*.

redunca

Nomen nudum: *Lithophyllum kotschyanum* f. *redunca* Foslie 1909b, p. 36.
 Comments: The name *Lithophyllum kotschyanum* f. *redunca* appeared once in Foslie's publications (1909b) but without diagnosis or description; it almost certainly is an error for *Lithophyllum kotschyanum* f. *subredunca* (Foslie) Foslie 1909b, p. 34.

reinboldii

Basionym & protologue: *Lithophyllum reinboldii* Weber van Bosse et Foslie in Foslie 1901c, p. 5.

Effective publication date: between 27 July and 31 December 1901.

Lectotype: TRH (Siboga Expedition collection 38) (designated by Adey in Adey & Lebednik 1967, p. 32).

Isolectotypes: TRH (Siboga Expedition collections 57 and 74).

Isolectotypes: L 991, 239-240 and 991, 239-241 [Siboga Expedition collections 5 (slide only), 39 (slide only), 43 (includes one slide), 44-46, 53, 56, 59, 59, 61, 62 67, 71, 78 and 128).

Type locality and collection data: Moearas Reef, east coast of Borneo, Indonesia; collected by A. Weber van Bosse, 22 June 1899 (Siboga Expedition station 91).

TRH drawer: A-14.

Previous references to typification: Dawson 1960, p. 29 (as *Hydrolithon*); Adey & Lebednik 1967, p. 32 (as *Goniolithon*); Adey 1970, p. 11 (as *Hydrolithon*); Adey *et al.* 1982, p. 26 (as *Hydrolithon*); Penrose & Woelkerling 1988, p. 161 (as *Hydrolithon*); Penrose & Woelkerling 1992, p. 83 (as *Hydrolithon*); Verheij & Woelkerling 1992, p. 284 (as *Lithophyllum*).

Published illustrations of lectotype: Penrose & Woelkerling 1988, figs 1-9 (as *Hydrolithon reinboldii*); 1992, fig. 3 (as *Hydrolithon reinboldii*).

Published illustrations of isolectotypes: Foslie 1904b, pl. 10 fig. 5 (collection 39; apparently missing), fig. 6 (collection 53) (both as *Lithophyllum*); Printz 1929, pl. 52 fig. 5 (collection 39; apparently missing), fig. 6 (collection 53) (both as *Goniolithon*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 11). Adey *et al.* (1982, p. 26) incorrectly refer to the lectotype as the holotype.

repandum

Basionym & protologue: *Lithothamnion repandum* Foslie 1904c, p. 4.
Effective publication date: between 24 December 1904 and 11 January 1905.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 83); includes slides 358 and 516.

Type locality and collection data: Halfmoon Bay, Port Phillip Bay, Victoria, Australia; collected by J. Gabriel, 14 January 1899.

TRH drawer: C-18.

Previous references to typification: Adey & Lebednik 1967, p. 83 (as *Lithothamnion*); Adey 1970, p. 30 (as *Leptophytum*).

Published illustrations of lectotype: Printz 1929, pl. 1, fig. 10 (as *Lithothamnion*).

Comments: Foslie (1904c) based *Lithothamnion repandum* on his earlier taxon *Lithothamnion lenormandii* f. *australis* (Foslie 1901a, p. 8), and thus the type of both taxa is the same. The lectotype collection is contained in two boxes that are listed as separate entries by Adey & Lebednik (1967, p. 83); one box (involving slide 358) is flagged in the catalogue, while the other box (involving slide 516) is marked as lectotype in TRH. Because the two boxes are part of the same collection they have been put in a single container and the specimens therein are collectively considered to constitute the lectotype of *Lithothamnion lenormandii* f. *australis*.

repens

Basionym & protologue: *Lithothamnion expansum* f. *repens* Foslie 1897c, p. 3.

Comments: Foslie (1897c) based *Lithothamnion expansum* f. *repens* on Flahault collection no. 261 from the Mediterranean and some fragments from the Gulf of Naples. No TRH specimens labelled *Lithothamnion expansum* f. *repens* have been found nor has the Flahault collection been located. Consequently, *Lithothamnion expansum* f. *repens* has not been typified during this study, and its status remains uncertain.

retusum

Basionym & protologue: *Lithothamnion retusum* Foslie 1897c, p. 15.

Effective publication date: between 1 July and 31 December 1897.

Holotype: TRH, Henriques no. 24; includes slides 848, 874 and 875, and one unnumbered slide.

Type locality and collection data: Bay of Anna, São Tomé Island; collected by Møller, July 1885; comm. Henriques.

TRH drawer: A-22.

Previous references to typification: Adey & Lebednik 1967, p. 43 (as *Lithophyllum*); Adey 1970, p. 5 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 64, figs 12-14 (as *Lithophyllum*); Lawson & John 1982, pl. VII, figs C-E (as *Lithophyllum*);

Lawson & John 1987, pl. VII, figs C-E (as *Lithophyllum*).

Comments: The holotype element consists of a number of pieces, three of which are depicted in Printz (1929) and in Lawson & John (1982, 1987).

rhizophorae

Basionym & protologue: *Goniolithon rhizophorae* Foslie et Howe 1906b, p. (130).

Effective publication date: 17 March 1906.

Holotype: NY, Howe no. 4170.

Isotype: TRH, Howe no. 4170; includes slide 1708 and two additional slides numbered 4170.

Type locality and collection data: Great Exuma, Stocking Island, Bahamas; collected by M. A. Howe, 26 February 1905.

TRH drawer: A-11.

Previous references to typification: Adey & Lebednik 1967, p. 28 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*).

Published illustrations of holotype: Foslie & Howe 1906b, pl. 82, fig. 2 (as *Goniolithon*).

Published illustrations of isotype: Printz 1929, pl. 47, fig. 8 (as *Goniolithon*).

Comments: Foslie & Howe (1906b) based *Goniolithon rhizophorae* on a single collection and explicitly state [1906b, p. (128)] that the main specimens are in NY and that duplicates were sent to Trondheim (TRH); the holotype is in NY (not seen) and isotype material is in TRH. Adey (1970, p. 18) incorrectly suggests that the holotype is in TRH. About 75% of the TRH isotype depicted by Printz (1929) is no longer present.

robusta

Basionym & protologue: *Lithothamnion fornicatum* f. *robusta* Foslie 1895, p. 64 (p. 36 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Mestervik, Malangen, Norway; collector not indicated, 20 September 1890.

TRH drawer: B-21; listed under *Lithothamnion fornicatum* in Adey & Lebednik (1967, p. 71).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 9, fig. 4 (as *Lithothamnion fornicatum* f. *robusta*).

Comments: Foslie (1895) based *Lithothamnion fornicatum* f. *robusta* on specimens from several localities (mainly Mestervik), but did not designate a type. The specimen designated here as lectotype is depicted in pl. 9, fig. 4 of Foslie 1895, and a note with the specimen indicates that it is also the one depicted on the lower part of pl. 1 in Foslie 1891.

rosanoffii

Basionym & protologue: *Lithothamnion rosanoffii* Foslie 1908d, p. 5.

Effective publication date: between 1 September and 28 September 1908.

Holotype: TRH, unnumbered; includes slides 1342 and 1641, and one unnumbered slide.

Type locality and collection data: Port Phillip Bay, Victoria, Australia; collector and date not indicated; ex. herb. LeJolis.

TRH drawer: B-1.

Previous references to typification: Adey & Lebednik 1967, p. 50 (as *Melobesia*); Adey 1970, p. 30 (as *Melobesia*); Wilks & Woelkerling 1991, p. 525 (as *Melobesia*).

Published illustrations of holotype: Wilks & Woelkerling 1991, figs 23–27 (as *Melobesia rosanoffii*).

Comments: Wilks & Woelkerling (1991) have provided a detailed account of the holotype element.

rosenvingii

Basionym & protologue: *Lithothamnion flabellatum* f. *rosenvingii* Foslie 1895, p. 98 (p. 70 in independently paginated offprint).

Comments: *Lithothamnion flabellatum* f. *rosenvingii* is a superfluous substitute name for *Lithothamnion flabellatum* f. *flabellatum*; the species was described by Rosenvinge (1893, p. 772), and Foslie (1895) included within *Lithothamnion flabellatum* f. *rosenvingii* the entire species as described by Rosenvinge.

roseum

Basionym & protologue: *Lithothamnion roseum* Batters 1893, p. 20.

Effective publication date: September 1893 (date on first page of journal issue).

Syntype: TRH, unnumbered; includes slide 140 and two unnumbered slides.

Type locality and collection data: see below.

TRH drawer: B-20; listed under *Lithothamnion colliculosum* in Adey & Lebednik (1967, p. 71).

Previous references to typification: ?

Published illustrations of TRH syntype: Foslie 1895, pl. 17, figs 15, 16 (as *Lithothamnion colliculosum* f. *rosea*); Printz 1929, pl. 21, fig. 2 (as *Lithothamnion colliculosum* f. *typica*).

Comments: Batters (1893) based *Lithothamnion roseum* on specimens from three localities in the United Kingdom but did not designate a type, and apparently the species has not been formally lectotypified. TRH contains fragments of two syntypes from Berwick-on-Tweed collected by Batters in February 1888 and in January 1889. Specimens from the 1888 collection are depicted in Foslie (1895) and in Printz (1929). Tittley *et al.* (1984, p. 12) list additional syntype material in BM.

rugosum

Basionym & protologue: *Lithothamnion rugosum* Foslie 1900f, p. 66.

Effective publication date: ?

Holotype: TRH, unnumbered; includes slides 371 and 372.

Type locality and collection data: Puerto Angosto, Desolation Island, Tierra del Fuego; collected by P. Dusén, 10 April 1896.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 81 (as *Lithothamnion*); Adey 1970, p. 21 (as *Lithothamnion*); Mendoza (1988, p. 178, as *Lithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 12, fig. 9 (as *Lithothamnion*).

Comments: About 90% of the specimen as depicted in Printz is no longer present.

rugulosa

Basionym & protologue: *Melobesia rugulosa* Setchell et Foslie in Foslie 1902a, p. 10.

Effective publication date: between 11 September and 20 November 1902.

Holotype: TRH, unnumbered; includes one unnumbered slide.

Type locality and collection data: Santa Monica, California, collected by S. Monks, 1897; comm. Setchell.

TRH drawer: B-1; listed under *Melobesia marginata* in Adey & Lebednik (1967, p. 49).

Previous references to typification: ?

Published illustrations of type: ?

Comments: In 1908, Foslie (1908d, p. 4) considered *Melobesia rugulosa* to be a heterotypic synonym of *Melobesia marginata*.

rupestre

Basionym & protologue: *Lithophyllum rupestre* Foslie 1907a, p. 26.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slides 1005 and 1718.

Type locality and collection data: Ocean Beach, Phillip Island, Victoria, Australia; collected by J. Gabriel, April 1905.

TRH drawer: A-3.

Previous references to typification: Adey & Lebednik 1967, p. 18 (as *Lithophyllum*); Adey 1970, p. 26 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 54, fig. 1 (as *Lithophyllum*).

Comments: The holotype element includes two fragments; about 50% of the fragment depicted in Printz (1929) is no longer present.

rupicola

Basionym & protologue: *Lithothamnion lichenoides* f. *rupicola* Foslie 1897c, p. 4.

Comments: Foslíe (1897c) gave the name *Lithothamnion lichenoides* f. *rupicola* to plants of *Lithothamnion lichenoides* that were coarse and often vigorously developed and fastened to stones or other hard objects. He made no mention of specimens or localities. There are no specimens in TRH labelled *Lithothamnion lichenoides* f. *rupicola*, and in the only subsequent mention of the name, Foslíe (1900a, p. 12) considered *Lithothamnion lichenoides* f. *rupicola* to be a partial synonym of *Lithothamnion lichenoides* f. *depressa*. Consequently, *Lithothamnion lichenoides* f. *rupicola* has not been typified during this study and its status is uncertain.

ruptilis

Basionym & protologue: *Lithothamnion syntrophicum* f. *ruptilis* Foslíe 1905e, p. 18.

Effective publication date: between April 1905 and 24 August 1905.

Holotype: TRH, unnumbered; includes slides 676 and 677.

Type locality and collection data: Point Plata, Santo Domingo; collected by Bock, 1894.

TRH drawer: B-16; listed under *Lithothamnion ruptile* in Adey & Lebednik (1967, p. 67).

Previous references to typification: Adey & Lebednik 1967, p. 67 (as *Lithothamnion ruptile*); Adey 1970, p. 21 (as *Lithothamnion ruptile*).

Published illustrations of holotype: Printz 1929, pl. 5, figs 20-24 (as *Lithothamnion ruptile*).

Comments: The holotype element contains one intact individual depicted in Printz (1929, pl. 5, fig. 24) and fragments of a second individual that cannot be matched with any of the other four specimens depicted in Printz (1929). These four specimens are not present in TRH.

In 1907, Foslíe (1907a, p. 5) raised *Lithothamnion syntrophicum* f. *ruptilis* to the rank of species, as *Lithothamnion ruptile*.

samoense

Basionym & protologue: *Lithophyllum samoense* Foslíe 1906b, p. 20.

Effective publication date: between 1 December 1906 and 30 March 1907.

Lectotype: TRH, unnumbered (designated here, but see comments); includes slides 1099-1101 (slide 1099 is missing).

Type locality and collection data: Saraii at Satana, Samoa; collected by Reichinger, July 1905.

TRH drawer: A-2.

Previous references to typification: Dawson 1960, p. 50 (as *Lithophyllum*); Adey & Lebednik 1967, p. 17 (as *Lithophyllum*); Adey 1970, p. 13 (as *Pseudolithophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 53, fig. 19 (as *Lithophyllum*).

Comments: Foslíe (1906b) based *Lithophyllum samoense* on collections from Samoa and Tahiti (see also Dawson 1960, p. 50), but apparently

only the Samoa collection is present at TRH. Adey (1970, p. 13) referred to it as the holotype, but as two collections are mentioned in the protologue, the Samoa collection must be considered the lectotype. The lectotype element consists of specimens on four rocks, one of which is depicted in Printz (1929).

sandvicensis

Basionym & protologue: *Lithophyllum coarctatum* f. *sandvicensis* Foslíe 1907a, p. 31.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slide 1370.

Type locality and collection data: Honolulu, Hawaii; collector and date unknown; Eugene Expedition (?), given with a question mark in the protologue and on the collection box.

TRH drawer: A-28; listed under *Lithophyllum coarctatum* in Adey & Lebednik (1967, p. 48).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 70, fig. 3 (*Lithophyllum coarctatum* f. *prona*).

Comments: Foslíe (1909b, p. 45) changed the name *Lithophyllum coarctatum* f. *sandvicensis* to *Lithophyllum coarctatum* f. *prona*; the latter name, which also was used by Printz (1929), is treated here as a superfluous substitute name in accordance with ICBN Art. 63.1.

sandvicensis

Basionym & protologue: *Lithophyllum dentatum* f. *sandvicensis* Foslíe 1901a, p. 11.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, Farlow no. XXX; includes slide 502.

Type locality and collection data: Hawaiian Islands; collected by J. M. Barnard, 1858.

TRH drawer: A-28; listed under *Lithophyllum sandvicense* in Adey & Lebednik (1967, p. 48).

Previous references to typification: Adey & Lebednik 1967, p. 48 (as *Lithophyllum sandvicense*); Adey 1970, p. 11 (as *Porolithon sandvicense*).

Published illustrations of holotype: Printz 1929, pl. 70, fig. 6 (as *Lithophyllum sandvicense*).

Comments: Foslíe (1909b, p. 45) raised *Lithophyllum dentatum* f. *sandvicensis* to the rank of species, as *Lithophyllum sandvicense*.

sargassi

Basionym & protologue: *Melobesia marginata* f. *sargassi* Foslíe 1904a, p. 22.

Effective publication date: 23 June 1904.

Holotype: TRH, unnumbered; includes slides 833, 843 and 844.

Type locality and collection data: Misaki, Japan; collected by K. Yendo,

April 1903.

TRH drawer: A-16; listed under *Melobesia sargassi* in Adey & Lebednik (1967, p. 37).

Previous references to typification: Adey & Lebednik 1967, p. 37 (as *Melobesia sargassi*); Adey 1970, p. 17 (as *Heteroderma sargassi*); Chamberlain 1983, p. 445 (as *Pneophyllum sargassi*).

Published illustrations of holotype: Masaki & Tokida (1963, p. 5, pl. 4, fig. 6, as *Melobesia*).

Comments: Adey (1970, p. 17) incorrectly refers to the holotype as the lectotype. Masaki & Tokida (1963, p. 5, pl. 4, fig. 6, as *Melobesia*) include a photograph of three holotype fragments of the host with attached corallines, but suggest that the material on those fragments belongs to *Hydrolithon farinosum* (Lamouroux) Penrose et Chamberlain (as *Melobesia*).

sauvageauii

Basionym & protologue: *Litholepis sauvageauii* Foslie 1905d, p. 6.

Effective publication date: between 25 August 1905 and 30 April 1906.

Holotype: TRH, unnumbered; includes slides 1023-1025.

Type locality and collection data: Puerto Orotava, Tenerife, Canary Islands; collected by C. Sauvageau, December 1904-February 1905.

TRH drawer: A-16.

Previous references to typification: Adey & Lebednik 1967, p. 37 (as *Litholepis*); Adey 1970, p. 15 (as *Lithoporella*).

Published illustrations of holotype: ?

Comments: The holotype element consists of two small pieces of rock with attached plants of *Litholepis sauvageauii*.

saxatilis

Basionym & protologue: *Lithothamnion coralloides* f. *saxatilis* Foslie 1895, p. 90 (p. 62 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slides 100 and 101.

Type locality and collection data: Røberg, Trondheimsfjord, Norway, collected by M. F. Foslie, 1 August 1894.

TRH drawer: C-9; listed under *Lithothamnion tusterense* in Adey & Lebednik (1967, p. 77).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 16, figs 14-17 (as *Lithothamnion coralloides* f. *saxatilis*).

Comments: Foslie (1895) based *Lithothamnion coralloides* f. *saxatilis* on specimens from various localities in Norway but did not designate a type. Twelve of these specimens are depicted in the protologue (Foslie 1895, pl. 16, figs 12-23).

The only collection in TRH labelled *Lithothamnion coralloides* f.

saxatilis is filed with collections of *Lithothamnion nodulosum* in drawer C-5 and contains two specimens, including the one depicted in pl. 16, fig. 12 of the protologue. A collection in drawer C-9 labelled *Lithothamnion tusterense*, however, contains the specimens depicted in pl. 16, figs 14-17 of the protologue and has associated slides 100 and 101 that are labelled *Lithothamnion norvegicum* f. *saxatilis*! This latter collection is designated here as lectotype of *Lithothamnion coralloides* f. *saxatilis* because it also includes a number of other individuals, many of which have conceptacles.

The specimens depicted in Foslie 1895a, pl. 16 figs 18-20 are in a box in drawer C-9 and are labelled *Lithothamnion nodulosum* f. *saxatilis*. The specimens depicted in Foslie 1895a, pl. 16, figs 13 and 20-23 are in two other boxes labelled *Lithothamnion tusterense* and are also filed in drawer C-9 (see Adey & Lebednik 1967, p. 77).

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 10) has not been determined during the present study.

saxatilis

Basionym & protologue: *Lithothamnion nodulosum* f. *saxatilis* Foslie 1905c, p. 62.

Effective publication date: between 25 August 1905 and 30 April 1906.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Tautra (Gargrunden), Trondheimsfjord, Norway, collected by M. F. Foslie, 15 June 1894.

TRH drawer: C-6; listed under *Lithothamnion nodulosum* in Adey & Lebednik (1967, p. 76).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 26, figs 7-9 (as *Lithothamnion nodulosum* f. *saxatilis*).

Comments: Foslie (1905c) based *Lithothamnion nodulosum* f. *saxatilis* on specimens from several localities in Norway but did not designate a type. Amongst TRH collections labelled *Lithothamnion nodulosum* f. *saxatilis*, the lectotype designated here contains a number of fertile individuals, three of which are illustrated in Printz (1929). Adey & Lebednik (1967, p. 76) noted that this collection is split between two boxes. The three individuals in the second box constitute the lectotype of *Lithothamnion coralloides* f. *saxatilis* and appear as pl. 16, figs 18-20 in Foslie 1895.

saxatilis

Nomen nudum: *Lithothamnion norvegicum* f. *saxatilis* Foslie 1898b, p. 6.

Comments: *Lithothamnion norvegicum* f. *saxatilis* is a *nomen nudum* used four times by Foslie (1898b, p. 6; 1900i, p. 13; 1905c, pp. 52, 63). It is probably meant to represent a new combination for *Lithothamnion coralloides* f. *saxatilis*, but Foslie did not cite the basionym.

scabridum

Basionym & protologue: *Goniolithon scabridum* Foslie 1907a, p. 13.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, Jadin no. 542; includes slides 1424 and 1451.

Type locality and collection data: Réunion; collected by F. Jadin, April 1890.

TRH drawer: A-10.

Previous references to typification: Adey & Lebednik 1967, p. 26 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 45, fig. 17 (as *Goniolithon*).

scabriusculum

Basionym & protologue: *Lithothamnion scabriusculum* Foslie 1895, p. 170 (p. 142 in independently paginated offprint).

Effective publication date: 5 December 1895.

Holotype: TRH, unnumbered; includes slide 520 and three unnumbered slides.

Type locality and collection data: Kjelmo, Finnmark, Norway; collected by M. F. Foslie, 2 August 1887.

TRH drawer: C-20; listed under *Clathromorphum compactum* in Adey & Lebednik (1967, p. 87).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1895, pl. 22, fig. 9 (as *Lithothamnion scabriusculum*).

Comments: In 1905, Foslie (1905c, p. 88) considered *Lithothamnion scabriusculum* to be a heterotypic synonym of *Phymatolithon compactum* (Kjellman) Foslie, which accounts for its placement in the Foslie herbarium. Approximately 40% of the specimen depicted on pl. 22, fig. 9 of the protologue is no longer present in TRH. Adey & Lebednik (1967, p. 87) give the wrong Foslie 1895 plate and figure number for this collection.

schmidtii

Basionym & protologue: *Archaeolithothamnion schmidtii* Foslie 1901b, p. 16.

Effective publication date: May 1901 (Stafleu & Cowan 1985, p. 253).

Holotype: TRH, unnumbered; includes slides 456, 458 and 459.

Type locality and collection data: Koh Kahdat, Gulf of Thailand; collected by J. Schmidt, 15 February 1900.

TRH drawer: C-19.

Previous references to typification: Adey & Lebednik 1967, p. 85 (as *Archaeolithothamnion*); Adey 1970, p. 18 (as *Archaeolithothamnion*).

Published illustrations of holotype: Foslie 1904b pl. 8, fig. 15 (as *Archaeolithothamnion schmidtii*).

Comments: The holotype element contains three specimens, one of which was depicted in Foslie (1904b).

schmitzii

Basionym & protologue: *Lithophyllum schmitzii* Hariot 1895, p. 98.

Effective publication date: 1 March 1895 (date given on first page of issue in which article containing protologue appears).

Syntype fragment: TRH, unnumbered; includes slide 673.

Type locality and collection data: Tierra del Fuego or Straits of Magellan; collected by M. Michaelson, 1893.

TRH drawer: C-18.

Previous references to typification: Foslie 1907b, p. 9 (as *Lithophyllum*).

Published illustrations of syntypes: ?

Comments: Hariot (1895, p. 98) based *Lithophyllum schmitzii* on material collected by M. Michaelson in 1893 but did not designate a type, mention precise localities, or indicate how many specimens were involved. The lectotype proposed by Foslie (1907b, p. 9) is untenable because it was not collected by Michaelson in 1893; the Michaelson 1893 specimens form the basis of the protologue (see Hariot 1895, p. 95). The TRH syntype is a Michaelson 1893 collection from Tierra del Fuego obtained from PC that consists of a prepared slide and one fragment 2.5 mm in greatest dimension. The PC portion of this collection has not been examined during the present study. Additional comments on *Lithophyllum schmitzii* are provided by Foslie (1907b, p. 9, as *Lithothamnion*), Lemoine (1913, p. 25, as *Lithothamnion*), Mendoza (1977, p. 28, as *Mesophyllum*), and Zaneveld & Sanford (1980, p. 219, as *Lithothamnion*).

Adey & Lebednik (1967, p. 84) list the TRH collection but do not flag it as type.

scutelloides

Basionym & protologue: *Lithothamnion scutelloides* Heydrich 1900, p. (563).

Effective publication date: ?

Holotype: BR, Rocovitzia no. 186.

Holotype fragments: TRH, Rocovitzia no. 186; includes slides 792 and 793.

Type locality and collection data: Staten Island, Saint Jean Gulf, Tierra del Fuego; collected by E. Racovitzia, 8 January 1898.

TRH drawer: C-18; listed under *Lithothamnion schmitzii* in Adey & Lebednik (1967, p. 84).

Previous references to typification: ?

Published illustrations of type: Printz 1929, pl. 11, fig. 5 (as *Lithothamnion schmitzii*).

Comments: The TRH portion of the holotype consists of three larger fragments and a number of smaller fragments which cannot be readily matched with the specimen depicted in Printz (1929). Foslie (1907b, p. 8) considered *Lithothamnion scutelloides* to be a heterotypic synonym of

Lithothamnion schmitzii (Hariot) Foslie which accounts for placement of the material in the Foslie herbarium. The BR portion of the holotype has not been examined during the present study.

sejunctum

Basionym & protologue: *Lithothamnion sejunctum* Foslie 1906b, p. 3.
 Effective publication date: between 1 December 1906 and 30 March 1907.
 Holotype: TRH, unnumbered; includes slides 1203 (missing), 1204, and 1241.
 Type locality and collection data: St. Croix, US Virgin Islands; collected by F. Børgesen, 20 February 1906.
 TRH drawer: B-1.
 Previous references to typification: Adey & Lebednik 1967, p. 50 (as *Lithothamnion*); Adey 1970, p. 21 (as *Lithothamnion*).
 Published illustrations of holotype: Printz 1929, pl. 2, fig. 7 (as *Lithothamnion*).
 Comments: About 50% of the specimen as depicted in Printz (1929) is no longer present. Adey & Lebednik (1967, p. 50) erroneously give the slide numbers as 203 and 204.

setchellii

Basionym & protologue: *Lithothamnion setchellii* Foslie 1897c, p. 18.
 Effective publication date: between 1 July and 31 December 1897.
 Holotype: TRH, Setchell no. 1496; includes slides 190 and 1496.
 Type locality and collection data: San Pedro, California, USA; collected by W. A. Setchell, January 1896.
 TRH drawer: A-11.
 Previous references to typification: Mason 1953, p. 334 (as *Hydrolithon*); Dawson 1960, p. 30 (as *Hydrolithon*); Adey & Lebednik 1967, p. 28 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*).
 Published illustrations of holotype: Printz 1929, pl. 47, fig. 2 (as *Goniolithon*).
 Comments: About 30% of the holotype specimen as depicted in Printz (1929) is no longer present.

shioense

Basionym & protologue: *Lithophyllum shioense* Foslie 1906c, p. 23 (p. 7 in independently paginated offprint).
 Effective publication date: between 1 May and 30 November 1906.
 Holotype: TRH, unnumbered; includes slides 813 and 814.
 Type locality and collection data: Cape of Shio, Kii Pref., Japan; collected by K. Yendo, 1902.
 TRH drawer: A-3.
 Previous references to typification: Adey & Lebednik 1967, p. 18 (as *Lithophyllum*); Adey 1970, p. 14 (as *Pseudolithophyllum*).
 Published illustrations of holotype: Printz 1929, pl. 54, figs 12, 13 (as

Lithophyllum).

Comments: The holotype element consists of plants on four stones, two of which are depicted in Printz (1929).

siamense

Basionym & protologue: *Lithothamnion siamense* Foslie 1901b, p. 19.

Effective publication date: May 1901 (Stafleu & Cowan 1985, p. 253).

Lectotype: TRH, unnumbered (designated by Verheij & Woelkerling 1992); includes slides 470 and 471.

Type locality and collection data: Between Mesan Island and Chuen Island, Gulf of Thailand; collected by J. Schmidt, 6 February 1900.

TRH drawer: B-2.

Previous references to typification: Silva *et al.* (1987, p. 37); Verheij & Woelkerling 1992, p. 285 (as *Lithothamnion*).

Published illustrations of lectotype: ?

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 285). This species was not correctly typified in Adey & Lebednik 1967, p. 52 (as *Lithothamnion*) or in Adey 1970, p. 26 (as *Mesophyllum*).

siamensis

Basionym & protologue: *Lithophyllum yendoi* f. *siamensis* Foslie 1906b, p. 19.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, unnumbered; includes slide 464.

Type locality and collection data: Koh Sarlak, Gulf of Thailand; collected by J. Schmidt, 16 March 1900.

TRH drawer: A-1; listed under *Lithophyllum yendoi* in Adey & Lebednik (1967, p. 15).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: The holotype element consists of plants on five intact snail shells and two pieces of a sixth shell used by Foslie to make the ground slide.

sibogae

Basionym & protologue: *Archaeolithothamnion sibogae* Weber van Bosse et Foslie in Foslie 1901c, p. 3.

Effective publication date: between 27 July and 31 December 1901.

Lectotype: TRH (Siboga Expedition collection 297) (designated by Verheij & Woelkerling 1992).

Isolectotype: TRH [Siboga Expedition collection 14 (prepared slide only)].

Isolectotypes: L 942, 361-69 [Siboga Expedition collections 14 (including three slides), 37, 249, 254, 256-259, 261 (one slide), 262, 266 (slide only), 267, and one box of unnumbered fragments].

Type locality and collection data: Pearlbank, North Coast of Borneo;

collected by A. Weber van Bosse, 9 May 1899 (Siboga Expedition station 96).

TRH drawer: C-19.

Previous references to typification: Adey & Lebednik 1967, p. 85 (as *Archaeolithothamnion*); Adey 1970, p. 18 (as *Archaeolithothamnion*); Verheij & Woelkerling 1992, p. 286 (as *Archaeolithothamnion*).

Published illustrations of lectotype: ?

Published illustrations of isoelectotypes: Foslie 1904b, pl. 7, figs 3 (collection 254), fig. 4 (collection 259), fig. 5 (collection 257), fig. 6 (collection 263), fig. 7 (collection 251), fig. 9 (collection 256), fig. 10 (collection 255), fig. 11 (collection 37), fig. 12 (collection 261), fig. 15 (collection 262), fig. 17 (collection 14) (all as *Archaeolithothamnion*); Printz 1929, pl. 43, fig. 5 (collection 257), fig. 6 (collection 263), fig. 7 (collection 251), fig. 8 (collection 256), fig. 9 (collection 255), fig. 10 (collection 37), fig. 11 (collection 261), fig. 14 (collection 262), fig. 15 (collection 14) (all as *Archaeolithothamnion*).

Comments: Comments on the lectotypification of *Archaeolithothamnion sibogae* are provided by Verheij & Woelkerling (1992, p. 286). In Adey & Lebednik (1967, p. 85), the TRH isoelectotype slide and the lectotype specimen are grouped under a single entry that Adey (1970, p. 18) incorrectly refers to as the holotype. Additional isoelectotypes were distributed by Weber van Bosse; see Verheij & Woelkerling (1992).

simile

Basionym & protologue: *Lithophyllum simile* Foslie 1909b, p. 30.

Effective publication date: between 1 June and 18 December 1909.

Holotype: TRH, Jard. Bot. Coimbra no. 33; includes slide 599.

Type locality and collection data: São Tomé Island; no collector or date indicated.

TRH drawer: A-22.

Previous references to typification: Adey & Lebednik 1967, p. 43 (as *Lithophyllum*); Adey 1970, p. 6 (as *Lithophyllum*).

Published illustrations of holotype: Printz 1929, pl. 63, fig. 22 (as *Lithophyllum*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

similis

Basionym & protologue: *Lithophyllum pustulatum* f. *similis* Foslie 1909b, p. 47.

Effective publication date: between 1 June and 18 December 1909.

Lectotype: TRH, Farlow no. XV (designated here).

Type locality and collection data: California, collector and date not indicated, comm. Farlow 1900.

TRH drawer: A-17; listed under *Melobesia* (*Dermatolithon*) *pustulatum* in Adey & Lebednik (1967, p. 39).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1909b) established *Lithophyllum pustulatum* f. *similis* without naming particular specimens, but suggesting that plants identified by Solms-Laubach (1881, p. 9, pl. 2, fig. 25, pl. 3, figs 21-24) as *Melobesia corallinae* also belonged to f. *similis*. The only collection in TRH labelled *Lithophyllum pustulatum* f. *similis* is the one designated here as lectotype. There is no evidence that Foslie had seen any specimens of Solms-Laubach when he prepared the protologue for *Lithophyllum pustulatum* f. *similis*.

similis

Basionym & protologue: *Lithothamnion norvegicum* f. *similis* Foslie 1905c, p. 66.

Effective publication date: between 25 August 1905 and 30 April 1906.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Moldøen, Norway; collected by Østergren, 14 August 1902.

TRH drawer: C-3.

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 16, figs 30-35 (as *Lithothamnion*).

Comments: Foslie (1905c) based *Lithothamnion norvegicum* f. *similis* on collections from Norway and Scotland but did not designate a type. Both collections are labelled *Lithothamnion norvegicum* f. *similis*. The lectotype designated here was not included by Adey & Lebednik (1967, pp. 75, 76) in their list. The lectotype element contains numerous individuals, including those depicted in Printz (1929), and appears to be in better condition than material in the Scottish collection.

simulans

Basionym & protologue: *Lithothamnion siamense* f. *simulans* Foslie 1901b, p. 19.

Effective publication date: May 1901 (Stafleu & Cowan 1985, p. 253).

Holotype: TRH, unnumbered; includes slide 463.

Type locality and collection data: Sarlak Island, Gulf of Thailand; collected by Schmidt, 16 March 1900.

TRH drawer: B-18; listed under *Lithothamnion simulans* in Adey & Lebednik (1967, p. 70).

Previous references to typification: Adey & Lebednik 1967, p. 70 (as *Lithothamnion simulans*); Adey 1970, p. 26 (as *Mesophyllum simulans*).

Published illustrations of holotype: ?

Comments: In 1904, Foslie (1904b, p. 16) raised *Lithothamnion siamense* f. *simulans* to species level as *Lithothamnion simulans*. The holotype element consists of plants on small fragments of the mollusc *Septifer bilocularis* L. Printz (1929, pl. 8, figs 19, 20) illustrated several

specimens from the Siboga Expedition (see Foslie 1904b) but not the holotype.

solubile

Basionym & protologue: *Goniolithon solubile* Foslie et Howe in Foslie 1907b, p. 21.

Effective publication date: between 30 September 1907 and 27 January 1908.

Lectotype: TRH, Howe no. 4375 (designated by Adey in Adey & Lebednik 1967, p. 26); includes slide 1088.

Type locality and collection data: Culebra, Puerto Rico; collected by M. A. Howe, 7 March 1906.

TRH drawer: A-10.

Previous references to typification: Adey & Lebednik 1967, p. 26 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*).

Published illustrations of lectotype: Printz 1929, pl. 45, fig. 14 (as *Goniolithon propinquum* f. *solubilis*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 9). About 50% of the lectotype as depicted by Printz (1929) is no longer present.

soluta

Basionym & protologue: *Lithothamnion fruticosum* f. *soluta* Foslie 1904d, p. 7.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here); includes slide 628.

Type locality and collection data: Vor Spitze Del Dente, Rovigno, Adriatic Sea; collected by P. Kuckuck, 14 November 1899.

TRH drawer: C-2; listed under *Lithothamnion solutum* in Adey & Lebednik (1967, p. 75).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1904d, pl. 1, figs 18-21 (as *Lithothamnion fruticosum* f. *soluta*); Printz 1929, pl. 17, figs 13-15 (as *Lithothamnion solutum* f. *typica*).

Comments: Foslie (1904d) based *Lithothamnion fruticosum* f. *soluta* on specimens from three localities in the Adriatic Sea but did not designate a type. The lectotype designated here contains the greatest number of individuals and includes conceptacle-bearing plants. Subsequently, Foslie (1906b, p. 14) raised *Lithothamnion fruticosum* f. *soluta* to the rank of species as *Lithothamnion solutum*. All three protologue collections are grouped under a single entry by Adey & Lebednik (1967, p. 75).

speciosa

Basionym & protologue: *Lithothamnion synanablastum* f. *speciosa* Foslie 1900a, p. 11.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, unnumbered; includes slides 348 and 1551.

Type locality and collection data: Grahamstown, South Africa; collected by Becker, May 1899.

TRH drawer: B-17; listed under *Lithothamnion speciosum* in Adey & Lebednik (1967, p. 69).

Previous references to typification: Adey & Lebednik 1967, p. 69 (as *Lithothamnion speciosum*); Adey 1970, p. 26 (as *Mesophyllum speciosum*).

Published illustrations of holotype: Printz 1929, pl. 8, figs 2, 3 (as *Lithothamnion speciosum*).

Comments: Foslie (1907b, p. 16) raised *Lithothamnion synanablastum* f. *speciosa* to the rank of species, as *Lithothamnion speciosum*.

spectabile

Basionym & protologue: *Goniolithon spectabile* f. *spectabile* Foslie 1901a, p. 16 (as f. *typica*).

Effective publication date: between 1 January and 18 March 1901.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 29); includes slide 437.

Type locality and collection data: Bermuda; collected by C. V. Forsstrand, 1889; ex Naturhistoriska Riksmuseet Stockholm (S).

TRH drawer: A-13.

Previous references to typification: Adey & Lebednik 1967, p. 29 (as *Goniolithon*); Adey 1970, p. 9 (as *Neogoniolithon*).

Published illustrations of lectotype: Printz 1929, pl. 49, fig. 1 (as *Goniolithon*).

Comments: Foslie (1901a) based *Goniolithon spectabile* f. *spectabile* on several specimens but did not designate a type. Adey (1970, p. 10) found only one collection in TRH labelled *Goniolithon spectabile* f. *typica* and designated it as the lectotype element for *Goniolithon spectabile* f. *spectabile*. In accordance with ICBN Art. 26.1, *Goniolithon spectabile* f. *typica* must be called *Goniolithon spectabile* f. *spectabile*.

sphaerica

Basionym & protologue: *Lithothamnion fornicatum* f. *sphaerica* Foslie 1900i, p. 12.

Effective publication date: between 26 June and 31 December 1900.

Holotype: TRH, unnumbered.

Type locality and collection data: Skjørn, Dalsøren, Norway; collected by M. F. Foslie, 20 July 1894.

TRH drawer: B-26; listed under *Lithothamnion fornicatum* in Adey & Lebednik (1967, p. 72).

Previous references to typification: Foslie 1900i, p. 12 (as *Lithothamnion fornicatum* f. *sphaerica*).

Published illustrations of holotype: Foslie 1895, pl. 12, fig. 1 (as *Lithothamnion dehiscens* f. *typica*).

Comments: Although the protologue for *Lithothamnion fornicatum* f. *sphaerica* (Foslie 1900i, p. 12) consists only of a reference to a previously published figure (Foslie 1895, pl. 12, fig. 1) of a single plant (the holotype), the name is validly published in accordance with ICBN Arts 42.2, 44.1 and 44.2. Subsequently, Foslie (1905c, p. 38) needlessly changed *Lithothamnion fornicatum* f. *sphaerica* to *Lithothamnion fornicatum* f. *subsphaerica*. Thus *Lithothamnion fornicatum* f. *subsphaerica* is a superfluous substitute name (ICBN Arts 61.1, 63.1).

Adey & Lebednik (1967, p. 72) group the 15 specimens from the type locality and date under one entry.

sphaerica

Basionym & protologue: *Lithothamnion tophiiforme* f. *sphaerica* Foslie 1905c, p. 51.

Effective publication date: between 25 August 1905 and 30 April 1906.

Lectotype: TRH, Farlow no. V (designated here); includes slide 522.

Type locality and collection data: Eastport, Maine, USA; collected by T. Lyman, date not indicated; comm. Farlow, 1900.

TRH drawer: B-9; listed under *Lithothamnion glaciale* in Adey & Lebednik (1967, p. 61).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1905c) based *Lithothamnion tophiiforme* f. *sphaerica* on collections from northern Norway, Greenland and Eastport, Maine. There are no collections in TRH labelled *Lithothamnion tophiiforme* f. *sphaerica*. However, the collection from Eastport Maine was found amongst collections of *Lithothamnion glaciale*, and as this is the only collection which could definitely be associated with *Lithothamnion tophiiforme* f. *sphaerica*, it is designated here as lectotype. Contrary to statements of Foslie (1905c, p. 58), some conceptacles are present.

spissum

Basionym & protologue: *Lithothamnion spissum* Foslie 1907b, p. 19.

Effective publication date: between 30 September 1907 and 27 January 1908.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 82); includes slides 834 and 835.

Type locality and collection data: Misaki, Japan; collected by K. Yendo, April 1903.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 82 (as *Lithothamnion*); Adey 1970, p. 21 (as *Lithothamnion*).

Published illustrations of lectotype: Printz 1929, pl. 14, fig. 2 (as *Lithothamnion*).

Comments: The basis for selection of the designated lectotype is explained

by Adey (1970, p. 21). The lectotype specimen as depicted in Printz (1929) has become fragmented.

squamuliforme

Basionym & protologue: *Lithothamnion squamuliforme* Foslie 1905e, p. 17.

Effective publication date: between April 1905 and 24 August 1905.

Holotype: TRH, unnumbered; includes slide 926.

Type locality and collection data: Port Phillip Bay, Victoria, Australia; collected by J. Gabriel, 1901.

TRH drawer: B-3.

Previous references to typification: Adey & Lebednik 1967, p. 53 (as *Lithothamnion*); Adey 1970, p. 26 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 3, fig. 13 (as *Lithothamnion*).

Comments: The holotype element includes plants on one small rock that is depicted in Printz (1929) and on a much larger rock (not depicted). Approximately 50% of the smaller specimen is no longer present.

squamulosum

Basionym & protologue: *Lithothamnion squamulosum* Foslie 1895, p. 183 (p. 155 in independently paginated offprint).

Effective publication date: 5 December 1895.

Holotype: TRH, unnumbered; includes slide 65 and two unnumbered slides.

Type locality and collection data: Stensund, Sulen, Sogn, Norway; collected by P. Boye, July 1894.

TRH drawer: B-5; listed under *Lithothamnion lenormandii* in Adey & Lebednik (1967, p. 55).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1895, pl. 19, figs 24-24 (as *Lithothamnion squamulosum*); Printz 1929, pl. 3, figs 19, 20 (as *Lithothamnion lenormandii* f. *squamulosa*).

Comments: Specimens in the holotype element are housed in two small boxes (note listing in Adey & Lebednik 1967, p. 55 under *Lithothamnion lenormandii*), but it is obvious from data on the boxes and in the protologue that these constitute parts of the same collection, and consequently, they have been grouped together in a single larger box. In 1905, Foslie (1905c, p. 13) reduced *Lithothamnion squamulosum* to *Lithothamnion lenormandii* f. *squamulosa*, the name later used by Printz (1929).

squarrosa

Basionym & protologue: *Lithothamnion tophiiforme* f. *squarrosa* Foslie 1895, p. 147 (p. 119 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slides 37 and 183.

Type locality and collection data: Tromsø, Norway; collected by *M. F. Foslie*, June 1884.

TRH drawer: C-13; listed under *Lithothamnion soriferum* in Adey & Lebednik (1967, p. 79).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 21, figs 8, 9 (as *Lithothamnion tophiiforme* f. *squarrosa*).

Comments: Foslie (1895) established *Lithothamnion tophiiforme* f. *squarrosa* without designating a type. Subsequently, Foslie (1905c, p. 49) changed *Lithothamnion tophiiforme* f. *squarrosa* to *Lithothamnion soriferum* f. *squarrosa*. There are two collections labelled *Lithothamnion soriferum* f. *squarrosa* in TRH which predate the protologue; both are from Tromsø. The collection designated here as lectotype for *Lithothamnion tophiiforme* f. *squarrosa* consists of the two individuals depicted in pl. 21, figs 8 and 9 of the protologue. Adey & Lebednik (1967, p. 79) have grouped this collection and several others under a single entry. Under this entry, the date of collection of the lectotype and the associated slide listings are missing, and the reference to the protologue illustrations wrongly appears to pertain to an 1891 collection.

squarrulosum

Basionym & protologue: *Lithothamnion squarrulosum* Foslie 1899c, p. 6.

Effective publication date: 5 January 1899.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Cumbrae, Scotland, United Kingdom.

TRH drawer: C-1; listed under *Lithothamnion calcareum* in Adey & Lebednik (1967, p. 74).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 16, figs 27-30 (as *Lithothamnion coralloides* f. *australis*).

Comments: Foslie (1899c) concurrently established the species *Lithothamnion squarrulosum* and three forms that he removed from *Lithothamnion coralloides*. The three forms are: *Lithothamnion squarrulosum* f. *australis*, *Lithothamnion squarrulosum* f. *subsimplex* (Batters) Foslie, and *Lithothamnion squarrulosum* f. *palmatifida*. Foslie (1899c, p. 7) explicitly indicated that he considered f. *australis* to be the typical form, and thus in accordance with ICBN Art. 26.1, *Lithothamnion squarrulosum* f. *australis* must be known as *Lithothamnion squarrulosum* f. *squarrulosum*. *Lithothamnion squarrulosum* f. *squarrulosum* and *Lithothamnion coralloides* f. *australis* are based on the same type.

stictaeformis

Basionym & protologue: *Melobesia stictaeformis* Areschoug 1852, p. 517.

Comments: The Foslie herbarium contains a fragment of a specimen (depicted in Printz 1929, pl. 60, fig. 4) that Areschoug identified as *Melobesia stictaeformis* and that is listed by Adey & Lebednik (1967, p.

46) under *Lithophyllum expansum*. It is possible that this collection represents type material, but additional studies of Areschoug specimens in LD (The Botanical Museum, Lund, Sweden) are required before any firm conclusions can be reached.

strictum

Basionym & protologue: *Goniolithon strictum* Foslie 1901a, p. 14.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, Farlow no. XX; includes slide 493.

Type locality and collection data: Florida; collected by Agassiz, no collection date; comm. Farlow 1900.

TRH drawer: A-13.

Previous references to typification: Adey & Lebednik 1967, p. 30 (as *Goniolithon*); Adey 1970, p. 10 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 50, fig. 1 (as *Goniolithon strictum* f. *fastigiata*).

Comments: In 1907, Foslie (1907a, p. 16) applied the name *Goniolithon strictum* f. *fastigiata* to the type material, and this name was adopted by Printz (1929, p. 31 and pl. 50, fig. 1). ICBN Art. 26.1 requires that the name of any infraspecific taxon that includes the type of the name of the species is to repeat the specific epithet unaltered as its final epithet. Thus *Goniolithon strictum* f. *fastigiata* is a superfluous substitute name (ICBN Art. 63.1) for *Goniolithon strictum* f. *strictum*.

stroemfeltii (*strömfeltii*)

Basionym & protologue: *Lithothamnion stroemfeltii* Foslie nom. nov., 1895, p. 173 (p. 145 in independently paginated offprint).

Comments: Foslie (1895, p. 173) proposed *Lithothamnion stroemfeltii* as a nom. nov. for *Lithothamnion tenue* Rosenvinge (1893, p. 778), suggesting (Foslie 1895, p. 174) that Kjellman (1889) had earlier described a different *Lithothamnion tenue*. Kjellman (1889, p. 22) described his species as *Lithophyllum tenue*, however, not as *Lithothamnion tenue*, and because the Kjellman species was not transferred into *Lithothamnion* until 1895 (Foslie 1895, p. 174), the Rosenvinge name has priority (ICBN Arts 60, 61). Consequently, *Lithothamnion stroemfeltii* is a superfluous substitute name for *Lithothamnion tenue* Rosenvinge. Foslie (1895, p. 174) also stated that *Lithothamnion stroemfeltii* was identical with or included *Lithothamnion laeve* Strömfelt (1886). This means that *Lithothamnion stroemfeltii* must be considered a superfluous substitute name for *Lithothamnion laeve* Strömfelt (see ICBN Art. 63.1).

subantarctica

Basionym & protologue: *Lithophyllum decipiens* f. *subantarctica* Foslie 1906b, p. 18.

Effective publication date: between 1 December 1906 and 30 March 1907.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik

1967, p. 17); includes slides 376-378, 1468, and 1717.

Type locality and collection data: Mouth of Rio Grande, Tierra del Fuego; collected by *P. Dusén*, February 1876.

TRH drawer: A-2; listed under *Lithophyllum subantarcticum* in Adey & Lebednik (1967, p. 17).

Previous references to typification: Adey & Lebednik 1967, p. 17 (as *Lithophyllum subantarcticum*); Adey 1970, p. 14 (as *Pseudolithophyllum subantarcticum*); Mendoza & Cabioch 1986, p. 180 (as *Hydrolithon subantarcticum*).

Published illustrations of lectotype: Printz 1929, pl. 53, figs 10, 11 (as *Lithophyllum subantarcticum*).

Comments: The basis for selection of the designated lectotype is explained by Adey (1970, p. 14). The lectotype element consists of plants on two stones, both of which are depicted in Printz (1929).

subdistans

Basionym & protologue: *Lithothamnion intermedium* f. *subdistans* Foslie 1905c, p. 36.

Comments: *Lithothamnion intermedium* f. *subdistans* is a superfluous substitute name for *Lithothamnion intermedium* f. *intermedium*.

subdura

Basionym & protologue: *Lithothamnion philippii* f. *subdura* Foslie 1904d, p. 14.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Brionic Is., Adriatic Sea; collected by *P. Kuckuck*, 11 June 1895.

TRH drawer: B-16; listed under *Lithothamnion philippii* in Adey & Lebednik (1967, p. 66).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1904d, pl. 1, fig. 2.

Comments: Foslie (1904d) based *Lithothamnion philippii* f. *subdura* on specimens from the Adriatic Sea, but did not designate a type. He did, however, include photos (Foslie 1904d, pl. 1, figs 2, 3) of specimens from two collections. The collection designated here as lectotype element includes six specimens; Foslie originally put the one shown in pl. 1, fig. 2 in a separate box, but this now has been united with the other specimens to serve collectively as the lectotype element.

subfastigiata

Basionym & protologue: *Lithothamnion glaciale* f. *subfastigiata* Foslie 1905c, p. 26.

Comments: *Lithothamnion glaciale* f. *subfastigiata* is a superfluous substitute name for *Lithothamnion glaciale* f. *verrucosa* and for *Lithothamnion varians* f. *variens*.

subflabellata

Basionym & protologue: *Lithothamnion erubescens* f. *subflabellata* Foslie 1904b, p. 31.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: L 991, 239-235 (designated by Verheij & Woelkerling 1992) (Siboga Expedition collection 168).

Isolectotypes: TRH [Siboga Expedition collections 169 and 187 (slide only)].

Type locality and collection data: Banda Anchorage, Indonesia; collected by A. Weber van Bosse, November 1899 (Siboga Expedition station 240).

TRH drawer: C-15; listed under *Lithothamnion erubescens* in Adey & Lebednik (1967, p. 80).

Previous references to typification: Verheij & Woelkerling 1992, p. 286 (as *Lithothamnion erubescens* f. *subflabellata*).

Published illustrations of lectotype: Foslie 1904b, pl. 3, fig. 25 (as *Lithothamnion erubescens* f. *subflabellata*); Printz 1929, pl. 15, fig. 24 (as *Lithothamnion erubescens* f. *subflabellata*).

Published illustrations of isolectotypes: Foslie 1904b, pl. 3, fig. 24 (collection 187) (as *Lithothamnion erubescens* f. *subflabellata*); Printz 1929, pl. 15, fig. 25 (collection 187) (as *Lithothamnion erubescens* f. *subflabellata*).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 287). The lectotype consists of a single specimen of which about 99% is in L and 1% in TRH.

subhemisphaerica

Basionym & protologue: *Lithophyllum gardineri* f. *subhemisphaerica* Foslie 1907a, p. 30.

Effective publication date: between 21 June and 29 June 1907.

Comments: Foslie (1907a) based *Lithophyllum gardineri* f. *subhemisphaerica* on material from the Indian Ocean but did not designate a type specimen or cite a particular locality from amongst those listed. Subsequently, Foslie (1907e, pl. 16, 1907f, pl. 20) depicted a specimen of *Lithophyllum gardineri* f. *subhemisphaerica* from Egmont Atoll, Chagos Archipelago, one of the localities listed in the protologue. This specimen could not be found in TRH, and the only material in TRH involving *Lithophyllum gardineri* f. *subhemisphaerica* is a box containing seven specimens, one of which Foslie (in a notation on the box cover) is said to represent a form transitional to *Lithophyllum gardineri* f. *subhemisphaerica*. Under these circumstances, it seems prudent not to designate a specimen to serve as nomenclatural type for *Lithophyllum gardineri* f. *subhemisphaerica* at present, and the status of the form remains uncertain.

sublaevigata

Basionym & protologue: *Lithothamnion sonderi* f. *sublaevigata* Foslie 1905c, p. 24.

Effective publication date: between 25 August 1905 and 30 April 1906.
 Holotype: TRH, unnumbered.
 Type locality and collection data: Røvær, Norway; collected by *M. F. Foslie*, 21 July 1902.
 TRH drawer: B-15; listed under *Lithothamnion sonderi* in Adey & Lebednik (1967, p. 65).
 Previous references to typification: ?
 Published illustrations of holotype: Printz 1929, pl. 4, fig. 8 (as *Lithothamnion sonderi* f. *sublaevigata*).
 Comments: The holotype element contains six pieces of rock with attached material. The piece figured in Printz (1929) was placed in a separate box, but both boxes now have been lodged in a single larger box and collectively serve as the holotype element.

sublævis

Basionym & protologue: *Lithothamnion lenormandii* f. *sublævis* Foslie 1895, p. 179 (p. 151 in independently paginated offprint).
 Effective publication date: 5 December 1895.
 Lectotype: TRH, unnumbered (designated here); includes slide 244.
 Type locality and collection data: Berwick-on-Tweed, England; collected by *E. Batters*, 1 March 1889.
 TRH drawer: B-5; listed under *Lithothamnion lenormandii* in Adey & Lebednik (1967, p. 56).
 Previous references to typification: ?
 Published illustrations of lectotype: Printz 1929, pl. 3, fig. 16 (as *Lithothamnion lenormandii* f. *sublævis*).
 Comments: In the protologue of *Lithothamnion lenormandii* f. *sublævis*, Foslie (1895, p. 180) cited three localities [Helgoland (Germany), Berwick (England) and Christiania Fjord (Oslo Fjord, Norway)] but did not designate a type. The collection from Berwick is designated here jointly with Y. M. Chamberlain as lectotype. The lectotype element contains three larger specimens (one of which is figured in Printz 1929) and several smaller fragments.

sublævis

Basionym & protologue: *Phymatolithon polymorphum* f. *sublævis* Foslie 1905c, p. 76.
 Comments: The epithet *sublævis* in the name *Phymatolithon polymorphum* f. *sublævis* is a superfluous substitute for the epithet *papillata*.

subplicata

Basionym & protologue: *Lithophyllum marlothii* f. *subplicata* Foslie 1902b, p. 19.
 Effective publication date: 27 May 1902.
 Holotype: TRH, unnumbered; includes slides 649-651.
 Type locality and collection data: Natal, South Africa; collected by *A.*

Weber van Bosse, 1893.

TRH drawer: A-3; listed under *Lithophyllum impar* in Adey & Lebednik (1967, p. 18).

Previous references to typification: Adey & Lebednik 1967, p. 18 (as *Lithophyllum impar*); Adey 1970, p. 13 (as *Pseudolithophyllum impar*).

Published illustrations of holotype: Printz 1929, pl. 54, figs 18-21 (as *Lithophyllum impar*).

Comments: In 1909, Foslie (1909b, p. 13) redescribed *Lithophyllum marlothii* f. *subplicata* (Foslie 1902b, p. 19) as a distinct species, *Lithophyllum impar*. Although retention of an epithet (in this case *subplicata*) is recommended by the ICBN (Recommendation 61A.3), it is not required, and since a name does not have priority outside its own rank (ICBN Art. 60.1), Foslie's change from *subplicata* to *impar* is allowable.

subplicata

Basionym & protologue: *Lithophyllum okamurai* f. *subplicata* Foslie 1901f, p. 18.

Effective publication date: 24 June 1901.

Lectotype: TRH, unnumbered (designated here); includes slide 596.

Type locality and collection data: 'Samoa'; no collector and date given; ex. Botanical Museum Hamburg.

TRH drawer: A-20; listed under *Lithophyllum kotschyanum* in Adey & Lebednik (1967, p. 41).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 65, fig. 3 (as *Lithophyllum kotschyanum* f. *typica*).

Comments: Foslie (1901f) based *Lithophyllum okamurai* f. *subplicata* on specimens from Samoa and the Cocos-Keeling Islands but did not designate a type. Subsequently, Foslie (1903c, p. 467) changed *Lithophyllum okamurai* f. *subplicata* to *Lithophyllum kaiserii* f. *subplicata* but incorrectly lists p. 14 rather than p. 18 as the protologue page number (note the same error in Foslie 1907e, p. 104 & Foslie 1907f, p. 188). Later, Foslie (1909b, p. 34) considered *Lithophyllum kaiserii* to be a heterotypic synonym of *Lithophyllum kotschyanum* f. *kotschyanum* (as f. *typica*), which explains why Foslie filed specimens of *Lithophyllum okamurai* f. *subplicata* with those of *L. kotschyanum* in his herbarium. Both the Samoa specimen box (involving slide 596) and the Cocos-Keeling specimen box (involving slide 433) are labelled f. *subplicata* (crossed out on the latter), but only the Samoa specimen has a piece of paper inside the box clearly indicating that it once was named as *Lithophyllum okamurai* f. *subplicata*. Consequently it is designated here as the lectotype of *Lithophyllum okamurai* f. *subplicata*. Adey & Lebednik (1967, p. 41) incorrectly list the source of the Samoa specimens as the Copenhagen Museum rather than the Botanical Museum Hamburg.

subramosa

Basionym & protologue: *Lithophyllum onkodes* f. *subramosa* Foslie 1907a, p. 29.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated here); includes slides 974 and 978.

Type locality and collection data: Galle, Sri Lanka, collected by N. Svedelius, 5 February 1903.

TRH drawer: A-26; listed under *Lithophyllum onkodes* in Adey & Lebednik (1967, p. 46).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 67, fig. 5 (as *Lithophyllum oncodes* f. *subramosa*).

Comments: Foslie based *Lithophyllum onkodes* f. *subramosa* on specimens from Ambon, Lucipara, and Sri Lanka (as Ceylon). The only TRH collections predating the protologue and labelled *Lithophyllum onkodes* f. *subramosa* are two from Sri Lanka collected by Svedelius. The one designated here as lectotype is the larger of the two, bears numerous conceptacles, and was figured by Printz (1929).

subreduncum

Basionym & protologue: *Lithophyllum subreduncum* Foslie 1901a, p. 10.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, Farlow no. XXXI; includes slide 503.

Type locality and collection data: Hawaiian Islands; no collector or date given; ex herbarium Farlow, no. XXXI.

TRH drawer: A-20; listed under *Lithophyllum kotschyanum* in Adey & Lebednik (1967, p. 41).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 65, fig. 12 (as *Lithophyllum kotschyanum* f. *subredunca*).

Comments: In 1909, Foslie (1909b, p. 34) reduced *Lithophyllum subreduncum* to *Lithophyllum kotschyanum* f. *subredunca* which accounts for placement of the material in Foslie's herbarium. Woelkerling (1984, p. 101) incorrectly gives the final epithet as *subreducta*.

subsphaerica

Basionym & protologue: *Lithothamnion fornicatum* f. *subsphaerica* Foslie 1905c, p. 38.

Comments: *Lithothamnion fornicatum* f. *subsphaerica* is a superfluous substitute name for *Lithothamnion fornicatum* f. *sphaerica*.

subsimplex

Basionym & protologue: *Goniolithon dispalatum* f. *subsimplex* Foslie et Howe in Foslie 1908f, p. 7.

Effective publication date: ?

Holotype: TRH, Howe no. 5329; includes slides 1680 and 1681.

Type locality and collection data: Samana Cay, Bahamas; collected by M. A. Howe, 4 December 1907.

TRH drawer: A-14; listed under *Goniolithon dispalatum* in Adey & Lebednik (1967, p. 31).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 47, figs 5-7 (as *Goniolithon dispalatum* f. *subsimplex*).

Comments: Foslie (1908f) described both the species and the form in the same account, citing Howe as collector and Samana Cay as the source for all material. Only one collection in TRH is labelled *Goniolithon dispalatum* f. *subsimplex*, and it must therefore be considered the holotype. The holotype element consists of four fragments, three of which are figured in Printz.

subsimplex

Basionym & protologue: *Lithothamnion corallioides* f. *subsimplex* Batters 1892, p. 177.

Effective publication date: ?

Lectotype: BM (designated here).

Isolectotype: TRH, unnumbered; includes slides 82 and 83.

Type locality and collection data: Cumbrae, Scotland, United Kingdom; collected by E. A. L. Batters, August 1891.

TRH drawer: C-1; listed under *Lithothamnion calcareum* in Adey & Lebednik (1967, p. 74).

Previous references to typification: Tittley *et al.* 1984, p. 10 (as *Lithothamnion corallioides* f. *subsimplex*).

Published illustrations of lectotype: ?

Published illustrations of isolectotype material: Foslie 1895, pl. 16, figs 38-42 (as *Lithothamnion corallioides* f. *subsimplex*); Printz 1929, pl. 16, fig. 23 (as *Lithothamnion calcareum* f. *subsimplexa*).

Comments: Batters (1892, p. 177) based *Lithothamnion corallioides* f. *subsimplex* on material from Cumbrae but did not designate a type or indicate how many specimens were involved. Tittley *et al.* (1984, p. 10) list type material as occurring in BM, and this BM collection is designated here jointly with Y. M. Chamberlain as the lectotype element. The TRH isolectotype comprises 34 specimens and a few smaller fragments some of which have been depicted by Foslie (1895) and Printz (1929). Foslie (1905c, p. 68) subsequently changed *Lithothamnion corallioides* f. *subsimplex* to *Lithothamnion calcareum* f. *subsimplex*, which accounts for the placement of specimens in his herbarium.

subsimplex

Basionym & protologue: *Lithothamnion glaciale* f. *subsimplex* Foslie 1905c, p. 27.

Effective publication date: between 25 August 1905 and 30 April 1906.

- Neotype: TRH, Sverdrup's Fram Expedition no. 2051 (designated here).
 Type locality and collection data: Havnefjord, Ellesmere Land; collected by E. Bay, 22 June 1900.
 TRH drawer: B-9; listed under *Lithothamnion glaciale* in Adey & Lebednik (1967, p. 61).
 Previous references to typification: ?
 Published illustrations of neotype: Printz 1929, pl. 23, fig. 5 (as *Lithothamnion glaciale* f. *subsimplex*).
 Comments: Foslie (1905c) established *Lithothamnion glaciale* f. *subsimplex* without designating a type or giving localities, although he (p. 32) indicated that the form occurred most frequently within the arctic zone. No specimens labelled *Lithothamnion glaciale* f. *subsimplex* were found in TRH, and the two specimens illustrated by Printz (pl. 23, figs 3, 5) are labelled only as *Lithothamnion glaciale*. Both of these, however, agree with the original description given by Foslie, and both predate the protologue. The collection containing the specimen shown in Printz pl. 23, fig. 5 has been designated here as neotype element for *Lithothamnion glaciale* f. *subsimplex* because it is in better condition and contains two specimens with numerous intact conceptacles.

subtenellum

- Basionym & protologue: *Goniolithon subtenellum* Foslie 1899c, p. 11.
 Effective publication date: 5 January 1899.
 Lectotype: TRH, unnumbered (designated by Adey 1970, p. 17); includes slide 70.
 Type locality and collection data: Guéthary, Basses Pyrénées, France; collected by C. Sauvageau, March-May 1898.
 TRH drawer: A-2.
 Previous references to typification: Adey 1970, p. 6 (as *Lithophyllum*).
 Published illustrations of lectotype: Printz 1929, pl. 53, figs 1, 2 (as *Lithophyllum*).
 Comments: Foslie (1899c) based *Goniolithon subtenellum* on collections from Algeria, Spain, and France but did not designate a type. According to Adey (1970, p. 6), the symbol denoting the type was omitted in error from the Adey & Lebednik (1967, p. 17) listing, and he designated as co-types the material collected by Sauvageau from France.
 There are three boxes (not four as stated in Adey & Lebednik 1967, p. 17) of such material in TRH, but only one box is flagged as type material, and this is interpreted as being the lectotype element of *Goniolithon subtenellum*. It contains plants on three stones, one of which is depicted in Printz (1929, pl. 53, fig. 1). In the protologue, Foslie (1899c, p. 12) noted that Sauvageau's collection contained a mixture of species, and this appears to be the case. Plants in the lectotype collection, however, have a uniform appearance consistent with protologue information, but detailed anatomical studies are required to determine whether only one species is involved.

subtilis

Basionym & protologue: *Goniolithon frutescens* f. *subtilis* Foslie 1904b, p. 53, pl. 10, figs 12, 13.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: L 991, 239-232 (designated by Verheij & Woelkerling 1992) (Siboga Expedition collection 554).

Isolectotypes: L 991, 239-244 and 991, 239-245 [Siboga Expedition collections 9, 553, 556-560, and 565].

Isolectotypes: TRH (Siboga Expedition collection 555); includes two slides.

Type locality and collection data: South of the Lucipara Islands, Indonesia; collected by A. Weber van Bosse, 8-10 November 1899 (Siboga Expedition station 225).

TRH drawer: A-12; listed under *Goniolithon frutescens* in Adey & Lebednik (1967, p. 29).

Previous references to typification: Verheij & Woelkerling 1992, p. 287 (as *Goniolithon frutescens* f. *subtilis*).

Published illustrations of lectotype: ?

Published illustrations of isolectotypes: Foslie 1904b, pl. 10, fig. 12 (collection 560), fig. 13 (collection 556) (both as *Goniolithon frutescens* f. *subtilis*); Printz 1929, pl. 48, fig. 11 (collection 555) (as *Goniolithon frutescens* f. *subtilis*).

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 287).

subtilis

Basionym & protologue: *Lithophyllum craspedium* f. *subtilis* Foslie 1901a, p. 10.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, unnumbered; includes slide 521.

Type locality and collection data: Malepe, Funafuti; collector not indicated, September 1898.

TRH drawer: A-27; listed under *Lithophyllum craspedium* in Adey & Lebednik (1967, p. 47).

Previous references to typification: Printz 1929, pl. 69, legend to fig. 7 (as *Lithophyllum craspedium* f. *subtilis*).

Published illustrations of holotype: Printz 1929, pl. 69, fig. 7 (as *Lithophyllum craspedium* f. *subtilis*).

Comments: The nature of the type material in BM (Tittley *et al.* 1984, p. 8) has not been determined during the present study.

subtilis

Basionym & protologue: *Lithophyllum kotschyannum* f. *subtilis* Foslie 1909b, p. 34.

Effective publication date: between 1 June and 18 December 1909.

Lectotype: TRH, unnumbered (designated here); includes slide 862.

Type locality and collection data: Caroline Islands; collected by Hallier, no

collection date.

TRH drawer: A-20; listed under *Lithophyllum kotschyanum* in Adey & Lebednik (1967, p. 42).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1909b) based *Lithophyllum kotschyanum* f. *subtilis* on specimens from the Caroline Islands. TRH contains two collections from the Caroline Islands marked *Lithophyllum kotschyanum* f. *subtilis*. Although one of these is pictured in Printz (1929, pl. 65, fig. 5), it is badly fragmented, and thus the other collection, which is intact and bears conceptacles, is designated here as lectotype.

subtilis

Basionym & protologue: *Lithothamnion fasciculatum* f. *subtilis* Foslie 1897c, p. 8.

Comments: Foslie (1897c) apparently based *Lithothamnion fasciculatum* f. *subtilis* on specimens from Roundstone Bay. No collections have been found in TRH which are labelled *Lithothamnion fasciculatum* f. *subtilis* and were collected at Roundstone Bay prior to the publication of the protologue. Consequently, *Lithothamnion fasciculatum* f. *subtilis* has not been typified during this study and its status is uncertain.

In 1906, Foslie (1906b, p. 24) redescribed *Lithothamnion fasciculatum* f. *subtilis* as *Lithophyllum hibernicum*, but the holotype element of that species was collected two years after publication of the protologue for *Lithothamnion fasciculatum* f. *subtilis*.

subtilis

Basionym & protologue: *Lithothamnion indicum* f. *subtilis* Foslie 1907a, p. 7.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated here); includes slide 461.

Type locality and collection data: Koh Mesan-Cape Liant, Thailand; collected by J. Schmidt, 4 February 1900.

TRH drawer: B-7; listed under *Lithothamnion indicum* in Adey & Lebednik (1967, p. 59).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1904d, pl. 1, figs 16, 17 (as *Lithothamnion fruticosum* f. *clavulata*); Printz 1929, pl. 13, figs 28, 29 (as *Lithothamnion indicum* f. *subtilis*).

Comments: Foslie (1907a) established *Lithothamnion indicum* f. *subtilis* for plants which he had previously (Foslie 1903c, 1904b, 1904d) referred to *Lithothamnion fruticosum* f. *clavulata*. Foslie did not designate a type, but he did refer to an earlier paper (Foslie 1904d) in which photographs of particular specimens were published. There are no collections at TRH labelled *Lithothamnion indicum* f. *subtilis*, but amongst collections placed in *Lithothamnion indicum* (see Adey & Lebednik 1967, pp. 58, 59) are

two which were depicted in the figures cited by Foslie and are labelled *Lithothamnion indicum* with *Lithothamnion fruticosum* f. *clavulata* crossed out. The one designated here as lectotype of *Lithothamnion indicum* f. *subtilis* includes a slide and has intact conceptacles, and it was figured by Printz (1929). The lectotype collection includes five additional small individuals. Adey & Lebednik (1967, p. 59) incorrectly cite the associated slide as number 510 rather than 461.

subtilissima

Basionym & protologue: *Melobesia subtilissima* Foslie 1904b, p. 55.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Holotype: L 941, 98-194 (Siboga Expedition collection number not assigned).

Holotype fragment: TRH (Siboga Expedition collection number not assigned) includes two unnumbered slides.

Type locality and collection data: Off Atjatuning, west coast of New Guinea; collected by A. Weber van Bosse, 23-25 August 1899 (Siboga Expedition station 169).

TRH drawer: A-16.

Previous references to typification: Dawson 1960, p. 59 (as *Heteroderma*); Adey & Lebednik 1967, p. 37 (as *Melobesia*); Adey 1970, p. 17 (as *Heteroderma*); Verheij & Woelkerling 1992, p. 287 (as *Melobesia*).

Published illustrations of holotype: ?

Comments: About 95% of the holotype element is housed at L and about 5% is housed at TRH.

subvalida

Basionym & protologue: *Lithothamnion coralloides* f. *subvalida* Foslie 1899c, p. 7.

Comments: Foslie (1899c) based *Lithothamnion coralloides* f. *subvalida* on specimens from Finistere in France but did not designate a type. No TRH collections labelled *Lithothamnion coralloides* f. *subvalida* have been found, and consequently, it has not been typified during this study and its status is uncertain.

superpositum

Basionym & protologue: *Lithothamnion superpositum* Foslie 1900a, p. 8.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, unnumbered; includes slide 345.

Type locality and collection data: Grahamstown, South Africa; collected by H. Becker, 1899.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 82 (as *Lithothamnion*); Adey 1970, p. 26 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 12, fig. 10 (as *Lithothamnion*).

syntrophicum

- Basionym & protologue: *Lithothamnion syntrophicum* Foslie 1901a, p. 6.
 Effective publication date: between 1 January and 18 March 1901.
 Holotype: TRH, Farlow no. XIII; includes slides 487, 838 and 839.
 Type locality and collection data: Bermuda; collector not indicated, 1881; comm. W. Farlow, 1900.
 TRH drawer: B-16.
 Previous references to typification: Adey & Lebednik 1967, p. 67 (as *Lithothamnion*); Adey 1970, p. 26 (as *Mesophyllum*).
 Published illustrations of holotype: Printz 1929, pl. 5, figs 18, 19 (as *Lithothamnion*).
 Comments: About 50% of the specimen depicted in pl. 5, fig. 18 in Printz (1929) is no longer present in TRH, and specimen depicted in fig. 19 is fragmented.

tahitica

- Basionym & protologue: *Lithothamnion japonicum* f. *tahitica* Foslie 1907a, p. 8.
 Effective publication date: between 21 June and 29 June 1907.
 Holotype: TRH, Hariot no. 10; includes slides 1415 and 1449.
 Type locality and collection data: Tearia, Tahiti; collector and date not indicated; comm. P. Hariot, April 1907.
 TRH drawer: C-16; listed under *Lithothamnion tahiticum* in Adey & Lebednik (1967, p. 82).
 Previous references to typification: Adey & Lebednik 1967, p. 82 (as *Lithothamnion tahiticum*); Adey 1970, p. 21 (as *Lithothamnion tahiticum*).
 Published illustrations of holotype: Printz 1929, pl. 14, fig. 5 (as *Lithothamnion tahiticum*).
 Comments: Foslie (1908d, p. 8) subsequently raised *Lithothamnion japonicum* f. *tahitica* to the rank of species, as *Lithothamnion tahiticum*.

taltalensis

- Basionym & protologue: *Lithothamnion magellanicum* f. *taltalensis* Foslie 1905e, p. 17.
 Effective publication date: between April 1905 and 24 August 1905.
 Holotype: TRH, unnumbered; includes slides 893-895.
 Type locality and collection data: Taltal, Chile; collected by R. Paessler, 1904; ex Bot. Mus. Hamburg.
 TRH drawer: B-2; listed under *Lithothamnion taltalense* in Adey & Lebednik (1967, p. 52).
 Previous references to typification: Adey & Lebednik 1967, p. 52 (as *Lithothamnion*); Adey 1970, p. 30 (as *Leptophyllum*).
 Published illustrations of holotype: Printz 1929, pl. 2, fig. 6 (?) (as *Lithothamnion taltalense*).
 Comments: Only some very small fragments of the holotype are present in TRH and they cannot be matched with the specimens depicted in Printz

(1929). In 1906, Foslie (1906b, p. 4) raised *Lithothamnion magellanicum* f. *taltalensis* to the rank of species, as *Lithothamnion taltalense*.

tamiense

Basionym & protologue: *Lithothamnion tamiense* f. *tamiense* Heydrich 1897b, p. 1 (as f. *typica*).

Effective publication date: ?

Syntype fragments: TRH, unnumbered; includes slide 652.

Type locality and collection data: Tami Island, New Guinea; collected by Bamler, date not indicated.

TRH drawer: A-4; listed under *Lithophyllum moluccense* in Adey & Lebednik (1967, p. 19).

Previous references to typification: ?

Published illustrations of type material: see comments below.

Comments: Heydrich (1897b, p. 1, pl. 1, figs 5-7) based *Lithothamnion tamiense* f. *tamiense* (as f. *typica*) on material from Tami Island but did not designate a type. Heydrich's herbarium is presumed to be destroyed (Stafleu & Cowan 1979, p. 187), and thus the total number of specimens involved can no longer be determined. TRH contains two syntype fragments (15 & 17 mm long) that Foslie obtained from a specimen in PC (not seen during the present study). Foslie (1901d, p. 24) redescribed *Lithothamnion tamiense* f. *tamiense* as *Lithophyllum moluccense* f. *flabelliformis*.

tasmanica

Basionym & protologue: *Lithophyllum zostericolum* f. *tasmanica* Foslie 1907a, p. 33.

Effective publication date: between 21 June and 29 June 1907.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 17); includes slides 697 and 1339.

Type locality and collection data: Georgetown Heads, Tasmania, Australia; collector and date unknown; ex herb. Bornet.

TRH drawer: A-2; listed under *Lithophyllum tasmanicum* in Adey & Lebednik (1967, p. 17).

Previous references to typification: Adey & Lebednik 1967, p. 17 (as *Lithophyllum*); Adey 1970, p. 14 (as *Pseudolithophyllum*).

Published illustrations of lectotype: ?

Comments: The basis for selection of the designated lectotype element is explained by Adey (1970, p. 14). Each of the two boxes mentioned by Adey & Lebednik (1967, p. 17) contains a small host fragment with coralline material attached. The boxes and the associated slides have been placed in a single larger box to serve collectively as lectotype element.

tenua

Basionym & protologue: *Lithophyllum tenua* Kjellman 1889, p. 22.

Effective publication date: ?

Lectotype: TRH, unnumbered (designated by P. A. Lebednik); includes slide 311 and slides 1 and 2 prepared by P. A. Lebednik.

Type locality and collection data: Port Clarence, Alaska; collected by F. R. Kjellman, 1879.

TRH drawer: B-2 (Adey & Lebednik 1967, p. 52).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 3, figs 2, 3 (as *Lithophyllum*).

Comments: Kjellman (1889, p. 22, pl. 1, figs 6-10) based *Lithophyllum tenua* on material from Port Clarence, Alaska but did not designate a type or indicate how many specimens were involved. Subsequently, Lebednik (1974) lectotypified *Lithophyllum tenua* with a Kjellman collection in TRH; Lebednik's annotation slip with the box is dated February 1976. The lectotype element includes specimens on rock fragments and a shell (now broken into three pieces); one of the rock fragments and the intact shell are depicted in Printz (1929). Adey & Lebednik (1967, p. 52) list the collection but do not flag it as type.

tenua

Basionym & protologue: *Lithothamnion tenua* Rosenvinge 1893, p. 778.

Effective publication date: ?

Syntypes: TRH, Rosenvinge collections 314 and 879.

Type locality and collection data: see comments.

TRH drawer: B-4; listed under *Lithothamnion laeve* (collection 314) and *L. tenua* (collection 879) in Adey & Lebednik (1967, p. 55).

Previous references to typification: ?

Published illustrations of syntype material: Rosenvinge 1893, figs 4-7 (as *Lithothamnion tenua*); 1894, figs 4-7 (as *Lithothamnion tenua*).

Comments: Rosenvinge (1893) based *Lithothamnion tenua* on a series of collections from Greenland but did not designate a type. TRH contains two syntype collections: Holstenborg, collected by N. Hartz, June 1890; and Upernivik, collected by Rosenvinge, 20 July 1886. Syntype material in C has not been examined during the present study. Foslie (1895, p. 173) needlessly changed the specific epithet to *stroemfeltii*.

tenuis

Basionym & protologue: *Lithophyllum zosteriolum* f. *tenuis* Foslie 1900h, p. 5.

Comments: *Lithophyllum zosteriolum* f. *tenuis* is a superfluous substitute name for *Lithophyllum zosteriolum* f. *zosteriolum*.

tenuissima

Basionym & protologue: *Lithothamnion stroemfeltii* f. *tenuissima* Foslie 1895, p. 173 (p. 145 in independently paginated offprint).

Comments: Foslie (1895) established *Lithothamnion stroemfeltii* f. *tenuissima* without designating a type or listing localities. Subsequently, Foslie (1905c, pp. 17, 18) considered *Lithothamnion stroemfeltii* f. *tenuissima* to be conspecific with *Lithothamnion laeve* Strömfelt. No specimens labelled *Lithothamnion stroemfeltii* f. *tenuissima* could be found in TRH; consequently it has not been typified during this study and its status is uncertain. Chamberlain (1991, pp. 36, 49) concluded that several British specimens identified by Batters as *Lithothamnion stroemfeltii* f. *tenuissima* belong to *Lithophyllum pustulatum* var. *macrocarpum* (as *Titanoderma*).

tenuissimum

Basionym & protologue: *Lithothamnion tenuissimum* Foslie 1900a, p. 20.

Effective publication date: between 1 January and 25 June 1900.

Holotype: TRH, Henriques no. 23; includes slides 33 and 1519.

Type locality and collection data: Bahia de Anna Chaves & Praia Lagarto, São Tomé Island; collected by A. Möller, May 1885.

TRH drawer: B-1.

Previous references to typification: Adey & Lebednik 1967, p. 50 (as *Lithothamnion*); Adey 1970, p. 29 (as *Phymatolithon*).

Published illustrations of holotype: Printz 1929, pl. 1, figs 1-3 (as *Lithothamnion*).

Comments: The holotype element includes plants attached to six pieces of rock, two of which are depicted in Printz (1929, pl. 1, figs 1, 3). The specimen depicted in Printz (1929, pl. 1, fig. 2) cannot be matched to the smaller fragments of rock in the holotype element. Steentoft (1967, p. 130) provides additional comments on the type material.

testaceum

Basionym & protologue: *Lithothamnion testaceum* Foslie 1895, p. 135 (p. 107 in independently paginated offprint).

Effective publication date: 5 December 1895.

Holotype: TRH, unnumbered; includes slide 219 and one unnumbered slide.

Type locality and collection data: Bergsfjord, Finnmark, Norway, collector not indicated, 2 August 1891.

TRH drawer: C-21.

Previous references to typification: ?

Published illustrations of type: Foslie 1895a, pl. 19, figs 5-9 (as *Lithothamnion*); Printz 1929, pl. 41, fig. 14 (as *Clathromorphum*).

Comments: About 20 fragments comprise the holotype element; some of these have been depicted by Foslie (1895) and Printz (1929). Adey & Lebednik (1967, p. 87) list the collection but do not flag it as type. The

nature of the reported type material in BM (Tittley *et al.* 1984, p. 12) has not been determined during the present study.

thelostegium

- Basionym & protologue: *Lithothamnion thelostegium* Foslie 1907a, p. 4.
 Effective publication date: between 21 June and 29 June 1907.
 Holotype: TRH, Hariot no. 14; includes slides 1420, 1432 and 1469.
 Type locality and collection data: Rikitea, Tahiti; collector and date not indicated; comm. P. Hariot, April 1907.
 TRH drawer: C-18.
 Previous references to typification: Adey & Lebednik 1967, p. 84 (as *Lithothamnion*); Adey 1970, p. 26 (as *Mesophyllum*).
 Published illustrations of holotype: Printz 1929, pl. 4, fig. 21 (as *Lithothamnion*).
 Comments: The holotype is the only collection of this species in TRH identified by Foslie.

timorensis

- Basionym & protologue: *Archaeolithothamnion timorensis* Foslie 1904b, p. 42.
 Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).
 Lectotype: L 935, 207-13 (designated by Verheij & Woelkerling 1992) (Siboga Expedition collection 443); includes two slides.
 Isolectotypes: L 935, 207-13 [Siboga Expedition collections 431 (includes one slide), 442, 446, 449-452, 453 (includes one slide), 457, 458, 466, 471 (includes one slide), 474, 476, 478 (includes one slide), 479 (includes one slide), and 482].
 Isolectotypes: TRH [Siboga Expedition collections 444, 474 (slide only) and 480].
 Type locality and collection data: East of Sailus Besar, Paternoster Islands, Indonesia; collected by A. Weber van Bosse, 17-18 February 1900 (Siboga Expedition station 315).
 TRH drawer: C-19; (Adey & Lebednik 1967, p. 85).
 Previous references to typification: Adey in Adey & Lebednik 1967, p. 85 (as *Archaeolithothamnion*); Adey 1970, p. 18 (as *Archaeolithothamnion*) Verheij & Woelkerling 1992, p. 288 (as *Archaeolithothamnion*).
 Published illustrations of lectotype: ?
 Published illustrations of isolectotypes: Foslie 1904b, pl. 8, fig. 1 (collection 482), fig. 3 (collection 450), fig. 4 (collection 451), fig. 5 (collection 457), fig. 6 (collection 458), fig. 9 (collection 435), fig. 10 (collection 471), fig. 11 (collection 479), fig. 12 (collection 474), fig. 14 (collection 466) (all as *Archaeolithothamnion*); Printz 1929, pl. 44 (figure and collection numbers identical to those in Foslie 1904b) (all as *Archaeolithothamnion*).
 Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 288) who have proposed a lectotype to supersede that of Adey in Adey & Lebednik (1967, p. 85) under ICBN

Art. 8.1(b). The box containing the lectotype also contains 17 isoelectotype specimens and four slides.

torosa

Basionym & protologue: *Lithothamnion glaciale* f. *torosa* Foslie 1895, p. 41 (p. 13 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slide 888.

Type locality and collection data: Kvalsund, Finnmark, Norway; collected by M. F. Foslie, 17 July 1891.

TRH drawer: C-26; listed under *Phymatolithon investiens* in Adey & Lebednik (1967, p. 92).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 1, figs 1, 2 (as *Lithothamnion glaciale* f. *torosa*).

Comments: Foslie (1895) based *Lithothamnion glaciale* f. *torosa* on material from several localities but did not designate a type. Subsequently, Foslie (1905c, p. 81) changed *Lithothamnion glaciale* f. *torosa* to *Phymatolithon investiens* f. *torosa* which accounts for its placement in the Foslie herbarium. Although no collections labelled with either name were found at TRH, the collection containing the specimens depicted in the protologue was found (labelled only as *Phymatolithon investiens*) in drawer C-26 and has been designated here as lectotype element for *Lithothamnion glaciale* f. *torosa*.

torquescens

Basionym & protologue: *Lithophyllum torquescens* Foslie 1901a, p. 11.

Effective publication date: between 1 January and 18 March 1901.

Lectotype: TRH, Farlow no. XXXV (designated by Foslie 1904b, p. 69 & pl. 12, legend to fig. 11); includes slide 508.

Type locality and collection data: Uncertain, but suggested in the protologue to be from Mauritius, col. Agassiz, comm. Farlow.

TRH drawer: A-4; listed under *Lithophyllum moluccense* in Adey & Lebednik (1967, p. 19).

Previous references to typification: Foslie 1904b, pl. 12, legend to fig. 11 (as *Lithophyllum moluccense* f. *torquescens*); Printz 1929, pl. 55, legend to fig. 17 (as *Lithophyllum moluccense* f. *torquescens*).

Published illustrations of lectotype: Foslie 1904b, pl. 12, fig. 11 (as *Lithophyllum moluccense* f. *torquescens*); Printz 1929, pl. 55, fig. 17 (as *Lithophyllum moluccense* f. *torquescens*).

Comments: Foslie (1901a) cited two Farlow specimens (XXXIV and XXXV) in the protologue, but did not designate a type. Subsequently, however, Foslie (1904b, p. 69 & legend to fig. 11 on pl. 12) reduced the species to *Lithophyllum moluccense* f. *torquescens* and designated Farlow's specimen XXXV as (lecto)type.

trabuccoi

Basionym & protologue: *Lithophyllum trabuccoi* Foslie 1900i, p. 17.

Effective publication date: between 26 June and 31 December 1900.

Comments: Foslie (1900a, p. 17, footnote) based *Lithophyllum trabuccoi* principally on an illustration of a fossil specimen that Trabucco (1894, p. 204, pl. 9, fig. 3) referred to *Lithothamnion torulosum* Gmbel. There is no material labelled *Lithophyllum trabuccoi* in TRH. Trabucco's (1894) protologue lacks information on diagnostic features, and the single illustration presented by Trabucco cannot be interpreted in a modern context either at species or genus level within the Corallinales. As a consequence, *Lithophyllum trabuccoi* has not been typified during the present study, and its taxonomic status is uncertain.

trincomaliensis

Basionym & protologue: *Lithophyllum okamurai* f. *trincomaliensis* Foslie 1906c, p. 23 (p. 7 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Holotype: TRH, unnumbered; includes sides 969 and 970.

Type locality and collection data: Trincomalee, Sri Lanka; collected by N. Svedelius, 17 April 1903.

TRH drawer: A-21; listed under *Lithophyllum okamurai* in Adey & Lebednik (1967, p. 42).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 64, figs 8, 9 (as *Lithophyllum okamurai* f. *trincomaliensis*).

Comments: The holotype element consists of seven large individuals (two of which are figured in Printz 1929), six smaller individuals, and several fragments.

trochanter

Basionym & protologue: *Nullipora trochanter* Bory 1832, p. 206.

Effective publication date: ?

Syntype fragment: TRH, unnumbered; includes slide 526.

Type locality and collection data: Greece; collector and date not indicated.

TRH drawer: A-4; listed under *Lithophyllum byssoides* in Adey & Lebednik (1967, p. 19).

Previous references to typification: ?

Published illustrations of type: Bory 1832, pl. 54, figs 2a, 2b (as *Nullipora*).

Comments: Bory (1832, p. 206, pl. 54, figs 2a, 2b) based *Nullipora trochanter* on material from Greece but did not designate a type or indicate how many specimens were involved. The TRH syntype fragments (the largest is 24 mm long) were obtained by Foslie from PC, and reference to the More Expedition during which the Bory protologue material was obtained is made on the box housing the fragments. Bory material of *Nullipora trochanter* in PC has not been examined during the present study.

Foslie (1899d, p. 5) considered *Nullipora trochanter* to be conspecific with *Lithophyllum byssoides*, which accounts for the placement of Bory's material in Foslie's herbarium.

truncata

Basionym & protologue: *Lithophyllum africanum* f. *truncata* Foslie 1900h, p. 3.

Effective publication date: between 26 June and 31 December 1900.

Holotype: TRH, Henriques no. 23 (in part); includes slide 441.

Type locality and collection data: Cape Verde, Africa; collector and date unknown, comm. Henriques.

TRH drawer: A-27; listed under *Lithophyllum africanum* in Adey & Lebednik (1967, p. 47).

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 68, fig. 1 (as *Lithophyllum africanum* f. *truncata*).

Comments: Foslie (1900h) concurrently established *Lithophyllum africanum*, *Lithophyllum africanum* f. *intermedia* and *Lithophyllum africanum* f. *truncata* for specimens from the west coast of Africa at Cape Verde sent by Henriques and Bouvier. Foslie (1900h) did not designate types for any of these entities, nor did he indicate which specimens belonged to each of the new taxa. In TRH, the Henriques material in collection no. 23 is divided into two boxes (grouped as a single entry in Adey & Lebednik, 1967, p. 47) and the Bouvier material is contained in one box. Only one box of the Henriques collection no. 23 is labelled f. *truncata*, and thus it must be considered the holotype for the taxon. The box contains two specimens, one of which is figured in Printz (1929).

tualensis

Basionym & protologue: *Lithothamnion australe* f. *tualensis* Foslie 1904b, p. 24.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: TRH (Siboga Expedition collection 675a, portion in TRH; the portion in L is an islectotype).

Isolectotypes: TRH [Siboga Expedition collections 668 (in part; includes one slide), 670 (in part; includes one slide) and 676 (slide only)].

Isolectotypes: L 943, 5-145 [Siboga Expedition collections 32, 668 (in part), 670 (in part), 675a (portion in L; the portion in TRH is the lectotype), 675b, and 676].

Type locality and collection data: Tual, Kei Islands, Indonesia; collected by A. Weber van Bosse, 11 December 1899 (Siboga Expedition station 258).

TRH drawer: C-17; listed under *Lithothamnion australe* in Adey & Lebednik (1967, p. 82).

Previous references to typification: Verheij & Woelkerling 1992, p. 289 (as *Lithothamnion australe* f. *tualensis*).

Published illustrations of lectotype: ?

Published illustrations of isoelectotypes: Foslie 1904b, pl. 2, figs 10-17 (all from collection 675a in L; specimen depicted in fig. 13 apparently is missing) (as *Lithothamnion australe* f. *tualensis*); Printz 1929, pl. 17, figs 30-37 (all from collection 675a in L; specimen depicted in fig. 33 apparently is missing) (as *Lithothamnion australe* f. *tualensis*). In addition text fig. 11 in Foslie (1904b, p. 28) is based on a slide (in L) prepared from collection 675a.

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 289).

tuberculata

Basionym & protologue: *Lithothamnion fornicatum* f. *tuberculata* Foslie 1900i, p. 12.

Comments: *Lithothamnion fornicatum* f. *tuberculata* is a superfluous substitute name for *Lithothamnion dehiscens* f. *grandifrons*.

tuberculata

Basionym & protologue: *Lithothamnion polymorphum* f. *tuberculata* Foslie 1895, p. 114 (p. 86 in independently paginated offprint), pl. 17, figs 17-19.

Comments: Foslie (1895) based *Lithothamnion polymorphum* f. *tuberculata* on specimens from Skorpen, Kvænangen, Norway. No collections from Skorpen labelled *Lithothamnion polymorphum* f. *tuberculata* that predate the protologue have been found in TRH. Reference to the protologue figures has not been found on any box, and attempts to match plants collected at Skorpen with the protologue figures have not been successful. Consequently, *Lithothamnion polymorphum* f. *tuberculata* has not been typified during this study and its status is uncertain.

tuberculatum

Basionym & protologue: *Lithophyllum tuberculatum* Foslie 1906b, p. 21.

Effective publication date: between 1 December 1906 and 30 March 1907.

Syntypes: TRH, Setchell nos 6340, 6342, 6344, 6345, 6349; includes slides 1136-1138, 1140, 1162-1164 and 1183.

Type locality and collection data: Bay of Islands, New Zealand; collected by W. A. Setchell, June 1904.

TRH drawer: A-3.

Previous references to typification: Adey & Lebednik 1967, p. 18 (as *Lithophyllum*); Adey 1970, p. 14 (as *Pseudolithophyllum*).

Published illustrations of syntypes: Printz 1929, pl. 54, figs 2, 3 (as *Lithophyllum*).

Comments: Foslie (1906b) based *Lithophyllum tuberculatum* on a series of Setchell collections from New Zealand but did not designate a type. Foslie (1906b) also noted that other species, notably *Lithophyllum detrusum*, were present in these collections. Subsequently, Adey (1970,

p. 14; see also Adey & Lebednik 1967, p. 18) lumped the five separately numbered Setchell collections together as the holotype, a procedure not in accord with ICBN Art. 9.1 which requires that a single preparation serve as the type. Because a mixture of species is involved, further study is required before deciding which of the five Setchell collections should be designated as lectotype.

tuberosa

Basionym & protologue: *Lithothamnion affine* f. *tuberosa* Foslie 1897c, p. 13.

Effective publication date: between 1 July and 31 December 1897.

Lectotype: TRH, unnumbered (designated here).

Type locality and collection data: Massanah, Red Sea; collected by K. M. Levander, 1894-1895; comm. F. Elfring.

TRH drawer: A-20; listed under *Lithophyllum kotschyanum* in Adey & Lebednik (1967, p. 42, with mention only of Elfring and not Levander).

Previous references to typification: ?

Published illustrations of lectotype: ?

Comments: Foslie (1897c) concurrently described *Lithothamnion affine* and the forms *L. affine* f. *tuberosa* and *L. affine* f. *complanata* based on material collected by Levander from the Red Sea and material collected by Miliarakis from Nisyro Island off the coast of Greece. Foslie (1897c) did not designate any types or indicate which was the typical form of the species.

The Levander material is contained in four boxes at TRH. None of these boxes is labelled either with f. *complanata* or with f. *tuberosa*. The species *Lithothamnion affine* has been lectotypified with a Levander specimen that agrees with the description of *L. affine* f. *complanata* (see accounts for *Lithothamnion affine* and *Lithothamnion affine* f. *complanata* above), and f. *complanata* therefore is a superfluous substitute name for *Lithothamnion affine* f. *affine*.

The material chosen to lectotypify *Lithothamnion affine* f. *tuberosa* (also a Levander collection) is that which most closely fits the protologue account of the form. It consists mostly of fragments which, however, have a number of conceptacles. It is not clear why the lectotype material was placed amongst collections of *Lithophyllum kotschyanum* in Foslie's herbarium because he did not associate *Lithothamnion affine* f. *tuberosa* with *Lithophyllum kotschyanum* in his publications.

The Miliarakis material is now found under *Lithophyllum racemus* (see Adey & Lebednik 1967, p. 43), and there is no evidence with the collection to suggest that this specimen ever was placed in *Lithothamnion affine*.

tumidulum

Basionym & protologue: *Lithophyllum tumidulum* Foslie 1901e, p. 5.

Effective publication date: between 27 July and 31 December 1901.

Holotype: TRH, unnumbered; includes slide 696.

Type locality and collection data: Shimoda, Izu Prov., Japan; collected by K. Yendo, 1899.

TRH drawer: A-18.

Previous references to typification: Adey & Lebednik 1967, p. 40 (as *Lithophyllum*); Adey 1970, p. 7 (as *Tenarea*).

Published illustrations of holotype: Printz 1929, pl. 72, fig. 13 (as *Lithophyllum*).

Comments: The holotype host is rather fragmented, but thalli of *Lithophyllum tumidulum* are largely intact.

tusterense

Basionym & protologue: *Lithothamnion tusterense* Foslie 1905c, p. 65.

Effective publication date: between 25 August 1905 and 30 April 1906.

Holotype: TRH, unnumbered; includes slides 309, 310, 1644.

Type locality and collection data: Tusteren (north of Kristiansund), Norway; collected by M. F. Foslie, 10 August 1898.

TRH drawer: C-9.

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 22, figs 6-13 (as *Lithothamnion*).

Comments: Foslie (1905c) based *Lithothamnion tusterense* on material from Tusteren, Norway. There is only one TRH collection labelled *Lithothamnion tusterense* which predates 1905 and comes from Tusteren, and thus it must be considered the holotype element. It includes all of the plants depicted in Printz (1929). Adey & Lebednik (1967, p. 77) list the collection but do not flag it as type.

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 12) has not been determined during the present study.

typica

Comments: Foslie used the epithet *typica* as a forma name for at least 65 species (see Woelkerling 1984, pp. 106-110), but in all cases he was referring to the typical form of the species, which cannot bear the name *typica* (ICBN Arts 24.3 and 26.1).

ubiana

Basionym & protologue: *Lithothamnion australe* f. *ubiana* Foslie 1904b, p. 24.

Effective publication date: August 1904 (Stafleu & Cowan 1988, p. 132).

Lectotype: L 991, 239-242 (designated by Verheij & Woelkerling 1992) (Siboga Expedition collection 1046).

Isolectotype: L 991, 239-238 (Siboga Expedition collection 1045).

Type locality and collection data: Pulu Sanguisiapo, Tawi-Tawi Islands, Sulu Archipelago, Indonesia; collected by A. Weber van Bosse, 24/25 June 1899 (Siboga Expedition station 93).

Previous references to typification: Verheij & Woelkerling 1992, p. 289.

Published illustrations of lectotype: ?

Published illustrations of isoelectotype: ?

Comments: The basis for selection of the designated lectotype is explained by Verheij & Woelkerling (1992, p. 290). TRH does not possess lectotype or isoelectotype material.

udoteae

Basionym & protologue: *Goniolithon udoteae* Foslie 1901a, p. 21.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, unnumbered; includes slide 367.

Type locality and collection data: Little Princess Bay, St. Croix, US Virgin Islands; collected by F. Børgesen, January–March 1892.

TRH drawer: A-10.

Previous references to typification: ?

Published illustrations of holotype: Printz 1929, pl. 45, fig. 1 (as *Goniolithon*).

Comments: The host *Udotea* is now in two pieces (rather than one as shown by Printz 1929). Adey & Lebednik (1967, p. 26) list the collection but do not flag it as type.

umbonata

Basionym & protologue: *Lithothamnion engelhartii* f. *umbonata* Foslie 1900a, p. 18.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated here); includes slide 351.

Type locality and collection data: Cape Jaffa, South Australia; collector and date not indicated; comm. A. Engelhart, 1900.

TRH drawer: B-18; listed under *Lithothamnion engelhartii* in Adey & Lebednik (1967, p. 69).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 7, fig. 15 (as *Lithothamnion engelhartii* f. *umbonata*).

Comments: Foslie (1900a) based *Lithothamnion engelhartii* f. *umbonata* on material from Cape Jaffa, South Australia and also indicated he had seen a specimen in PC that belonged to this taxon. There is only a single collection in TRH labelled *Lithothamnion engelhartii* f. *umbonata*, and it is designated here as the lectotype.

uncinatum

Basionym & protologue: *Lithothamnion uncinatum* Foslie 1895, p. 154 (p. 126 in independently paginated offprint).

Effective publication date: 5 December 1895.

Holotype: TRH, unnumbered; includes slide 41.

Type locality and collection data: Kragerø, Norway; no collector given, 1890.

TRH drawer: C-3.

Previous references to typification: ?

Published illustrations of holotype: Foslie 1895, pl. 19, figs 11-14 (as *Lithothamnion*).

Comments: Foslie (1897c, p. 9) subsequently reduced *Lithothamnion uncinatum* to *Lithothamnion calcareum* f. *uncinatum*, then (Foslie 1898b, 6) again recognized it as a distinct species, and finally (Foslie 1905c, p. 66) reduced it to *Lithothamnion norvegicum* f. *uncinatum*. Foslie's last taxonomic judgment explains placement of the holotype collection with other material of *Lithothamnion norvegicum* in his herbarium. Adey & Lebednik (1967, p. 76) list the collection but do not flag it as type.

valens

Basionym & protologue: *Lithothamnion valens* Foslie 1909b, p. 3.

Effective publication date: between 1 June and 18 December 1909.

Holotype: TRH, unnumbered; includes slides 1731-1733.

Type locality and collection data: Locality, collector and date not indicated.

TRH drawer: C-2.

Previous references to typification: Adey & Lebednik 1967, p. 75 (as *Lithothamnion*); Adey 1970, p. 21 (as *Lithothamnion*).

Published illustrations of holotype: ?

Comments: The holotype element consists of three fragments. The specimen is said to have come from the Naturhistorische Hofmuseum in Vienna and the container has the inscription '*Lithoth. crassum* Phil Adria'.

valida

Basionym & protologue: *Lithophyllum okamurai* f. *valida* Foslie 1906c, p. 23 (p. 7 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Holotype: TRH, unnumbered; includes slide 980.

Type locality and collection data: Dondra Head, Sri Lanka; collected by N. Svedelius, 16 March 1903.

TRH drawer: A-21; listed under *Lithophyllum validum* in Adey & Lebednik (1967, p. 42).

Previous references to typification: Adey & Lebednik 1967, p. 42 (as *Lithophyllum validum*); Adey 1970, p. 6 (as *Lithophyllum validum*).

Published illustrations of holotype: Printz 1929, pl. 64, fig. 11 (as *Lithophyllum validum*).

Comments: The holotype element consists of two specimens, one of which is depicted in Printz (1929).

valida

Basionym & protologue: *Lithothamnion calcareum* f. *valida* Foslie 1900i, p. 13.

Comments: *Lithothamnion calcareum* f. *valida* is a superfluous substitute name for *Lithothamnion calcareum* f. *attenuata*.

valida

Basionym & protologue: *Lithothamnion heterocladum* f. *valida* Foslie 1907c, p. 9.

Comments: *Lithothamnion heterocladum* f. *valida* is a superfluous substitute name for *Lithothamnion heterocladum* f. *heterocladum*.

valida

Basionym & protologue: *Lithothamnion polymorphum* f. *valida* Foslie 1895, p. 114 (p. 86 in independently paginated offprint).

Effective publication date: 5 December 1895.

Holotype: TRH, unnumbered; includes slide 210.

Type locality and collection data: Lyngø, near Tromsø, Norway; collected by M. F. Foslie, 12 June 1892.

TRH drawer: C-23; listed under *Phymatolithon polymorphum* in Adey & Lebednik (1967, p. 89).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1895, pl. 17, figs 20, 21 (as *Lithothamnion polymorphum* f. *valida*); Printz 1929, pl. 39, fig. 2 (as *Phymatolithon polymorphum* f. *valida*).

Comments: The holotype element consists of four pieces, one of which is depicted both in the protologue (Foslie 1895, pl. 17, fig. 21) and by Printz (1929, pl. 39, fig. 2). The piece depicted in Foslie (1895, pl. 17, fig. 20) is not present in TRH. There is no evidence that Foslie ever equated the form *valida* with the typical form of the species (i.e. *Lithothamnion polymorphum* f. *polymorphum*), and thus the two entities are considered distinct.

valida

Basionym & protologue: *Lithothamnion rugosum* f. *valida* Foslie 1901a, p. 4.

Effective publication date: between 1 January and 18 March 1901.

Holotype: TRH, Farlow no. X; includes slides 484 and 1361.

Type locality and collection data: San Diego, California, USA; collected by H. Hemphill, no date indicated; comm. W. Farlow, 1900.

TRH drawer: C-16; listed under *Lithothamnion validum* in Adey & Lebednik (1967, p. 82).

Previous references to typification: Adey & Lebednik 1967, p. 82 (as *Lithothamnion validum*); Adey 1970, p. 21 (as *Lithothamnion validum*).

Published illustrations of holotype: Printz 1929, pl. 12, fig. 13 (as *Lithothamnion validum*).

Comments: In 1906, Foslie (1906b, p. 10) raised *Lithothamnion rugosum* f. *valida* to the rank of species, as *Lithothamnion validum*.

vancouveriense

Basionym & protologue: *Lithophyllum vancouveriense* Foslie 1906c, p. 21 (p. 5 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.
 Lectotype: TRH, unnumbered; includes slides 724 and 725.
 Isolectotype: UC 397503.
 Type locality and collection data: Port Renfrew, Vancouver Island, British Columbia, Canada; collected by K. Yendo, June–July 1901.
 TRH drawer: A-3 (Adey & Lebednik 1967, p. 18).
 Previous references to typification: Mason 1953, p. 341 (in the account of *Lithophyllum whidbeyense* under specimens examined).
 Published illustrations of lectotype: Printz 1929, pl. 54, fig. 22 (as *Lithophyllum vancouveriense*).
 Published illustrations of isolectotype: Steneck & Paine 1986, figs 27, 29, 31 (as *Mesophyllum vancouveriense*).
 Comments: Foslie (1906c) based *Lithophyllum vancouveriense* on collections from British Columbia and Washington State, USA but did not designate a type. Subsequently, Mason (1953, p. 341) lectotypified the species with the Yendo collection in TRH from Port Renfrew. UC 397503, cited by Steneck & Paine (1986, p. 233) as the lectotype, is in reality an isolectotype but has not been examined during the present study. Adey & Lebednik (1967, p. 18) list the lectotype collection but do not flag it as type.

vardoense

Basionym & protologue: *Lithothamnion vardoense* Foslie 1905b, p. 3.
 Effective publication date: between 8 September 1905 and 30 April 1906.
 Lectotype: TRH, unnumbered; includes slides 1028–1030.
 Type locality and collection data: Svolvær, Lofoten, Norway, collected by M. F. Foslie, 6 September 1897.
 TRH drawer: C-8 (Adey & Lebednik 1967, p. 77).
 Previous references to typification: ?
 Published illustrations of lectotype: Printz 1929, pl. 32, figs 12, 13, 15 (as *Lithothamnion*).
 Comments: Foslie (1905b) based *Lithothamnion vardoense* on material from two localities in Norway: Vardø, from which only dead specimens were available; and Svolvær in Lofoten, from which living specimens were obtained. The Svolvær collection includes over 100 specimens; material separated by Foslie into four boxes, including the specimens depicted in Printz (1929) have been brought together in a single box and designated here as the lectotype element for *Lithothamnion vardoense*. Most specimens of *Lithothamnion vardoense* in the Svolvær collection have smaller coralline epiphytes associated with them. Adey & Lebednik (1967, p. 77) list the lectotype collection but do not flag it as type.

variabile

Basionym & protologue: *Lithothamnion variabile* Foslie 1906b, p. 10.
 Effective publication date: between 1 December 1906 and 30 March 1907.
 Holotype: TRH, unnumbered; includes slides 939 and 945.

Type locality and collection data: Port Louis, Berkeley Sound, Falkland Islands; collected by C. Skottsberg, 23 July 1902.

TRH drawer: C-18.

Previous references to typification: Adey & Lebednik 1967, p. 84 (as *Lithothamnion*); Adey 1970, p. 26 (as *Mesophyllum*).

Published illustrations of holotype: Foslie 1907c, pl. 1, figs 7-9 (as *Lithothamnion*); Printz 1929, pl. 5, figs 15-17 (as *Lithothamnion*).

Comments: The holotype element consists of six pieces of material, three of which have been depicted by Foslie (1907c) and Printz (1929).

varians

Basionym & protologue: *Lithothamnion varians* Foslie 1895, p. 109 (p. 81 in independently paginated offprint).

Effective publication date: 5 December 1895.

Lectotype: TRH, unnumbered (designated here); includes slide 134.

Type locality and collection data: Ballstad, Lofoten, Norway, collected by M. F. Foslie, 21 September 1881.

TRH drawer: C-23; listed under *Phymatolithon polymorphum* in Adey & Lebednik (1967, p. 89).

Previous references to typification: ?

Published illustrations of lectotype: Foslie 1895, pl. 18, figs 3, 4 (as *Lithothamnion varians*).

Comments: Foslie (1895) concurrently described the species *Lithothamnion varians* and two forms (*Lithothamnion varians* f. *verrucosa* and *Lithothamnion varians* f. *irregularis*) without designating any type specimens or indicating which he considered to be the typical form of the species. Subsequently, *Lithothamnion varians* f. *verrucosa* was transferred to *Lithothamnion glaciale* f. *verrucosa* (Foslie 1900i, p. 11), and then the name *Lithothamnion glaciale* f. *verrucosa* was changed to *Lithothamnion glaciale* f. *subfastigiata* (Foslie 1905c, p. 26). There is no further mention of this taxon in Foslie's publications. *Lithothamnion varians* f. *irregularis* appeared in one subsequent list (Foslie 1898b, p. 4) and then similarly disappeared from mention in Foslie's publications. It is not clear why the collections were placed under *Phymatolithon polymorphum* in Foslie's herbarium.

In the protologue, Foslie (1895) places more emphasis on the form *verrucosa*, and on this basis, *Lithothamnion varians* f. *verrucosa* is designated here as the lectotype form for *Lithothamnion varians*. In accordance with ICBN Art 26.1, *Lithothamnion varians* f. *verrucosa* must be known as *Lithothamnion varians* f. *varians*, and thus *Lithothamnion varians* f. *verrucosa* is a superfluous name (ICBN Art 63.1). Similarly when Foslie (1905c, p. 26) changed *Lithothamnion glaciale* f. *verrucosa* to *Lithothamnion glaciale* f. *subfastigiata*, he created another superfluous substitute name for *Lithothamnion varians* f. *varians*.

In TRH, the only relevant specimens found were two collections labelled *Lithothamnion varians* f. *verrucosa* which were filed in drawer

C-23 with collections of *Phymatolithon polymorphum*; one of these two also has *Phymatolithon polymorphum* written on the box. Both of these collections contain specimens that were depicted in the protologue. The collection designated here as lectotype for *Lithothamnion varians* contains the specimens shown in Foslie 1895, pl. 18, figs 3 and 4; the specimens have conceptacles and are in better condition than the collection containing the specimens depicted in Foslie 1895, pl. 18, figs 1 and 2.

The nature of the reported type material in BM (Tittley *et al.* 1984, p. 12) has not been determined during the present study.

variens

Basionym & protologue: *Mastophora melobesioides* f. *variens* Foslie 1908d, p. 19.

Effective publication date: between 1 September and 28 September 1908. Holotype: TRH, unnumbered; includes slide 1638.

Type locality and collection data: Palaboehan Ratoe, Java, Indonesia; collected by H.J. Möller, August 1897.

TRH drawer: A-1; listed under *Mastophora melobesioides* in Adey & Lebednik (1967, p. 15).

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: Conceptacles are present, although many are broken.

verrucosa

Basionym & protologue: *Lithothamnion varians* f. *verrucosa* Foslie 1895, p. 109 (p. 81 in independently paginated offprint).

Comments: *Lithothamnion varians* f. *verrucosa* is a superfluous substitute name for *Lithothamnion varians* f. *variens*.

verrucosum

Basionym & protologue: *Goniolithon verrucosum* Foslie 1900a, p. 24.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, unnumbered (designated by Adey in Adey & Lebednik 1967, p. 18); includes slide 409.

Type locality and collection data: Cape Jaffa, South Australia; collected by A. Engelhart, 1899.

TRH drawer: A-3.

Previous references to typification: Adey & Lebednik 1967, p. 18 (as *Goniolithon*); Adey 1970, p. 10 (as *Neogoniolithon*).

Published illustrations of lectotype: Printz 1929, pl. 54, fig. 27 (as *Lithophyllum*).

Comments: Adey (1970, p. 10) did not give reasons for his selection of a lectotype. The lectotype element consists of the single fragment depicted in Printz; about 70% is no longer present.

versabile

Basionym & protologue: *Goniolithon versabile* Foslie 1907a, p. 15.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slides 405 and 1450.

Type locality and collection data: Amakusa, Japan; collected by J. Petersen, 9 June 1882.

TRH drawer: A-10.

Previous references to typification: Adey & Lebednik 1967, p. 26 (as *Goniolithon*); Adey 1970, p. 10 (as *Neogoniolithon*).

Published illustrations of holotype: Printz 1929, pl. 45, figs 25, 26 (as *Goniolithon*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

versicolor

Basionym & protologue: *Lithothamnion versicolor* Foslie 1907a, p. 3.

Effective publication date: between 21 June and 29 June 1907.

Holotype: TRH, unnumbered; includes slides 1324 and 1325.

Type locality and collection data: Port Phillip Heads, Victoria, Australia; collected by C. J. Gabriel, December 1906.

TRH drawer: C-16.

Previous references to typification: Adey & Lebednik 1967, p. 82 (as *Lithothamnion*); Adey 1970, p. 26 (as *Mesophyllum*).

Published illustrations of holotype: Printz 1929, pl. 12, figs 1, 2 (as *Lithothamnion*).

Comments: The holotype is the only collection of this species in TRH identified by Foslie.

vescum

Basionym & protologue: *Lithothamnion vescum* Foslie 1907b, p. 3.

Effective publication date: between 30 September 1907 and 27 January 1908.

Holotype: TRH, Yendo no. 228; includes slide 1539.

Type locality and collection data: Marine Laboratory at Sagami Prov., Japan; collected by K. Yendo, 1899.

TRH drawer: B-2.

Previous references to typification: Adey 1970, p. 26 (as *Mesophyllum*).

Published illustrations of holotype: ?

Comments: The holotype consists only of a few small fragments detached from the host, *Ecklonia*. The specimen was not flagged as type material in Adey & Lebednik (1967, p. 52).

vulgaris

Nomen nudum: *Mastophora vulgaris* Foslie in Adey & Lebednik (1967, p. 15).

Comments: *Mastophora vulgaris* is a *nomen nudum* published in Adey &

Lebednik (1967, p. 15) and is based on a specimen so labelled in TRH. The plant is said to be from Port Phillip Bay, Victoria, Australia and is illustrated by Printz (1929, pl. 75, fig. 2) under the name *Mastophora lamourouxii* f. *typica*. Woelkerling (1980) concluded that the specimen belongs to *Metamastophora flabellata*.

wandelica

Basionym & protologue: *Lithothamnion aequabile* f. *wandelica* Foslie 1906b, p. 22.

Effective publication date: between 1 December 1906 and 30 March 1907.
Lectotype: TRH, unnumbered (designated here); includes slides 1129-1135 and 1184-1186.

Type locality and collection data: Wandel Islands, Antarctic Ocean; collected by *B. Tourquet*, 10-27 September 1904, comm. P. Hariot. Collected during the first Charcot Antarctic Expedition.

TRH drawer: A-9; listed under *Lithophyllum aequabile* in Adey & Lebednik (1967, p. 23).

Previous references to typification: ?

Published illustrations of lectotype: Printz 1929, pl. 59, figs 15-19 (as *Lithothamnion aequabile* f. *wandelica*).

Comments: Foslie (1906b) cites material from three localities in the protologue, but does not designate a type. Only one collection in TRH is explicitly labelled *Lithothamnion aequabile* f. *wandelica*, and is thus designated here as lectotype. The lectotype element contains all of the specimens figured by Printz (1929) as well as fragments used in the preparation of the slides.

whidbeyense

Basionym & protologue: *Lithophyllum whidbeyense* Foslie 1906c, p. 21 (p. 5 in independently paginated offprint).

Effective publication date: between 1 May and 30 November 1906.

Lectotype: TRH, Algae of Puget Sound no. 655 (designated by Mason 1953, p. 341); includes slides 802 and 803.

Isolectotypes: UC 739464; UC 745688.

Type locality and collection data: Whidbey Island, Washington, USA; collected by *N. L. Gardner*, 1901.

TRH drawer: A-6.

Previous references to typification: Mason 1953, p. 341 (as *Lithophyllum*); Adey & Lebednik 1967, p. 22 (as *Lithophyllum*); Adey 1970, p. 27 (as *Mesophyllum*).

Published illustrations of lectotype: Printz 1929, pl. 57, fig. 9 (as *Lithophyllum*).

Comments: Foslie (1906c) based *Lithophyllum whidbeyense* on two collections from Whidbey Island but did not designate a type. Subsequently, Mason (1953, p. 341) designated a lectotype without giving

reasons for the selection. The lectotype element contains thalli attached to two snail shells, one of which is depicted in Printz (1929).

yendo

Basionym & protologue: *Goniolithon yendo* Foslie 1900a, p. 25.

Effective publication date: between 1 January and 25 June 1900.

Lectotype: TRH, Yendo no. 66 (designated by Foslie 1904b, p. 61); includes slide 394.

Type locality and collection data: Shimoda Harbour, Japan; collected by K. Yendo, April, 1899.

TRH drawer: A-1.

Previous references to typification: Foslie 1904b, p. 61 (as *Goniolithon*); Adey & Lebednik 1967, p. 15 (as *Lithophyllum*); Adey 1970, p. 14 (as *Pseudolithophyllum*).

Published illustrations of lectotype: Foslie 1904b, pl. 11, fig. 1 (as *Goniolithon*); Printz 1929, pl. 53, fig. 16 (as *Lithophyllum*).

Comments: Foslie (1900a) based *Goniolithon yendo* on specimens from several localities in Japan and from California, but did not designate a type. Subsequently, however, Foslie (1904b, p. 61) (lecto-)typified the species with the Yendo specimen from Shimoda Harbour, Japan.

yessoense

Basionym & protologue: *Lithophyllum yessoense* Foslie 1909b, p. 17.

Effective publication date: between 1 June and 18 December 1909.

Holotype: TRH, Miyabe no. 6; includes slide 387.

Type locality and collection data: Yezo, Shirbeshi Prov., Japan; collected by K. Miyabe, August 1895.

TRH drawer: A-6.

Previous references to typification: Adey & Lebednik 1967, p. 22 (as *Lithophyllum*); Adey 1970, p. 6 (as *Lithophyllum*).

Published illustrations of holotype: ?

Comments: The holotype collection consists of a single shell fragment with attached thalli.

zonata

Basionym & protologue: *Melobesia coronata* f. *zonata* Foslie 1902a, p. 9.

Effective publication date: between 11 September and 20 November 1902.

Holotype: TRH, unnumbered; includes one unnumbered slide.

Type locality and collection data: Port Elliot, South Australia; collected by Brumsert, date not indicated, comm. Th. Reinbold in 1902.

TRH drawer: A-15.

Previous references to typification: ?

Published illustrations of holotype: ?

Comments: Foslie (1902a) based *Melobesia coronata* f. *zonata* on a single collection which has been placed with other collections of *Melobesia coronata* in 'drawer' A15 in the Foslie herbarium. It was not in the main

Foslie herbarium at the time the Adey & Lebednik (1967) catalog was prepared.

zonatosporum

Basionym & protologue: *Archaeolithothamnion zonatosporum* Foslie 1906b, p. 14.

Effective publication date: between 1 December 1906 and 30 March 1907.

Holotype: TRH, unnumbered; includes slide 1102.

Type locality and collection data: Long Beach, Los Angeles, California, USA; collected by K. Reichinger, April 1905.

TRH drawer: C-19.

Previous references to typification: Adey & Lebednik 1967, p. 85 (as *Archaeolithothamnion*); Adey 1970, p. 18 (as *Archaeolithothamnion*).

Published illustrations of holotype: Printz 1929, pl. 44, fig. 13 (as *Archaeolithothamnion*).

Comments: The holotype as depicted in Printz (1929) has become fragmented.

zonatum

Basionym & protologue: *Lithophyllum zonatum* Foslie 1890, p. 10.

Effective publication date: ?

Holotype: TRH, unnumbered.

Type locality and collection data: Kjelmø, Norway; collected by M. F. Foslie, 3 August 1887.

TRH drawer: C-26; listed under *Phymatolithon investiens* in Adey & Lebednik (1967, p. 92).

Previous references to typification: ?

Published illustrations of holotype: Foslie 1895, pl. 22, figs 3, 4.

Comments: In 1895, Foslie (1895, p. 157) described *Lithothamnion investiens*, listing *Lithophyllum zonatum* as a synonym. In accordance with ICBN Arts 11.3 and 63.1, the epithet *investiens* is a superfluous substitute for the epithet *zonatum*, and because the specimen designated by Adey in Adey & Lebednik (1967, p. 92) (see also Adey 1970, p. 28) was not cited in the protologue of *Lithophyllum zonatum* it cannot serve as the type. The placement of *Lithophyllum zonatum* with collections of *Phymatolithon investiens* (Foslie) Foslie in the Foslie herbarium is a consequence of Foslie's actions in his 1895 monograph. Contrary to statements in the protologue, the holotype does have conceptacles.

zostericum

Basionym & protologue: *Lithophyllum zostericum* Foslie 1900h, p. 5.

Effective publication date: between 26 June and 31 December 1900.

Lectotype: TRH, K. Yendo 1899 no. 1 (designated by Adey 1970, p. 17); includes slide 1343 (missing).

Type locality and collection data: Marine Laboratory at Sagami Province, Japan; collected by K. Yendo, 1899.

TRH drawer: A-15.

Previous references to typification: Adey & Lebednik 1967, p. 36 (as *Melobesia*); Adey 1970, p. 17 (as *Heteroderma*).

Published illustrations of lectotype: ?

Comments: Foslie (1900h, p. 5) based *Lithophyllum zostericolum* on collections from Japan and California. He concurrently described the forms *tenuis* and *mediocris* but did not indicate which he considered typical of the species. Subsequently, however, Foslie (1907b, p. 26) regarded *Lithophyllum zostericolum* f. *mediocris* to represent a distinct species, namely *Lithophyllum mediocre*, thus leaving only f. *tenuis* in *Lithophyllum zostericolum*. This implies that Foslie regarded f. *tenuis* to be the typical form of the species, and in accordance with ICBN Arts 26.1 & 63.1, *Lithophyllum zostericolum* f. *tenuis* is a superfluous substitute name for *Lithophyllum zostericolum* f. *zostericolum*. Adey (1970, p. 17) lectotypified the species with the Yendo specimen (originally referred by Foslie 1900h to f. *tenuis*) and explained the earlier typification error of Adey & Lebednik (1967, p. 36).

6 SUMMARY ANALYSIS

Of the 578 names dealt with above, 508 were originally published by Foslie. Foslie's names include 236 validly published species, 188 validly published forms, 4 validly published varieties, 51 superfluous substitute names, 25 nomina nuda, 3 provisional names and 1 later homonym. The total number of *validly* published species, forms, and varieties is less than those given by Woelkerling (1984, p. 9) because research undertaken during this study has shown some additional names to be superfluous.

Type material for 409 of the 428 species, forms and varieties validly published by Foslie has been found in TRH. This includes 219 holotypes, 11 isotypes (only), 165 lectotypes, 10 isolectotypes (only), and 4 neotypes. The 11 isotypes all pertain to species described by Foslie & Howe (1906a, 1906b), who either explicitly indicate types (Foslie & Howe 1906a) or explicitly indicate [Foslie & Howe 1906b, p. (128)] that the main collections (i.e. the holotypes) (now in NY) were retained by Howe while duplicates (i.e. isotypes) (now in TRH) were in Foslie's possession. Nine of the 10 isolectotypes involve taxa based on collections from the Siboga Expedition; the lectotypes are in L, and Verheij & Woelkerling (1992) have provided a detailed account of them. The tenth isolectotype is of *Lithophyllum pustulatum* f. *intermedia*; the lectotype in C was designated by Athanasiadis & Chamberlain in Chamberlain (1991, p. 53). Type material has not been located in TRH for 19 taxa (Table 5, p. 285), and for *Lithothamnion australe* f. *ubiana*, lectotype and isolectotype material are in L (see Verheij & Woelkerling 1992) but not in TRH.

Type material of 62 nongeniculate corallines described by authors other than Foslie also is present at TRH; this includes 14 holotypes and holotype fragments, 2 isotypes, 13 lectotypes and fragments of lectotypes, 3 isolectotypes, 27 syntypes and fragments of syntypes, and 3 types or fragments of types whose precise nature is uncertain. Table 2 (p. 271) contains a summary of data on these taxa, and further data are provided in the detailed accounts below.

Eight other entries also have been included in the detailed accounts: two names (*Goniolithon spectabile* f. *nana*; *Mastophora vulgaris*) ascribed to Foslie after his death; three orthographic variants of Foslie (*Goniolithon myriocarpon*; *Lithophyllum androsovi*; *L. oncodes* f. *devia*); two superfluous substitute names of Heydrich (*Lithophyllum lithophylloides* f. *phylloides*; *Sporolithon ptychoides* f. *dura*) which pertain to type material in TRH; and an explanatory entry for f. *typica* which was used by Foslie in conjunction with at least 65 species.

Data on the geographic origins of most type collections in Foslie's herbarium are summarized in Table 6 (p. 286). Although most parts of the world are represented, it is not possible to draw any meaningful biogeographic conclusions from the data for several reasons. Firstly, the concentration of

type material from certain regions is a direct reflection on the geography of collectors in Foslie's time rather than the geography of plants. Thus, the greatest number of types comes from Norway, where Foslie was based. The comparatively high number of types from Australia is a direct result of two collectors (A. Engelhart and J. Gabriel) who sent material to Foslie over a period of years. The concentration of type material from California and New Zealand is due to interactions with W. A. Setchell, from Puerto Rico and other Caribbean islands with M. A. Howe and F. Børgesen, from Indonesia with A. Weber van Bosse, from Japan with K. Yendo, *etc.* Secondly, meaningful biogeographic analyses are dependent upon data from well-delimited and readily identifiable species. Foslie's concepts of species, however, are beset with serious difficulties (see Woelkerling 1984 for details). Indeed, within most genera meaningful species concepts scarcely exist, and all previously described taxa require re-evaluation in a modern context. The number of biological species that are represented by the 490 type collections in Foslie's herbarium is unknown, and until species concepts become stabilized and older literature records are verified, little trust can be placed in any attempted biogeographic analysis of nongeniculate coralline algae based on published records. In his account of type material in Foslie's herbarium, Adey (1970) dealt with 233 taxa, including 125 newly flagged holotypes and 47 newly designated lectotypes. This contrasts with the present study which deals with 577 taxa, including 67 newly flagged holotypes, 2 newly flagged isotypes, 85 newly designated lectotypes and 4 newly designated neotypes. Some collections regarded as holotypes in the present study were considered by Adey (1970) to be lectotypes or co-types; some lectotypes were considered by Adey (1970) to be holotypes or co-types; some isotypes were listed by Adey (1970) as holotypes; some isolectotypes and syntypes were called co-types by Adey (1970); one syntype was considered a holotype by Adey (1970); and the types of six taxa listed by Adey (1970) have been superseded. A summary appears in Table 7 (p. 286) and details are provided in the relevant taxonomic accounts.

In summary, all known types in Foslie's herbarium except for paratypes have been dealt with in the present paper, and relevant nomenclatural and taxonomic information has been provided for each. Detailed comparative studies of these types and other coralline collections in TRH are now needed to determine how many real species are represented.

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9. TABLES

Table 1. Chronological list of new specific and infraspecific taxa of Corallinales published by or ascribed to Foslíe. List includes newly described species (s), newly described forms (f), newly described varieties (v), homonyms (h), *nomina nuda* (nn), provisional names (p) and superfluous substitute names (ssn), and two names ascribed to Foslíe after his death, but does not include orthographic variants. Date/page refers to Foslíe papers listed in references; 1906a = Foslíe & Howe 1906a; 1906d = Foslíe & Howe 1906b. Entries in the type column denote type specimens at TRH as follows: **H** = holotype; **I** = isotype; **IL** = isolectotype; **L** = lectotype; **N** = neotype; **Z** = type material not at TRH; asterisk (*) = not typified; - = typification not applicable.

DATE/PAGE	CATE- GORY	TYPE	FINAL EPITHET	BASIONYM
1887: 175	s	H	<i>hemisphaerica</i>	<i>Corallina hemisphaerica</i>
1890: 10	s	H	<i>zonatum</i>	<i>Lithophyllum zonatum</i>
1891: 37	s	H	<i>boreale</i>	<i>Lithothamnion boreale</i>
1891: 38	s	L	<i>fornicatum</i>	<i>Lithothamnion fornicatum</i>
1891: 41	f	L	<i>divaricata</i>	<i>Lithothamnion soriferum</i> f. <i>divaricata</i>
1891: 41	f	L	<i>globosa</i>	<i>Lithothamnion soriferum</i> f. <i>globosa</i>
1891: 41	f	H	<i>nana</i>	<i>Lithophyllum intermedium</i> f. <i>nana</i>
1891: 42	f	*	<i>distans</i>	<i>Lithothamnion norvegicum</i> f. <i>distans</i>
1891: 42	f	H	<i>globulata</i>	<i>Lithothamnion norvegicum</i> f. <i>globulata</i>
1891: 43	s	L	<i>colliculosum</i>	<i>Lithothamnion colliculosum</i>
1894b: 44	nn	-	<i>mutabile</i>	<i>Lithothamnion mutabile</i>
1895: 41	f	L	<i>torosa</i>	<i>Lithothamnion glaciale</i> f. <i>torosa</i>
1895: 44	s	L	<i>breviaxe</i>	<i>Lithothamnion breviaxe</i>
1895: 46	f	L	<i>corymbiformis</i>	<i>Lithothamnion fruticosum</i> f. <i>corymbiformis</i>
1895: 46	f	*	<i>curvirostra</i>	<i>Lithothamnion fruticosum</i> f. <i>curvirostra</i>
1895: 46	f	L	<i>fastigiata</i>	<i>Lithothamnion fruticosum</i> f. <i>fastigiata</i>
1895: 46	f	L	<i>flexuosa</i>	<i>Lithothamnion fruticosum</i> f. <i>flexuosa</i>
1895: 46	f	L	<i>glomerata</i>	<i>Lithothamnion fruticosum</i> f. <i>glomerata</i>
1895: 58	h	-	<i>hauckii</i>	<i>Lithothamnion hauckii</i>

1895: 59	f	*	<i>capitellata</i>	<i>Lithothamnion crassum</i> f. <i>capitellata</i>
1895: 64	f	L	<i>robusta</i>	<i>Lithothamnion fornicatum</i> f. <i>robusta</i>
1895: 68	s	L	<i>dimorphum</i>	<i>Lithothamnion dimorphum</i>
1895: 72	s	L	<i>dehiscens</i>	<i>Lithothamnion dehiscens</i>
1895: 73	f	L	<i>grandifrons</i>	<i>Lithothamnion dehiscens</i> f. <i>grandifrons</i>
1895: 78	ssn	-	<i>abbreviata</i>	<i>Lithothamnion delapsum</i> f. <i>abbreviata</i>
1895: 78	f	L	<i>conglutinata</i>	<i>Lithothamnion delapsum</i> f. <i>conglutinata</i>
1895: 78	s	L	<i>delapsum</i>	<i>Lithothamnion delapsum</i>
1895: 80	nn	-	<i>lobata</i>	<i>Lithothamnion delapsum</i> f. <i>lobata</i>
1895: 82	s	L	<i>apiculatum</i>	<i>Lithothamnion apiculatum</i>
1895: 82	f	L	<i>connata</i>	<i>Lithothamnion apiculatum</i> f. <i>connata</i>
1895: 82	f	L	<i>parvicocca</i>	<i>Lithothamnion apiculatum</i> f. <i>parvicocca</i>
1895: 82	ssn	-	<i>patula</i>	<i>Lithothamnion apiculatum</i> f. <i>patula</i>
1895: 87	s	L	<i>gracilescens</i>	<i>Lithothamnion gracilescens</i>
1895: 90	f	L	<i>australis</i>	<i>Lithothamnion coralloides</i> f. <i>australis</i>
1895: 90	f	*	<i>flabelligera</i>	<i>Lithothamnion coralloides</i> f. <i>flabelligera</i>
1895: 90	f	L	<i>saxatilis</i>	<i>Lithothamnion coralloides</i> f. <i>saxatilis</i>
1895: 96	s	H	<i>divergens</i>	<i>Lithothamnion divergens</i>
1895: 98	f	L	<i>granii</i>	<i>Lithothamnion flabellatum</i> f. <i>granii</i>
1895: 98	ssn	-	<i>rosenvingii</i>	<i>Lithothamnion flabellatum</i> f. <i>rosenvingii</i>
1895: 103	ssn	-	<i>densa</i>	<i>Lithothamnion colliculosum</i> f. <i>densa</i>
1895: 103	f	H	<i>laxa</i>	<i>Lithothamnion colliculosum</i> f. <i>laxa</i>
1895: 109	s	L	<i>varians</i>	<i>Lithothamnion varians</i>
1895: 109	ssn	-	<i>verrucosa</i>	<i>Lithothamnion varians</i> f. <i>verrucosa</i>
1895: 110	f	L	<i>irregularis</i>	<i>Lithothamnion varians</i> f. <i>irregularis</i>
1895: 114	f	*	<i>tuberculata</i>	<i>Lithothamnion polymorphum</i> f. <i>tuberculata</i>
1895: 114	f	H	<i>valida</i>	<i>Lithothamnion polymorphum</i> f. <i>valida</i>

1895: 115	f	L	<i>papillata</i>	<i>Lithothamnion polymorphum</i> f. <i>papillata</i>
1895: 122	f	L	<i>harveyi</i>	<i>Lithothamnion incrustans</i> f. <i>harveyi</i>
1895: 135	s	H	<i>testaceum</i>	<i>Lithothamnion testaceum</i>
1895: 140	s	H	<i>ocellatum</i>	<i>Lithothamnion ocellatum</i>
1895: 142	s	L	<i>congregatum</i>	<i>Lithothamnion congregatum</i>
1895: 144	s	L	<i>nodulosum</i>	<i>Lithothamnion nodulosum</i>
1895: 147	p	-	<i>major</i>	<i>Lithothamnion byssoides</i> f. <i>major</i>
1895: 147	f	L	<i>squarrosa</i>	<i>Lithothamnion tophiforme</i> f. <i>squarrosa</i>
1895: 154	s	H	<i>uncinatum</i>	<i>Lithothamnion uncinatum</i>
1895: 157	ssn	-	<i>investiens</i>	<i>Lithothamnion investiens</i>
1895: 162	s	L	<i>coalescens</i>	<i>Lithothamnion coalescens</i>
1895: 165	s	L	<i>evanescens</i>	<i>Lithothamnion evanescens</i>
1895: 167	s	L	<i>laevigatum</i>	<i>Lithothamnion laevigatum</i>
1895: 170	s	H	<i>scabriusculum</i>	<i>Lithothamnion scabriusculum</i>
1895: 171	s	L	<i>orbiculatum</i>	<i>Lithothamnion orbiculatum</i>
1895: 173	f	*	<i>macrospora</i>	<i>Lithothamnion stroemfeltii</i> f. <i>macrospora</i>
1895: 173	ssn	-	<i>stroemfeltii</i>	<i>Lithothamnion stroemfeltii</i>
1895: 173	f	*	<i>tenuissima</i>	<i>Lithothamnion stroemfeltii</i> f. <i>tenuissima</i>
1895: 179	f	L	<i>sublaevis</i>	<i>Lithothamnion lenormandii</i> f. <i>sublaevis</i>
1895: 183	s	H	<i>squamulosum</i>	<i>Lithothamnion squamulosum</i>
1896: 1	s	H	<i>battersii</i>	<i>Lithothamnion battersii</i>
1896: 4	s	H	<i>pallescens</i>	<i>Lithothamnion pallescens</i>
1896: 6	ssn	-	<i>angulata</i>	<i>Lithothamnion elegans</i> f. <i>angulata</i>
1896: 6	f	H	<i>complanata</i>	<i>Lithothamnion elegans</i> f. <i>complanata</i>
1896: 6	s	H	<i>elegans</i>	<i>Lithothamnion elegans</i>
1896: 8	s	H	<i>magellanicum</i>	<i>Lithothamnion magellanicum</i>
1897c: 3	f	H	<i>exigua</i>	<i>Lithothamnion expansum</i> f. <i>exigua</i>
1897c: 3	f	*	<i>foliacea</i>	<i>Lithophyllum expansum</i> f. <i>foliacea</i>
1897c: 3	ssn	-	<i>genuina</i>	<i>Lithothamnion expansum</i> f. <i>genuina</i>
1897c: 3	f	*	<i>repens</i>	<i>Lithothamnion expansum</i> f. <i>repens</i>
1897c: 4	f	L	<i>epiphytica</i>	<i>Lithothamnion lichenoides</i> f. <i>epiphytica</i>
1897c: 4	f	*	<i>rupicola</i>	<i>Lithothamnion lichenoides</i> f. <i>rupicola</i>

1897c: 5	f	L	<i>hibernica</i>	<i>Lithothamnion agariciformis</i> f. <i>hibernica</i>
1897c: 7	s	L	<i>philippii</i>	<i>Lithothamnion philippii</i>
1897c: 8	f	H	<i>dilatata</i>	<i>Lithothamnion fasciculatum</i> f. <i>dilatatum</i>
1897c: 8	f	L	<i>gyrosa</i>	<i>Lithothamnion fasciculatum</i> f. <i>gyrosa</i>
1897c: 8	f	L	<i>incrassata</i>	<i>Lithothamnion fasciculatum</i> f. <i>incrassata</i>
1897c: 8	f	*	<i>subtilis</i>	<i>Lithothamnion fasciculatum</i> f. <i>subtilis</i>
1897c: 9	f	L	<i>attenuata</i>	<i>Lithothamnion calcareum</i> f. <i>attenuata</i>
1897c: 12	s	H	<i>moluccense</i>	<i>Lithothamnion moluccense</i>
1897c: 13	s	L	<i>affine</i>	<i>Lithothamnion affine</i>
1897c: 13	ssn	-	<i>complanata</i>	<i>Lithothamnion affine</i> f. <i>complanata</i>
1897c: 13	f	L	<i>tuberosa</i>	<i>Lithothamnion affine</i> f. <i>tuberosa</i>
1897c: 14	s	H	<i>proboscideum</i>	<i>Lithothamnion proboscideum</i>
1897c: 15	s	H	<i>ponderosum</i>	<i>Lithothamnion ponderosum</i>
1897c: 15	s	H	<i>retusum</i>	<i>Lithothamnion retusum</i>
1897c: 16	s	L	<i>grumosum</i>	<i>Lithothamnion grumosum</i>
1897c: 16	s	H	<i>macroblastum</i>	<i>Lithothamnion macroblastum</i>
1897c: 17	s	H	<i>adplicitum</i>	<i>Lithothamnion adplicitum</i>
1897c: 18	s	H	<i>prototypum</i>	<i>Lithothamnion prototypum</i>
1897c: 18	s	H	<i>setchellii</i>	<i>Lithothamnion setchellii</i>
1897c: 19	s	H	<i>myriocarpum</i>	<i>Lithothamnion myriocarpum</i>
1897c: 20	s	H	<i>decipiens</i>	<i>Lithothamnion decipiens</i>
1898: 10	s	L	<i>botrytoides</i>	<i>Lithothamnion botrytoides</i>
1898a: 3	p	-	<i>platycarpum</i>	<i>Archaeolithothamnion</i> <i>platycarpum</i>
1898b: 5	nn	-	<i>curvirostra</i>	<i>Lithothamnion ungeri</i> f. <i>curvirostra</i>
1898b: 5	nn	-	<i>glomerata</i>	<i>Lithothamnion ungeri</i> f. <i>glomerata</i>
1898b: 5	nn	-	<i>nana</i>	<i>Lithothamnion ungeri</i> f. <i>nana</i>
1898b: 6	nn	-	<i>genuina</i>	<i>Lithothamnion norvegicum</i> f. <i>genuina</i>
1898b: 6	nn	-	<i>saxatilis</i>	<i>Lithothamnion norvegicum</i> f. <i>saxatilis</i>
1898b: 7	nn	-	<i>genuina</i>	<i>Lithothamnion kerguelena</i> f. <i>genuina</i>
1898b: 7	nn	-	<i>macrospora</i>	<i>Lithothamnion laeve</i> f. <i>macrospora</i>
1898b: 9	nn	-	<i>conglutinata</i>	<i>Lithothamnion crassum</i> f. <i>conglutinata</i>

1898b: 11	ssn	-	<i>bispora</i>	<i>Dermatolithon pustulatum</i> f. <i>bispora</i>
1898b: 11	nn	-	<i>prototypus</i>	<i>Melobesia prototypus</i>
1899b: 3	f	L	<i>funafutiensis</i>	<i>Lithothamnion philippii</i> f. <i>funafutiensis</i>
1899c: 3	s	H	<i>mirabile</i>	<i>Archaeolithothamnion mirabile</i>
1899c: 4	s	L	<i>propontidis</i>	<i>Lithothamnion propontidis</i>
1899c: 6	ssn	-	<i>australis</i>	<i>Lithothamnion squarrulosum</i> f. <i>australis</i>
1899c: 6	f	H	<i>palmatifida</i>	<i>Lithothamnion squarrulosum</i> f. <i>palmatifida</i>
1899c: 6	s	L	<i>squarrulosum</i>	<i>Lithothamnion squarrulosum</i>
1899c: 7	f	H	<i>minuta</i>	<i>Lithothamnion coralloides</i> f. <i>minuta</i>
1899c: 7	f	*	<i>subvalida</i>	<i>Lithothamnion coralloides</i> f. <i>subvalida</i>
1899c: 9	s	H	<i>bornetii</i>	<i>Lithothamnion bornetii</i>
1899c: 10	f	L	<i>obtectula</i>	<i>Lithothamnion kerguelenum</i> f. <i>obtectula</i>
1899c: 11	s	L	<i>subtenellum</i>	<i>Goniolithon subtenellum</i>
1899c: 13	s	H	<i>congestum</i>	<i>Goniolithon congestum</i>
1899c: 13	s	H	<i>platyphyllum</i>	<i>Goniolithon platyphyllum</i>
1899c: 14	f	H	<i>decumbens</i>	<i>Goniolithon tortuosum</i> f. <i>decumbens</i>
1899c: 15	f	H	<i>eunana</i>	<i>Lithophyllum calcareum</i> f. <i>eunana</i>
1899c: 16	s	H	<i>andrussowii</i>	<i>Lithophyllum andrussowii</i>
1899c: 17	f	L	<i>angulata</i>	<i>Lithophyllum incrustans</i> f. <i>angulata</i>
1899c: 17	s	L	<i>crouani</i>	<i>Lithophyllum crouanii</i>
1900a: 3	s	H	<i>brachycladum</i>	<i>Lithothamnion brachycladum</i>
1900a: 4	s	H	<i>brasiliense</i>	<i>Lithothamnion brasiliense</i>
1900a: 4	ssn	-	<i>genuina</i>	<i>Lithothamnion brasiliense</i> f. <i>genuina</i>
1900a: 4	f	H	<i>heteromorpha</i>	<i>Lithothamnion brasiliense</i> f. <i>heteromorpha</i>
1900a: 6	f	H	<i>japonicum</i>	<i>Lithothamnion japonicum</i>
1900a: 7	ssn	-	<i>dickiei</i>	<i>Lithothamnion dickiei</i>
1900a: 8	s	H	<i>superpositum</i>	<i>Lithothamnion superpositum</i>
1900a: 9	s	H	<i>erubescens</i>	<i>Lithothamnion erubescens</i>
1900a: 10	ssn	-	<i>genuina</i>	<i>Lithothamnion falsellum</i> f. <i>genuina</i>
1900a: 10	f	H	<i>plicata</i>	<i>Lithothamnion falsellum</i> f. <i>plicata</i>
1900a: 11	ssn	-	<i>conspersa</i>	<i>Lithothamnion synanablastum</i> f. <i>conspersa</i>

1900a: 11	f	H	<i>speciosa</i>	<i>Lithothamnion synanablastum</i> f. <i>speciosa</i>
1900a: 12	f	L	<i>depressa</i>	<i>Lithothamnion lichenoides</i> f. <i>depressa</i>
1900a: 12	ssn	-	<i>pusilla</i>	<i>Lithothamnion lichenoides</i> f. <i>pusilla</i>
1900a: 13	ssn	-	<i>heterophylla</i>	<i>Lithothamnion lichenoides</i> f. <i>heterophylla</i>
1900a: 17	f	L	<i>neglecta</i>	<i>Lithothamnion muelleri</i> f. <i>neglecta</i>
1900a: 18	s	L	<i>engelhartii</i>	<i>Lithothamnion engelhartii</i>
1900a: 18	ssn	-	<i>imbricata</i>	<i>Lithothamnion engelhartii</i> f. <i>imbricata</i>
1900a: 18	f	L	<i>umbonata</i>	<i>Lithothamnion engelhartii</i> f. <i>umbonata</i>
1900a: 20	s	H	<i>tenuissimum</i>	<i>Lithothamnion tenuissimum</i>
1900a: 21	ssn	-	<i>genuina</i>	<i>Goniolithon notarisii</i> f. <i>genuina</i>
1900a: 21	f	L	<i>propinqua</i>	<i>Goniolithon notarisii</i> f. <i>propinqua</i>
1900a: 23	s	H	<i>elatocarpum</i>	<i>Goniolithon elatocarpum</i>
1900a: 24	s	L	<i>verrucosum</i>	<i>Goniolithon verrucosum</i>
1900a: 25	s	L	<i>yendoi</i>	<i>Goniolithon yendoi</i>
1900a: 26	s	H	<i>craspedium</i>	<i>Lithophyllum craspedium</i>
1900a: 27	ssn	-	<i>fastigiata</i>	<i>Lithophyllum hyperellum</i> f. <i>fastigiata</i>
1900a: 27	f	L	<i>heteroidea</i>	<i>Lithophyllum hyperellum</i> f. <i>heteroidea</i>
1900a: 27	s	L	<i>hyperellum</i>	<i>Lithophyllum hyperellum</i>
1900a: 28	nn	-	<i>lobata</i>	<i>Lithophyllum incrustans</i> f. <i>lobata</i>
1900a: 29	f	H	<i>incrassata</i>	<i>Lithophyllum incrustans</i> f. <i>incrassata</i>
1900a: 30	f	H	<i>compressa</i>	<i>Lithophyllum fasciculatum</i> f. <i>compressa</i>
1900a: 30	f	H	<i>divaricata</i>	<i>Lithophyllum fasciculatum</i> f. <i>divaricata</i>
1900a: 32	f	L	<i>aemulans</i>	<i>Lithophyllum dentatum</i> f. <i>aemulans</i>
1900a: 32	f	L	<i>macallana</i>	<i>Lithophyllum dentatum</i> f. <i>macallana</i>
1900a: 33	f	H	<i>decumbens</i>	<i>Lithophyllum decussatum</i> f. <i>decumbens</i>
1900b: 15	f	L	<i>faeroensis</i>	<i>Dermatolithon macrocarpum</i> f. <i>faeroensis</i>
1900e: 131	s	L	<i>caspica</i>	<i>Melobesia caspica</i>
1900f: 66	s	H	<i>rugosum</i>	<i>Lithothamnion rugosum</i>

1900f: 69	ssn	-	<i>cingens</i>	<i>Lithothamnion muelleri</i> f. <i>cingens</i>
1900f: 73	s	L	<i>discoideum</i>	<i>Lithophyllum discoideum</i>
1900g: 7	f	L	<i>abbreviata</i>	<i>Lithophyllum craspedium</i> f. <i>abbreviata</i>
1900g: 7	ssn	-	<i>compressa</i>	<i>Lithophyllum craspedium</i> f. <i>compressa</i>
1900g: 9	f	L	<i>flabelliformis</i>	<i>Goniolithon frutescens</i> f. <i>flabelliformis</i>
1900g: 9	s	L	<i>frutescens</i>	<i>Goniolithon frutescens</i>
1900h: 3	s	L	<i>africanum</i>	<i>Lithophyllum africanum</i>
1900h: 3	s	L	<i>californicum</i>	<i>Lithothamnion californicum</i>
1900h: 3	f	*	<i>intermedia</i>	<i>Lithophyllum africanum</i> f. <i>intermedia</i>
1900h: 3	f	L	<i>truncata</i>	<i>Lithophyllum africanum</i> f. <i>truncata</i>
1900h: 4	s	L	<i>okamurai</i>	<i>Lithophyllum okamurai</i>
1900h: 5	f	*	<i>mediocris</i>	<i>Lithophyllum zostericolum</i> f. <i>mediocris</i>
1900h: 5	ssn	-	<i>tenuis</i>	<i>Lithophyllum zostericolum</i> f. <i>tenuis</i>
1900h: 5	s	L	<i>zostericolum</i>	<i>Lithophyllum zostericolum</i>
1900h: 6	s	H	<i>canescens</i>	<i>Melobesia canescens</i>
1900i: 11	nn	-	<i>breviaxe</i>	<i>Lithothamnion ungeri</i> f. <i>breviaxe</i>
1900i: 11	nn	-	<i>flexuosa</i>	<i>Lithothamnion ungeri</i> f. <i>flexuosa</i>
1900i: 11	ssn	-	<i>genuina</i>	<i>Lithothamnion investiens</i> f. <i>genuina</i>
1900i: 12	f	H	<i>sphaerica</i>	<i>Lithothamnion fornicatum</i> f. <i>sphaerica</i>
1900i: 12	ssn	-	<i>tuberculata</i>	<i>Lithothamnion fornicatum</i> f. <i>tuberculata</i>
1900i: 13	nn	-	<i>affinis</i>	<i>Lithothamnion tophiforme</i>
1900i: 13	nn	-	<i>genuina</i>	<i>Lithothamnion nodulosum</i> f. <i>genuina</i>
1900i: 13	ssn	-	<i>pusilla</i>	<i>Lithothamnion norvegicum</i> f. <i>pusilla</i>
1900i: 13	ssn	-	<i>valida</i>	<i>Lithothamnion calcareum</i> f. <i>valida</i>
1900i: 17	s	*	<i>trabuccoi</i>	<i>Lithophyllum trabuccoi</i>
1900i: 22	nn	-	<i>prototypus</i>	<i>Dermatolithon prototypus</i>
1901a: 3	f	H	<i>prostrata</i>	<i>Lithothamnion erubescens</i> f. <i>prostrata</i>
1901a: 4	f	L	<i>crassiuscula</i>	<i>Lithothamnion rugosum</i> f. <i>crassiuscula</i>

1901a: 4	ssn	-	<i>genuina</i>	<i>Lithothamnion rugosum</i> f. <i>genuina</i>
1901a: 4	f	H	<i>valida</i>	<i>Lithothamnion rugosum</i> f. <i>valida</i>
1901a: 5	s	H	<i>mesomorphum</i>	<i>Lithothamnion mesomorphum</i>
1901a: 6	s	H	<i>syntrophicum</i>	<i>Lithothamnion syntrophicum</i>
1901a: 7	s	H	<i>fumigatum</i>	<i>Lithothamnion fumigatum</i>
1901a: 8	f	L	<i>australis</i>	<i>Lithothamnion lenormandii</i> f. <i>australis</i>
1901a: 10	s	H	<i>subreduncum</i>	<i>Lithophyllum subreduncum</i>
1901a: 10	f	H	<i>subtilis</i>	<i>Lithophyllum craspedium</i> f. <i>subtilis</i>
1901a: 11	f	H	<i>sandvicensis</i>	<i>Lithophyllum dentatum</i> f. <i>sandvicensis</i>
1901a: 11	s	L	<i>torquescens</i>	<i>Lithophyllum torquescens</i>
1901a: 12	s	L	<i>farlowii</i>	<i>Lithophyllum farlowii</i>
1901a: 14	s	H	<i>strictum</i>	<i>Goniolithon strictum</i>
1901a: 15	s	H	<i>intermedium</i>	<i>Goniolithon intermedium</i>
1901a: 16	f	L	<i>brevifulta</i>	<i>Goniolithon spectabile</i> f. <i>brevifulta</i>
1901a: 16	s	L	<i>spectabile</i>	<i>Goniolithon spectabile</i>
1901a: 19	f	H	<i>australasica</i>	<i>Goniolithon elatocarpum</i> f. <i>australasica</i>
1901a: 19	s	H	<i>boergesenii</i>	<i>Goniolithon boergesenii</i>
1901a: 21	s	H	<i>udoteae</i>	<i>Goniolithon udoteae</i>
1901a: 22	s	H	<i>bermudensis</i>	<i>Melobesia bermudensis</i>
1901a: 23	s	L	<i>cymodoceae</i>	<i>Melobesia cymodoceae</i>
1901b: 16	s	H	<i>schmidtii</i>	<i>Archaeolithothamnion</i> <i>schmidtii</i>
1901b: 17	f	N	<i>clavulata</i>	<i>Lithothamnion fruticulosum</i> f. <i>clavulata</i>
1901b: 17	f	N	<i>crassiuscula</i>	<i>Lithothamnion fruticulosum</i> f. <i>crassiuscula</i>
1901b: 18	f	L	<i>purpurascens</i>	<i>Lithothamnion funafutiense</i> f. <i>purpurascens</i>
1901b: 19	ssn	-	<i>genuina</i>	<i>Lithothamnion funafutiense</i> f. <i>genuina</i>
1901b: 19	ssn	-	<i>minuta</i>	<i>Lithothamnion siamense</i> f. <i>minuta</i>
1901b: 19	s	L	<i>siamense</i>	<i>Lithothamnion siamense</i>
1901b: 19	f	H	<i>simulans</i>	<i>Lithothamnion siamense</i> f. <i>simulans</i>
1901c: 3	s	IL	<i>pulchrum</i>	<i>Lithothamnion pulchrum</i>
1901c: 3	s	H	<i>sibogae</i>	<i>Archaeolithothamnion</i> <i>sibogae</i>
1901c: 4	ssn	-	<i>americana</i>	<i>Lithothamnion erubescens</i> f. <i>americana</i>

1901c: 4	f	IL	<i>haingsisiana</i>	<i>Lithothamnion erubescens</i> f. <i>haingsisiana</i>
1901c: 5	s	L	<i>reinboldii</i>	<i>Lithophyllum reinboldii</i>
1901d: 24	f	*	<i>flabelliformis</i>	<i>Lithophyllum moluccense</i> f. <i>flabelliformis</i>
1901d: 27	f	H	<i>pseudocrispata</i>	<i>Lithothamnion engelhartii</i> f. <i>pseudocrispata</i>
1901e: 3	f	H	<i>madagascar- ensis</i>	<i>Lithothamnion erubescens</i> f. <i>madagascarensis</i>
1901e: 4	s	H	<i>nitidum</i>	<i>Lithothamnion nitidum</i>
1901e: 5	s	H	<i>tumidulum</i>	<i>Lithophyllum tumidulum</i>
1901f: 18	f	H	<i>angularis</i>	<i>Lithophyllum okamurai</i> f. <i>angularis</i>
1901f: 18	ssn	-	<i>japonica</i>	<i>Lithophyllum okamurai</i> f. <i>japonica</i>
1901f: 18	f	L	<i>subplicata</i>	<i>Lithophyllum okamurai</i> f. <i>subplicata</i>
1902a: 3	s	H	<i>phymatodeum</i>	<i>Lithothamnion phymatodeum</i>
1902a: 4	f	L	<i>pacifica</i>	<i>Lithothamnion sonderi</i> f. <i>pacifica</i>
1902a: 5	f	L	<i>microspora</i>	<i>Lithothamnion californicum</i> f. <i>microspora</i>
1902a: 6	s	L	<i>conchatum</i>	<i>Lithothamnion conchatum</i>
1902a: 7	f	L	<i>litoralis</i>	<i>Goniolithon mamillare</i> f. <i>litoralis</i>
1902a: 9	f	H	<i>zonata</i>	<i>Melobesia coronata</i> f. <i>zonata</i>
1902a: 10	s	L	<i>marginata</i>	<i>Melobesia marginata</i>
1902a: 10	s	H	<i>rugulosa</i>	<i>Melobesia rugulosa</i>
1902b: 19	f	H	<i>eckloniae</i>	<i>Lithothamnion capense</i> f. <i>eckloniae</i>
1902b: 19	f	H	<i>subplicata</i>	<i>Lithophyllum marlothii</i> f. <i>subplicata</i>
1903a: 3	s	H	<i>monostromo- maticum</i>	<i>Lithothamnion</i> <i>monostromaticum</i>
1903a: 4	s	H	<i>lamellatum</i>	<i>Lithothamnion lamellatum</i>
1903b: 23	s	H	<i>maldivicum</i>	<i>Lithothamnion maldivicum</i>
1903b: 24	s	L	<i>melobesioides</i>	<i>Mastophora melobesioides</i>
1903c: 464	f	L	<i>dissita</i>	<i>Archaeolithothamnion</i> <i>schmidtii</i> f. <i>dissita</i>
1903c: 468	f	L	<i>congesta</i>	<i>Goniolithon frutescens</i> f. <i>congesta</i>
1903c: 469	f	L	<i>laccadivicum</i>	<i>Goniolithon brassica-florida</i> f. <i>laccadivica</i>
1904a: 22	f	H	<i>sargassi</i>	<i>Melobesia marginata</i> f. <i>sargassi</i>
1904b: 10	f	IL	<i>pseudoramosa</i>	<i>Lithothamnion siamense</i> f. <i>pseudoramosa</i>

1904b: 12	s	H	<i>bandanum</i>	<i>Lithothamnion bandanum</i>
1904b: 13	s	IL	<i>fragilissima</i>	<i>Lithothamnion fragilissima</i>
1904b: 16	f	L	<i>crispescens</i>	<i>Lithothamnion simulans</i> f. <i>crispescens</i>
1904b: 18	s	L	<i>prolifer</i>	<i>Lithothamnion prolifer</i>
1904b: 19	f	L	<i>pteridoides</i>	<i>Lithothamnion fruticulosum</i> f. <i>pteridoides</i>
1904b: 24	s	H	<i>australe</i>	<i>Lithothamnion australe</i>
1904b: 24	f	L	<i>brachiata</i>	<i>Lithothamnion australe</i> f. <i>brachiata</i>
1904b: 24	f	IL	<i>minutula</i>	<i>Lithothamnion australe</i> f. <i>minutula</i>
1904b: 24	f	IL	<i>tualensis</i>	<i>Lithothamnion australe</i> f. <i>tualensis</i>
1904b: 24	f	Z	<i>ubiana</i>	<i>Lithothamnion australe</i> f. <i>ubiana</i>
1904b: 25	ssn	-	<i>americana</i>	<i>Lithothamnion australe</i> f. <i>americana</i>
1904b: 31	f	IL	<i>subflabellata</i>	<i>Lithophyllum erubescens</i> f. <i>subflabellata</i>
1904b: 42	s	IL	<i>timorense</i>	<i>Archaeolithothamnium</i> <i>timorense</i>
1904b: 48	s	H	<i>megalocystum</i>	<i>Goniolithon megalocystum</i>
1904b: 53	s	IL	<i>subtilis</i>	<i>Goniolithon frutescens</i> f. <i>subtilis</i>
1904b: 55	s	H	<i>subtilissima</i>	<i>Melobesia subtilissima</i>
1904b: 71	s	H	<i>affinis</i>	<i>Mastophora affinis</i>
1904c: 4	f	L	<i>confinis</i>	<i>Lithothamnion fruticulosum</i> f. <i>confinis</i>
1904c: 4	ssn	-	<i>melobesioides</i>	<i>Lithothamnion melobesioides</i>
1904c: 4	s	L	<i>repandum</i>	<i>Lithothamnion repandum</i>
1904c: 5	ssn	-	<i>complanata</i>	<i>Lithothamnion incertum</i> f. <i>complanata</i>
1904c: 5	s	H	<i>incertum</i>	<i>Lithothamnion incertum</i>
1904c: 5	f	L	<i>pachydermum</i>	<i>Lithophyllum onkodes</i> f. <i>pachydermum</i>
1904c: 5	f	L	<i>ptychoides</i>	<i>Goniolithon notarisii</i> f. <i>ptychoides</i>
1904c: 6	s	H	<i>chilense</i>	<i>Archaeolithothamnion</i> <i>chilense</i>
1904c: 7	f	*	<i>contigua</i>	<i>Lithophyllum okamurai</i> f. <i>contigua</i>
1904c: 8	s	H	<i>minutula</i>	<i>Melobesia minutula</i>
1904c: 16	nn	-	<i>amphiroaeformis</i>	<i>Lithophyllum byssoides</i> f. <i>amphiroaeformis</i>
1904d: 7	f	L	<i>soluta</i>	<i>Lithothamnion fruticulosum</i> f. <i>soluta</i>

1904d: 14	f	L	subdura	<i>Lithothamnion philippii</i> f. <i>subdura</i>
1904d: 25	ssn	-	genuina	<i>Lithothamnion expansum</i> f. <i>genuina</i>
1905b: 3	s	L	vardoense	<i>Lithothamnion vardoense</i>
1905c: 10	nn	-	granii	<i>Lithothamnion glaciale</i> f. <i>granii</i>
1905c: 20	p	-	balanicola	<i>Lithothamnion flavescens</i> f. <i>balanicola</i>
1905c: 24	f	H	sublaevigata	<i>Lithothamnion sonderi</i> f. <i>sublaevigata</i>
1905c: 26	ssn	-	subfastigiata	<i>Lithothamnion glaciale</i> f. <i>subfastigiata</i>
1905c: 27	f	N	subsimplex	<i>Lithothamnion glaciale</i> f. <i>subsimplex</i>
1905c: 35	f	L	pusilla	<i>Lithothamnion colliculosum</i> f. <i>pusilla</i>
1905c: 36	ssn	-	subdistans	<i>Lithothamnion intermedium</i> f. <i>subdistans</i>
1905c: 38	ssn	-	subsphaerica	<i>Lithothamnion fornicatum</i> f. <i>subsphaerica</i>
1905c: 39	ssn	-	obcrateriformis	<i>Lithothamnion fornicatum</i> f. <i>obcrateriformis</i>
1905c: 43	s	L	grande	<i>Lithothamnion grande</i>
1905c: 51	f	L	sphaerica	<i>Lithothamnion tophiforme</i> f. <i>sphaerica</i>
1905c: 59	f	N	reducta	<i>Lithothamnion granii</i> f. <i>reducta</i>
1905c: 62	f	L	saxatilis	<i>Lithothamnion nodulosum</i> f. <i>saxatilis</i>
1905c: 65	s	H	tusterense	<i>Lithothamnion tusterense</i>
1905c: 66	f	L	similis	<i>Lithothamnion norvegicum</i> f. <i>similis</i>
1905c: 69	nn	-	minuta	<i>Lithothamnion calcareum</i> f. <i>minuta</i>
1905c: 76	ssn	-	sublaevis	<i>Phymatolithon polymorphum</i> f. <i>sublaevis</i>
1905c: 93	s	L	evanida	<i>Phymatolithon loculosum</i>
1905c: 96	f	L	borealis	<i>Melobesia farinosa</i> f. <i>borealis</i>
1905c: 102	f	L	limitata	<i>Melobesia lejolisii</i> f. <i>limitata</i>
1905c: 108	f	L	lacunosa	<i>Melobesia minutula</i> f. <i>lacunosa</i>
1905c: 117	f	L	australis	<i>Lithophyllum pustulatum</i> f. <i>australis</i>
1905c: 117	s	IL	intermedia	<i>Lithophyllum pustulatum</i>
1905d: 3	s	H	gabrielii	<i>Lithothamnion gabrielii</i>

1905d: 4	f	H	<i>mauritiana</i>	<i>Melobesia farinosa</i> f. <i>mauritiana</i>
1905d: 4	s	H	<i>misakiense</i>	<i>Goniolithon misakiense</i>
1905d: 6	s	H	<i>sauvageaui</i>	<i>Litholepis sauvageaui</i>
1905e: 15	s	H	<i>consociatum</i>	<i>Lithophyllum consociatum</i>
1905e: 16	f	H	<i>aucklandica</i>	<i>Lithothamnion fumigatum</i> f. <i>aucklandicum</i>
1905e: 16	s	H	<i>coulmanicum</i>	<i>Lithothamnion coulmanicum</i>
1905e: 16	f	H	<i>fragilis</i>	<i>Lithothamnion neglectum</i> f. <i>fragilis</i>
1905e: 16	s	H	<i>granuliferum</i>	<i>Lithothamnion granuliferum</i>
1905e: 16	s	L	<i>heterocladum</i>	<i>Lithothamnion heterocladum</i>
1905e: 16	s	H	<i>polycephalum</i>	<i>Lithophyllum polycephalum</i>
1905e: 17	f	H	<i>aequabilis</i>	<i>Lithophyllum discoideum</i> f. <i>aequabilis</i>
1905e: 17	ssn	-	<i>crassa</i>	<i>Lithothamnion heterocladum</i> f. <i>crassa</i>
1905e: 17	f	H	<i>crenulata</i>	<i>Lithothamnion magellanicum</i> f. <i>crenulata</i>
1905e: 17	f	L	<i>falklandica</i>	<i>Lithophyllum marlothii</i> f. <i>falklandica</i>
1905e: 17	f	L	<i>fuegiana</i>	<i>Lithothamnion kerguelenum</i> f. <i>fuegiana</i>
1905e: 17	f	L	<i>gracilis</i>	<i>Lithothamnion heterocladum</i> f. <i>gracilis</i>
1905e: 17	s	H	<i>squamuliforme</i>	<i>Lithothamnion squamuliforme</i>
1905e: 17	f	H	<i>talialensis</i>	<i>Lithothamnion magellanicum</i> f. <i>talialensis</i>
1905e: 18	f	H	<i>flabelligera</i>	<i>Lithophyllum polyclonum</i> f. <i>flabelligera</i>
1905e: 18	s	H	<i>polyclonum</i>	<i>Lithophyllum polyclonum</i>
1905e: 18	f	H	<i>ruptilis</i>	<i>Lithothamnion syntrophicum</i> f. <i>ruptilis</i>
1906a: 577	s	I	<i>acropetum</i>	<i>Goniolithon acropetum</i>
1906a: 579	s	I	<i>antillarum</i>	<i>Lithophyllum antillarum</i>
1906b: 3	s	H	<i>sejunctum</i>	<i>Lithothamnion sejunctum</i>
1906b: 4	s	H	<i>notatum</i>	<i>Lithothamnion notatum</i>
1906b: 5	f	L	<i>asperula</i>	<i>Lithothamnion repandum</i> f. <i>asperula</i>
1906b: 6	f	L	<i>incisa</i>	<i>Lithothamnion patena</i> f. <i>incisa</i>
1906b: 6	f	H	<i>reclinata</i>	<i>Lithothamnion conchatum</i> f. <i>reclinata</i>
1906b: 7	s	H	<i>cystocarpidium</i>	<i>Lithothamnion</i> <i>cystocarpidium</i>
1906b: 8	s	H	<i>haptericolum</i>	<i>Lithothamnion haptericolum</i>
1906b: 9	s	H	<i>insigne</i>	<i>Lithothamnion insigne</i>

1906b: 10	s	H	<i>variabile</i>	<i>Lithothamnion variabile</i>
1906b: 11	s	H	<i>floridanum</i>	<i>Lithothamnion floridanum</i>
1906b: 12	f	L	<i>occidentalis</i>	<i>Lithothamnion fruticosum</i> <i>f. occidentale</i>
1906b: 14	f	L	<i>effusa</i>	<i>Lithothamnion solutum f.</i> <i>effusa</i>
1906b: 14	s	H	<i>montereyicum</i>	<i>Lithothamnion montereyicum</i>
1906b: 14	s	H	<i>zonatosporum</i>	<i>Archaeolithothamnion</i> <i>zonatosporum</i>
1906b: 15	f	L	<i>occidentalis</i>	<i>Goniolithon mamillare f.</i> <i>occidentalis</i>
1906b: 16	s	H	<i>caulerpae</i>	<i>Melobesia caulerpae</i>
1906b: 16	s	L	<i>leptura</i>	<i>Melobesia leptura</i>
1906b: 17	s	L	<i>affinis</i>	<i>Litholepis affinis</i>
1906b: 17	s	H	<i>mediterranea</i>	<i>Litholepis mediterranea</i>
1906b: 18	f	L	<i>caribaea</i>	<i>Lithophyllum decipiens f.</i> <i>caribaea</i>
1906b: 18	f	L	<i>subantarctica</i>	<i>Lithophyllum decipiens f.</i> <i>subantarctica</i>
1906b: 19	f	H	<i>maheica</i>	<i>Lithophyllum yendoi f.</i> <i>maheica</i>
1906b: 19	f	L	<i>malaysica</i>	<i>Lithophyllum yendoi f.</i> <i>malaysica</i>
1906b: 19	f	H	<i>siamensis</i>	<i>Lithophyllum yendoi f.</i> <i>siamensis</i>
1906b: 20	s	H	<i>erosum</i>	<i>Lithophyllum erosum</i>
1906b: 20	s	L	<i>samoense</i>	<i>Lithophyllum samoense</i>
1906b: 21	s	L	<i>detrusum</i>	<i>Lithophyllum detrusum</i>
1906b: 21	s	*	<i>tuberculatum</i>	<i>Lithophyllum tuberculatum</i>
1906b: 22	ssn	-	<i>circumscripta</i>	<i>Lithophyllum discoideum f.</i> <i>circumscripta</i>
1906b: 22	f	L	<i>wandelica</i>	<i>Lithophyllum aequabile f.</i> <i>wandelica</i>
1906b: 23	f	H	<i>compacta</i>	<i>Lithophyllum discoideum f.</i> <i>compacta</i>
1906b: 23	s	L	<i>intermedium</i>	<i>Lithophyllum intermedium</i>
1906b: 24	s	H	<i>hibernicum</i>	<i>Lithophyllum hibernicum</i>
1906b: 25	s	L	<i>explanatum</i>	<i>Lithophyllum explanatum</i>
1906b: 26	s	H	<i>jugatum</i>	<i>Lithophyllum jugatum</i>
1906b: 27	s	H	<i>atlantica</i>	<i>Mastophora atlantica</i>
1906b: 27	s	H	<i>lapidea</i>	<i>Mastophora lapidea</i>
1906c: 17	s	H	<i>canariense</i>	<i>Lithothamnion canariense</i>
1906c: 18	s	H	<i>annulatum</i>	<i>Lithothamnion annulatum</i>
1906c: 18	s	H	<i>bisporum</i>	<i>Lithothamnion bisporum</i>
1906c: 18	s	H	<i>chatamense</i>	<i>Lithothamnion chatamense</i>
1906c: 19	s	H	<i>africanum</i>	<i>Archaeolithothamnion</i> <i>africanum</i>

1906c: 19	f	H	<i>canariensis</i>	<i>Goniolithon accretum</i> f. <i>canariensis</i>
1906c: 19	s	H	<i>muricatum</i>	<i>Phymatolithon muricatum</i>
1906c: 20	s	L	<i>ceylonense</i>	<i>Goniolithon ceylonense</i>
1906c: 20	s	H	<i>orotavicum</i>	<i>Goniolithon orotavicum</i>
1906c: 21	s	L	<i>impressum</i>	<i>Lithophyllum impressum</i>
1906c: 21	s	L	<i>vancouveriense</i>	<i>Lithophyllum vancouveriense</i>
1906c: 21	s	L	<i>whidbeyense</i>	<i>Lithophyllum whidbeyense</i>
1906c: 22	s	H	<i>oligocarpum</i>	<i>Lithophyllum oligocarpum</i>
1906c: 22	s	H	<i>punctatum</i>	<i>Lithophyllum punctatum</i>
1906c: 23	s	H	<i>shioense</i>	<i>Lithophyllum shioense</i>
1906c: 23	f	H	<i>trincomaliensis</i>	<i>Lithophyllum okamurai</i> f. <i>trincomaliensis</i>
1906c: 23	f	H	<i>valida</i>	<i>Lithophyllum okamurai</i> f. <i>valida</i>
1906d: (128)	s	I	<i>dimotum</i>	<i>Archaeolithothamnion dimotum</i>
1906d: (129)	v	I	<i>ornatum</i>	<i>Lithothamnion mesomorphum</i> var. <i>ornatum</i>
1906d: (130)	v	H	<i>aemulans</i>	<i>Lithothamnion fruticulosum</i> var. <i>aemulans</i>
1906d: (130)	s	I	<i>rhizophorae</i>	<i>Goniolithon rhizophorae</i>
1906d: (131)	s	I	<i>accretum</i>	<i>Goniolithon accretum</i>
1906d: (131)	v	I	<i>nanum</i>	<i>Goniolithon strictum</i> var. <i>nanum</i>
1906d: (132)	s	H	<i>bermudense</i>	<i>Lithophyllum bermudense</i>
1906d: (132)	s	I	<i>munitum</i>	<i>Lithophyllum munitum</i>
1906d: (133)	s	I	<i>daedaleum</i>	<i>Lithophyllum daedaleum</i>
1906d: (133)	v	I	<i>pseudodentatum</i>	<i>Lithophyllum daedaleum</i> var. <i>pseudodentatum</i>
1906d: (134)	s	I	<i>chamaedoris</i>	<i>Lithophyllum chamaedoris</i>
1907a: 3	f	H	<i>dissidens</i>	<i>Lithothamnion repandum</i> f. <i>dissidens</i>
1907a: 3	s	H	<i>versicolor</i>	<i>Lithothamnion versicolor</i>
1907a: 4	f	H	<i>aquilonia</i>	<i>Lithothamnion phymatodeum</i> f. <i>aquilonia</i>
1907a: 4	s	H	<i>thelostegium</i>	<i>Lithothamnion thelostegium</i>
1907a: 6	s	H	<i>irregulare</i>	<i>Lithothamnion irregulare</i>
1907a: 7	s	H	<i>gibbosum</i>	<i>Lithothamnion gibbosum</i>
1907a: 7	s	L	<i>indicum</i>	<i>Lithothamnion indicum</i>
1907a: 7	f	L	<i>subtilis</i>	<i>Lithothamnion indicum</i> f. <i>subtilis</i>
1907a: 8	s	H	<i>fretense</i>	<i>Lithothamnion fretense</i>
1907a: 8	f	H	<i>tahitica</i>	<i>Lithothamnion japonicum</i> f. <i>tahitica</i>
1907a: 9	s	H	<i>exasperatum</i>	<i>Lithothamnion exasperatum</i>
1907a: 9	s	H	<i>galapagense</i>	<i>Lithothamnion galapagense</i>

1907a: 11	s	L	<i>durum</i>	<i>Archaeolithothamnion durum</i>
1907a: 12	s	L	<i>australasicum</i>	<i>Archaeolithothamnion australasicum</i>
1907a: 12	f	L	<i>pacifica</i>	<i>Goniolithon notarisii</i> f. <i>pacifica</i>
1907a: 13	s	H	<i>hariotii</i>	<i>Goniolithon hariotii</i>
1907a: 13	s	H	<i>scabridum</i>	<i>Goniolithon scabridum</i>
1907a: 14	f	L	<i>confragosa</i>	<i>Goniolithon myriocarpon</i> f. <i>confragosa</i>
1907a: 15	f	L	<i>finitima</i>	<i>Goniolithon setchellii</i> f. <i>finitima</i>
1907a: 15	s	H	<i>versabile</i>	<i>Goniolithon versabile</i>
1907a: 16	f	H	<i>armata</i>	<i>Goniolithon laccadivicum</i> f. <i>armata</i>
1907a: 16	ssn	-	<i>fastigiata</i>	<i>Goniolithon strictum</i> f. <i>fastigiata</i>
1907a: 18	f	H	<i>galapagense</i>	<i>Goniolithon frutescens</i> f. <i>galapagense</i>
1907a: 20	f	H	<i>africana</i>	<i>Goniolithon boergesenii</i> f. <i>africana</i>
1907a: 20	s	H	<i>breviclavium</i>	<i>Goniolithon breviclavium</i>
1907a: 21	s	H	<i>indica</i>	<i>Litholepis indica</i>
1907a: 22	s	H	<i>accola</i>	<i>Litholepis accola</i>
1907a: 23	s	H	<i>aequum</i>	<i>Lithophyllum aequum</i>
1907a: 24	s	H	<i>fetum</i>	<i>Lithophyllum fetum</i>
1907a: 24	s	L	<i>natalense</i>	<i>Lithophyllum natalense</i>
1907a: 25	s	H	<i>accedens</i>	<i>Lithophyllum accedens</i>
1907a: 25	nn	-	<i>fretum</i>	<i>Lithophyllum fretum</i>
1907a: 26	s	H	<i>acanthinum</i>	<i>Lithophyllum acanthinum</i>
1907a: 26	s	H	<i>rupestre</i>	<i>Lithophyllum rupestre</i>
1907a: 29	f	H	<i>divia</i>	<i>Lithophyllum onkodes</i> f. <i>divia</i>
1907a: 29	f	L	<i>ptychoides</i>	<i>Lithophyllum okamurai</i> f. <i>ptychoides</i>
1907a: 29	f	L	<i>subramosa</i>	<i>Lithophyllum onkodes</i> f. <i>subramosa</i>
1907a: 30	s	L	<i>gardineri</i>	<i>Lithophyllum gardineri</i>
1907a: 30	f	L	<i>obpyramidata</i>	<i>Lithophyllum gardineri</i> f. <i>obpyramidata</i>
1907a: 30	f	*	<i>subhemi-sphaerica</i>	<i>Lithophyllum gardineri</i> f. <i>subhemisphaerica</i>
1907a: 31	s	H	<i>coarctatum</i>	<i>Lithophyllum coarctatum</i>
1907a: 31	s	H	<i>praetextatum</i>	<i>Lithophyllum praetextatum</i>
1907a: 31	f	H	<i>sandvicensis</i>	<i>Lithophyllum coarctatum</i> f. <i>sandvicensis</i>
1907a: 32	s	H	<i>mauritianum</i>	<i>Lithophyllum mauritianum</i>
1907a: 33	f	L	<i>tasmanica</i>	<i>Lithophyllum zostericola</i> f. <i>tasmanica</i>

1907a: 34	f	H	<i>ascripticia</i>	<i>Lithophyllum pustulatum</i> f. <i>ascripticia</i>
1907a: 34	s	H	<i>rasile</i>	<i>Lithophyllum rasile</i>
1907b: 3	s	H	<i>vescum</i>	<i>Lithothamnion vescum</i>
1907b: 4	s	H	<i>acervatum</i>	<i>Lithothamnion acervatum</i>
1907b: 6	s	H	<i>absonum</i>	<i>Lithothamnion absonum</i>
1907b: 7	s	H	<i>ferox</i>	<i>Lithothamnion ferox</i>
1907b: 8	s	H	<i>discrepans</i>	<i>Lithothamnion discrepans</i>
1907b: 11	s	L	<i>ectocarpon</i>	<i>Lithothamnion ectocarpon</i>
1907b: 11	s	H	<i>lemniscatum</i>	<i>Lithothamnion lemniscatum</i>
1907b: 14	s	H	<i>parcum</i>	<i>Lithothamnion parcum</i>
1907b: 17	f	H	<i>alternans</i>	<i>Lithothamnion philippii</i> f. <i>alternans</i>
1907b: 18	f	H	<i>elimbata</i>	<i>Lithothamnion funafutiense</i> f. <i>elimbata</i>
1907b: 19	s	H	<i>inconspicuum</i>	<i>Lithothamnion inconspicuum</i>
1907b: 19	s	L	<i>spissum</i>	<i>Lithothamnion spissum</i>
1907b: 20	s	H	<i>accline</i>	<i>Lithothamnion accline</i>
1907b: 21	ssn	-	<i>kuetzingii</i>	<i>Lithothamnion fruticosum</i> f. <i>kuetzingii</i>
1907b: 21	s	L	<i>solubile</i>	<i>Goniolithon solubile</i>
1907b: 22	s	H	<i>affine</i>	<i>Goniolithon affine</i>
1907b: 23	s	H	<i>assistum</i>	<i>Goniolithon assistum</i>
1907b: 24	s	H	<i>improcerum</i>	<i>Goniolithon improcerum</i>
1907b: 24	f	L	<i>microcarpa</i>	<i>Goniolithon mamillosum</i> f. <i>microcarpa</i>
1907b: 26	s	H	<i>gibbsii</i>	<i>Melobesia gibbsii</i>
1907b: 27	s	H	<i>absimile</i>	<i>Lithophyllum absimile</i>
1907b: 27	s	H	<i>inops</i>	<i>Lithophyllum inops</i>
1907b: 28	s	H	<i>aninae</i>	<i>Lithophyllum aninae</i>
1907b: 28	ssn	-	<i>connata</i>	<i>Lithophyllum consociatum</i> f. <i>connata</i>
1907b: 28	s	H	<i>gracile</i>	<i>Lithophyllum gracile</i>
1907b: 29	s	H	<i>conspectum</i>	<i>Lithophyllum conspectum</i>
1907b: 29	f	L	<i>dispar</i>	<i>Lithophyllum tumidulum</i> f. <i>dispar</i>
1907b: 30	f	H	<i>condensata</i>	<i>Mastophora macrocarpa</i> f. <i>condensata</i>
1907b: 30	s	L	<i>conjuncta</i>	<i>Mastophora conjuncta</i>
1907c: 9	ssn	-	<i>valida</i>	<i>Lithothamnion heterocladum</i> f. <i>valida</i>
1907e: 100	f	H	<i>crassa</i>	<i>Lithothamnion gibbosum</i> f. <i>crassa</i>
1907e: 100	ssn	-	<i>parvula</i>	<i>Lithothamnion gibbosum</i> f. <i>parvula</i>
1908d: 5	s	H	<i>rosanoffii</i>	<i>Lithothamnion rosanoffii</i>
1908d: 9	s	L	<i>prolixum</i>	<i>Lithothamnion prolixum</i>

1908d: 10	f	L	<i>intermedia</i>	<i>Phymatolithon polymorphum</i> f. <i>intermedia</i>
1908d: 17	s	H	<i>paradoxum</i>	<i>Lithophyllum paradoxum</i>
1908d: 19	f	H	<i>varians</i>	<i>Mastophora melobesioides</i> f. <i>varians</i>
1908f: 4	f	L	<i>imbicilla</i>	<i>Goniolithon propinquum</i> f. <i>imbicilla</i>
1908f: 6	s	H	<i>dispalatum</i>	<i>Goniolithon dispalatum</i>
1908f: 7	f	H	<i>subsimplex</i>	<i>Goniolithon dispalatum</i> f. <i>subsimplex</i>
1908f: 9	f	H	<i>philippinensis</i>	<i>Litholepis indica</i> f. <i>philippinensis</i>
1909a: 4	s	H	<i>belgicum</i>	<i>Lithophyllum belgicum</i>
1909b: 3	s	H	<i>valens</i>	<i>Lithothamnion valens</i>
1909b: 13	s	H	<i>imitans</i>	<i>Lithophyllum imitans</i>
1909b: 13	s	H	<i>impar</i>	<i>Lithophyllum impar</i>
1909b: 17	s	H	<i>yessoense</i>	<i>Lithophyllum yessoense</i>
1909b: 22	s	H	<i>insignis</i>	<i>Lithophyllum decussatum</i>
1909b: 22	f	H	<i>planiuscula</i>	<i>Lithophyllum decussatum</i> f. <i>planiuscula</i>
1909b: 28	ssn	-	<i>divergens</i>	<i>Lithophyllum fasciculatum</i> f. <i>divergens</i>
1909b: 29	ssn	-	<i>complanata</i>	<i>Lithophyllum fasciculatum</i> f. <i>complanata</i>
1909b: 30	s	H	<i>simile</i>	<i>Lithophyllum simile</i>
1909b: 34	f	L	<i>subtilis</i>	<i>Lithophyllum kotschyanum</i> f. <i>subtilis</i>
1909b: 36	nn	-	<i>redunca</i>	<i>Lithophyllum kotschyanum</i> f. <i>redunca</i>
1909b: 41	f	H	<i>nexilis</i>	<i>Lithophyllum pachydermum</i> f. <i>nexilis</i>
1909b: 45	ssn	-	<i>prona</i>	<i>Lithophyllum coarctatum</i> f. <i>prona</i>
1909b: 46	s	H	<i>aequinoctiale</i>	<i>Lithophyllum aequinoctiale</i>
1909b: 47	f	L	<i>similis</i>	<i>Lithophyllum pustulatum</i> f. <i>similis</i>
1909b: 55	nn	-	<i>mediocre</i>	<i>Epilithon mediocre</i>
1929: 31	nn	-	<i>nana</i>	<i>Goniolithon spectabile</i> f. <i>nana</i>
1967: 15	nn	-	<i>vulgaris</i>	<i>Mastophora vulgaris</i>

Table 2. List of type material of specific and infraspecific taxa of Corallinales in Foslíe's herbarium that were described by authors other than Foslíe. Entries in the type column denote type specimens at TRH as follows: HF = holotype fragment; I = isotype; IL = isolectotype; L = lectotype; LF = lectotype fragment; S = syntype; SF = syntype fragments; T = type or type fragments whose precise nature is uncertain. Details on these taxa are provided in the text.

FINAL EPITHET	TRH DRAWER	NATURE OF TYPE	BASIONYM AND PROTOLOGUE REFERENCE
<i>acrocampum</i>	A-20	LF	<i>Lithophyllum acrocampum</i> Heydrich 1902, p. 474.
<i>aculeiferum</i>	B-15	I	<i>Lithothamnion aculeiferum</i> Mason 1953, p. 326.
<i>amplexifrons</i>	A-20	T	<i>Melobesia amplexifrons</i> Harvey 1849, p. 110.
<i>antarctica</i>	B-17	I (slide only)	<i>Melobesia verrucata</i> var. <i>antarctica</i> Hooker et Harvey in Harvey & Hooker 1847, p. 482.
<i>arcticum</i>	B-18	S	<i>Lithophyllum arcticum</i> Kjellman 1877, p. 16.
<i>brachiata</i>	A-28	HF	<i>Lithophyllum lithophylloides</i> f. <i>brachiata</i> Heydrich 1901b, p. 531.
<i>brassica-florida</i>	A-11	SF	<i>Melobesia brassica-florida</i> Harvey 1849, p. 110.
<i>californiense</i>	A-20	HF	<i>Lithophyllum californiense</i> Heydrich 1901b, p. 530.
<i>capitulatum</i>	A-9	HF	<i>Lithophyllum capitulatum</i> Heydrich 1900, p. (560).
<i>carpophylli</i>	A-19	S	<i>Melobesia carpophylli</i> Heydrich 1893, p. (78).
<i>chalonii</i>	A-28	S (slide only)	<i>Lithophyllum chalonii</i> Heydrich 1899, p. 221.
<i>compactum</i>	C-20	L	<i>Lithothamnion compactum</i> Kjellman, 1883a, p. 132.
<i>crassiramosum</i>	C-19	SF	<i>Archaeolithothamnion crassiramosum</i> Pilger 1908, p. 39.
<i>crinita</i>	A-17	S	<i>Melobesia pustulata</i> f. <i>crinita</i> Möbius 1892, p. 1441.
<i>durum</i>	C-21	S	<i>Lithothamnion durum</i> Kjellman 1889, p. 22.
<i>erythraeum</i>	C-19	L	<i>Lithothamnion erythraeum</i> Rothpletz, 1893, p. 5.
<i>farlowii</i>	A-24	HF	<i>Lithophyllum farlowii</i> Heydrich 1901b, p. 532.
<i>flabellatum</i>	B-9	SF	<i>Lithothamnion flabellatum</i> Rosenvinge 1893, p. 772.

<i>flavescens</i>	B-3	S	<i>Lithothamnion flavescens</i> Kjellman 1883b, p. 98.
<i>fosliei</i>	A-14	L	<i>Lithothamnion fosliei</i> Heydrich 1897c, p. 58.
<i>fruticulosus</i>	B-6	HF	<i>Spongites fruticulosus</i> Kützinger 1841, p. 33.
<i>glaciale</i>	B-9; B-11	S	<i>Lithothamnion glaciale</i> Kjellman 1883b, p. 93.
<i>grandiuscula</i>	A-25	SF	<i>Melobesia grandiuscula</i> Montagne 1846, p. 138.
<i>hermaphroditum</i>	A-4	L	<i>Perispermion hermaphroditum</i> Heydrich 1901a, p. 410.
<i>hildenbrandtioides</i>	B-1	SF	<i>Hapalidium hildenbrandtioides</i> P. L. Crouan & H. M. Crouan 1867, p. 149.
<i>hypoleuca</i>	A-1	T	<i>Melobesia hypoleuca</i> Harvey 1849, p. 108.
<i>imbricatum</i>	C-15	HF	<i>Lithothamnion imbricatum</i> Dickie 1877, p. 486.
<i>insidiosa</i>	A-10	S (slides only)	<i>Lithophyllum insidiosum</i> Solms-Laubach 1881, p. 15.
<i>intermedium</i>	B-8	L	<i>Lithothamnion intermedium</i> Kjellman, 1883a, p. 127.
<i>islei</i>	B-1	HF	<i>Lithothamnion islei</i> Heydrich 1901b, p. 538.
<i>kaiserii</i>	A-20	S	<i>Lithothamnion kaiserii</i> Heydrich 1897c, p. 64.
<i>kerguelena</i>	B-18	HF	<i>Melobesia kerguelena</i> Dickie 1876, p. 51.
<i>kotschyanum</i>	A-20	H	<i>Lithophyllum kotschyanum</i> Unger 1858, p. 22.
<i>labradorensis</i>	A-28	HF	<i>Lithothamnion labradorensis</i> Heydrich 1901b, p. 538.
<i>lithophylloides</i>	A-28	HF	<i>Lithophyllum lithophylloides</i> f. <i>lithophylloides</i> Heydrich 1901b, p. 531 (as f. <i>phylloides</i>).
<i>loculosum</i>	C-21	L	<i>Lithothamnion loculosum</i> Kjellman 1889, p. 21.
<i>macrocarpa</i>	A-17	IL	<i>Melobesia macrocarpa</i> Rosanoff 1866, p. 74.
<i>madagascarensis</i>	A-20	LF	<i>Lithothamnion madagascarensis</i> Heydrich 1902, p. 473.
<i>mamillaris</i>	A-11	SF	<i>Melobesia mamillaris</i> Harvey 1849b, p. 109.
<i>mamillosum</i>	A-11	S	<i>Lithothamnion mamillosum</i> Hauck 1883, p. 272.
<i>marlothii</i>	A-4	S	<i>Lithothamnion marlothii</i> Heydrich 1897c, p. 61.

<i>mollis</i>	C-19	S	<i>Sporolithon ptychoides</i> f. <i>mollis</i> Heydrich 1897c, p. 67.
<i>notarisii</i>	A-10	S	<i>Melobesia notarisii</i> Dufour 1861, p. 39.
<i>novae-zealandiae</i>	C-17	S	<i>Lithothamnion novae-zealandiae</i> Heydrich 1897c, p. 63.
<i>onkodes</i>	A-26	L	<i>Lithothamnion onkodes</i> Heydrich 1897b, p. 6.
<i>pacifica</i>	A-1	HF	<i>Melobesia pacifica</i> Heydrich 1901b, p. 529.
<i>peruviense</i>	A-23	HF	<i>Lithothamnion peruviense</i> Heydrich 1901b, p. 545.
<i>pinguiense</i>	A-2	IL	<i>Lithophyllum pinguiense</i> Heydrich 1901b, p. 535.
<i>pseudolichenoides</i>	A-2	LF	<i>Lithophyllum pseudolichenoides</i> Heydrich 1902, p. 475.
<i>ptychoides</i>	C-19	L	<i>Sporolithon ptychoides</i> Heydrich 1897a, p. 67.
<i>pygmaea</i>	A-1	S(slide only)	<i>Mastophora pygmaea</i> Heydrich 1894, p. 300.
<i>ramosissima</i>	A-4	LF	<i>Lithophyllum cristatum</i> f. <i>ramosissima</i> Heydrich 1902, p. 473.
<i>rosea</i>	B-20	S	<i>Lithothamnion roseum</i> Batters 1893, p. 20.
<i>schmitzii</i>	C-18	SF	<i>Lithophyllum schmitzii</i> Hariot 1895, p. 98.
<i>scutelloides</i>	C-18	HF	<i>Lithothamnion scutelloides</i> Heydrich 1900, p. (563).
<i>stictaeformis</i>	A-25	T?	<i>Melobesia stictaeformis</i> Areschoug 1852, p. 517.
<i>subsimplex</i>	C-1	IL	<i>Lithothamnion corallioides</i> f. <i>subsimplex</i> Batters 1892, p. 177.
<i>tamiense</i>	A-4	SF	<i>Lithothamnion tamiense</i> f. <i>tamiense</i> Heydrich 1897b, p. 1 (as f. <i>typica</i>).
<i>tenue</i>	B-2	L	<i>Lithophyllum tenue</i> Heydrich 1889, p. 22.
<i>tenue</i>	B-4	S	<i>Lithothamnion tenue</i> Rosenvinge 1893, p. 778.
<i>trochanter</i>	A-4	SF	<i>Nullipora trochanter</i> Bory 1832, p. 206.

Table 3. Data on specimens distributed by O. Gjærevoll in *M. Foslie: Lithothamnium Selecta Exsiccata*. Table entries are alphabetical by final epithet except for *f. typica*, which is entered under the main species name. Data include the name under which the specimen was distributed and the field collection information. Orthography follows that on the labels. All specimens require reinvestigation to determine present taxonomic placements.

angulata

Lithophyllum incrustans f. *angulata* Foslie.

France: Banyuls-sur-Mer; leg. C. Flahault, no date.

cingens

Lithothamnion muelleri f. *cingens* Foslie.

South Australia: Cape Jaffa; leg. A. Engelhart, 1899.

circumscripta

Phymatolithon compactum f. *circumscripta* Foslie.

Norway: Hjelmsøy, Måsøy, Finnmark; leg. M. F. Foslie, 17 July 1901.

colliculosum

Lithothamnion colliculosum f. *typica* Foslie.

Norway: Haugesund; leg. M. F. Foslie, 26 March 1898.

congregata

Lithothamnion nodulosum f. *congregata* Foslie.

Norway: Stjørna, Sør-Trøndelag; leg. M. F. Foslie, 20 July 1894.

dentatum

Lithophyllum dentatum Foslie.

Ireland: Roundstone; leg. M. F. Foslie, 17 April 1899.

dimorpha

Lithothamnion fornicatum f. *dimorpha* Foslie.

Norway: Korsholmene, Ørland, Sør-Trøndelag; leg. M. F. Foslie, 7 July 1894.

dimorpha (fossil)

Lithothamnion fornicatum f. *dimorpha* Foslie.

Norway: Garten, Ørland, Sør-Trøndelag; leg. M. F. Foslie, 7 July 1894.

divergens

Lithophyllum fasciculatum f. *divergens* Foslie.

Ireland: Roundstone; leg. M. F. Foslie, 15 April 1899.

divergens

Lithothamnion tophiforme f. *divergens* Foslie.

Norway: Skorpa, Kvenangen, Troms; leg. M. F. Foslie, 8 September 1890.

fornicatum

Lithothamnion fornicatum Foslie.

Norway: Mestervik, Malangen, Troms; leg. M. F. Foslie, 20 September 1890.

glaciale

Lithothamnion glaciale f. *typica* Foslie.

Norway: Tromsø; leg. M. F. Foslie, 30 August 1896.

globosa

Lithothamnion soriferum f. *globosa* Foslie.

Norway: Kistrand, Finnmark; leg. M. F. Foslie, 11 August 1891.

gracilescens

Lithothamnion nodulosum f. *gracilescens* Foslie.

Norway: Rotvoll, Strinda, Sør-Trøndelag; leg. *M. F. Foslie*, 6 June 1894.

granii

Lithothamnion granii f. *typica* Foslie.

Norway: Drøbak; leg. *M. F. Foslie*, 10 August 1902.

intermedia

Phymatolithon polymorphum f. *intermedia* Foslie.

Norway: Skarsvåg, Kjelvik, Finnmark; leg. *M. F. Foslie*, 19 July 1897.

investiens

Phymatolithon investiens Foslie.

Norway: Galten, Hasvik, Finnmark; leg. *M. F. Foslie*, 28-30 June 1897.

nodulosum

Lithothamnion nodulosum f. *typica* Foslie.

Norway: Brekstad, Ørland, Sør-Trøndelag; leg. *M. F. Foslie*, September 1896.

obcrateriformis

Lithothamnion fornicatum f. *obcrateriformis* Foslie.

Norway: Stjørna, Sør-Trøndelag; leg. *M. F. Foslie*, September 1896.

okamurai

Lithophyllum okamurai Foslie.

Japan; Misaki; leg. *K. Yendo*, April 1903.

orbiculatum

Lithophyllum orbiculatum Foslie.

Norway: Fløan, Trondheimsfjorden; leg. *M. F. Foslie*, 10 August 1896.

pusilla

Lithothamnion norvegicum f. *pusilla* Foslie.

Norway: Haugesund; leg. *M. F. Foslie*, 1897.

saxatilis

Lithothamnion nodulosum f. *saxatilis* Foslie.

Norway: Tautra, Nord-Trøndelag; leg. *M. F. Foslie*, 15 June 1894.

squarrosa

Lithothamnion soriferum f. *squarrosa* Foslie.

Norway: Grindøy, Tromsø; leg. *M. F. Foslie*, 15 August 1890.

squarrulosa

Lithothamnion calcareum f. *squarrulosa* Foslie.

Ireland: Roundstone; leg. *M. F. Foslie*, 15 April 1899.

subfastigiata

Lithothamnion glaciale f. *subfastigiata* Foslie.

Norway: Bækkarfjord, Alta; leg. *M. F. Foslie*, 21 August 1897.

subsphaerica

Lithothamnion fornicatum f. *subsphaerica* Foslie + f. *obcrateriformis* Foslie.

Norway: Stjørna, Sør-Trøndelag; leg. *M. F. Foslie*, September 1896.

tuberculata

Lithothamnion fornicatum f. *tuberculata* Foslie.

Norway: Herøy, Nordland; leg. *M. F. Foslie*, 28 August 1894.

ungeri

Lithothamnion ungeri f. *typica* Foslie.

Norway: Tromsø; leg. *M. F. Foslie*, 30 August 1890.

vardoense

Lithothamnion vardoense Foslie.

Norway: Vardø; leg. *M. F. Foslie*, 1893.

verrucosum

Lithophyllum verrucosum Foslie.

South Australia: Cape Jaffa; leg. *A. Engelhart*, 1900.

yendoi

Lithophyllum yendoi Foslie.

Japan: Misaki; leg. *K. Yendo*, April 1903.

Table 4. Data on printing/binding dates of Foslie's papers published in *Det Kongelige Norske Videnskabers Selskabs Skrifter* and *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* from 1892-1909. Details on dating are provided in the text. Lower case letters listed after dates of articles are those used in the present publication; dates given in square brackets are those used in Woelkerling (1984).

Foslie, M. 1893a [1892b]. List of the marine algae of the Isle of Wight. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1892: 267-282.

Effective publication date: 30 January 1893.

Comments: Date of 7 October 1892 on p. 268 taken as date of submission; portion of journal containing article printed 30 January 1893. Journal title page dated 1893. Explicit offprint data not found.

Foslie, M. 1893b [1893]. Den botaniske afdeling. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1892: IX-X.

Effective publication date: 29 September 1893.

Comments: Article printed on 29 September 1893. Journal title page dated 1893. Explicit offprint data not found.

Foslie, M. 1894a [1894a]. Den botaniske samling. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1893: VIII-IX.

Effective publication date: 18 May 1894.

Comments: Data from printer not found; notation on printer invoice of 16 May 1894 states that completed 1893 volume was published on 18 May 1894. Journal title page dated 1894. Explicit offprint data not found.

Foslie, M. 1894b [1894b]. New or critical Norwegian algae. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1893: 114-144, pls. 1-3.

Effective publication date: 30 April 1894.

Comments: Article printed on 30 April 1894; date of 7 February 1894 on page 142 of article taken as date of submission. Notation on printer invoice of 16 May 1894 states completed volume was published on 18 May 1894. Journal title page and offprint cover dated 1894.

Foslie, M. 1895a [1895a]. The Norwegian forms of *Lithothamnion*. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1894: 29-208, pls. 1-23.

Effective publication date: 5 December 1895.

Comments: Independently paginated offprints comprising pages 1-180 and plates 1-23 processed by binder on 5 December 1895. Pages 29-128 of journal version printed on 18 September 1895; pages 129-208 printed on 30 December 1895. Plates printed in Oslo in 1894. Journal title page dated 1895.

Foslie, M. 1896 [1895b]. New or critical lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1895: 1-10.

Effective publication date: between 1 February and 30 June 1896.

Comments: Article itemized on printer invoice dated 30 June 1896 but precise printing date not given; previous printer invoice dated 30 January 1896. Relevant invoice

from binder dated 3 August 1896; previous binder invoice dated 24 January 1896. Journal title page dated 1896. Offprint cover date of 1895 probably refers to volume of *Skrifter* in which paper appears.

Foslie, M. 1897c [1897c]. On some lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1897 (1): 1-20.

Effective publication date: between 1 July and 31 December 1897.

Comments: Article itemized on the printer invoice dated 31 December 1897 but precise printing date not given; previous printer invoice dated 30 June 1897. Article title page dated 1897; journal title page dated 1898. Explicit offprint data not found.

Foslie, M. 1898a [1898a]. Systematical survey of the lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1898 (2): 1-7.

Effective publication date: 14 October 1898.

Comments: Article printed on 14 October 1898. Article title page dated 1898; journal title page dated 1899. Offprints processed by binder on 7 January 1899.

Foslie, M. 1898b [1898b]. List of species of the lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1898 (3): 1-11.

Effective publication date: 24 December 1898.

Comments: Article printed on 24 December 1898. Article title page dated 1898; journal title page dated 1899. Offprints processed by binder on 7 January 1899.

Foslie, M. 1899b [1899b]. Notes on two lithothamnia from Funafuti. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1899 (2): 1-5.

Effective publication date: between 2 April and 31 December 1899.

Comments: Article itemized on the printer invoice dated 31 December 1899 but precise printing date not given; previous printer invoice dated 31 December 1898 but includes items printed up to 1 April 1899. Article title page dated 1899; journal title page dated 1900. Explicit offprint data not found.

Foslie, M. 1899c [1898c]. Some new or critical lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1898 (6): 1-19.

Effective publication date: 5 January 1899.

Comments: Article printed on 5 January 1899. Article title page dated 1898; journal title page dated 1899. Offprints processed by binder on 7 January 1899.

Foslie, M. 1899d [1898d]. Remarks on the nomenclature of the lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1898 (9): 1-7.

Effective publication date: 7 January 1899.

Comments: Article printed on 7 January 1899. Article title page dated 1898; journal title page dated 1899. Offprints processed by binder on 7 January 1899.

Foslie, M. 1900a [1900a]. New or critical calcareous algae. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1899 (5): 1-34.

Effective publication date: between 1 January and 25 June 1900.

Comments: Article itemized on the printer invoice dated 25 June 1900 but precise printing date not given; previous printer invoice dated 31 December 1899. Article title page dated 1900; journal title page dated 1900. Explicit offprint data not found.

Foslie, M. 1900b [1900b]. Remarks on Melobesieae in herbarium Crouan. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1899 (7): 1-16.

Effective publication date: between 1 January and 25 June 1900.

Comments: Article itemized on the printer invoice dated 25 June 1900 but precise printing date not given; previous printer invoice dated 31 December 1899. Article title page dated 1900; journal title page dated 1900. Explicit offprint data not found.

Foslie, M. 1900g [1900g]. Calcareous algae from Funafuti. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1900 (1): 1-12.

Effective publication date: between 26 June and 31 December 1900.

Comments: Article itemized on the printer invoice dated 31 December 1900 but precise printing date not given; previous printer invoice dated 25 June 1900. Article title page dated 1900; journal title page dated 1901. Explicit offprint data not found.

Foslie, M. 1900h [1900h]. Five new calcareous algae. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1900 (3): 1-6.

Effective publication date: between 26 June and 31 December 1900.

Comments: Article itemized on the printer invoice dated 31 December 1900 but precise printing date not given; previous printer invoice dated 25 June 1900. Article title page dated 1900; journal title page dated 1901. Explicit offprint data not found.

Foslie, M. 1900i [1900i]. Revised systematical survey of the Melobesieae. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1900 (5): 1-22.

Effective publication date: between 26 June and 31 December 1900.

Comments: Article itemized on the printer invoice dated 31 December 1900 but precise printing date not given; previous printer invoice dated 25 June 1900. Article title page dated 1900; journal title page dated 1901. Offprints processed by binder on 28 February 1901.

Foslie, M. 1901a [1901a]. New melobesieae. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1900 (6): 1-24.

Effective publication date: between 1 January and 18 March 1901.

Comments: Article itemized on the printer invoice dated 26 July 1901 but precise printing date not given; previous printer invoice dated 31 December 1900. Article title page dated 1901; journal title page dated 1901. Offprints processed by binder on 18 March 1901. Setchell & Mason (1943, p. 95) list the date of publication as 18 February 1901 but without explanation.

Foslie, M. 1901c [1901c]. Three new lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1901 (1): 1-5.

Effective publication date: between 27 July and 31 December 1901.

Comments: Article itemized on the printer invoice dated 31 December 1901 but precise printing date not given; previous printer invoice dated 26 July 1901. Article title page dated 1901; journal title page dated 1902. Explicit offprint data not found.

Foslie, M. 1901d [1901d]. Bieten die Heydrich'schen Melobesien-arbeiten eine sichere Grundlage?. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1901 (2): 1-28.

Effective publication date: between 27 July and 31 December 1901.

Comments: Article itemized on the printer invoice dated 31 December 1901 but precise printing date not given; previous printer invoice dated 26 July 1901. Article title page dated 1901; journal title page dated 1902. Explicit offprint data not found.

Foslie, M. 1901e [1901e]. New forms of lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1901 (3): 1-6.

Effective publication date: between 27 July and 31 December 1901.

Comments: Article itemized on the printer invoice dated 31 December 1901 but precise printing date not given; previous printer invoice dated 26 July 1901. Article title page dated 1901; journal title page dated 1902. Explicit offprint data not found.

Foslie, M. 1901f [1901f]. Den botaniske samling. *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* 1900: 18.

Effective publication date: 24 June 1901.

Comments: Article printed on 24 June 1901. Journal title page dated 1901. Explicit offprint data not found.

Foslie, M. 1902a [1902a]. New species or forms of melobesieae. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1902 (2): 1-11.

Effective publication date: between 11 September and 20 November 1902.

Comments: Article itemized on the printer invoice dated 22 June 1903 but precise printing date not given; previous printer invoice dated 10 September 1902. Article title page dated 1902; journal title page dated 1903. Offprints processed by binder on 20 November 1902.

Foslie, M. 1902b [1902b]. Den botaniske samling. *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* 1901: 19.

Effective publication date: 27 May 1902.

Comments: Article printed on 27 May 1902. Journal title page dated 1902; journal covers processed by binder on 7 July 1902. Explicit offprint data not found.

Foslie, M. 1903a [1903a]. Two new lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1903 (2): 1-4.

Effective publication date: 31 December 1903.

Comments: Article printed on 31 December 1903; itemized on printer invoice dated 30 June 1904. Article title page dated 1903; journal title page dated 1904. Explicit offprint data not found.

Foslie, M. 1903b [1903b]. Den botaniske samling. *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* 1902: 23-25.

Effective publication date: between April 1903 and 22 June 1903.

Comments: Article itemized on the printer invoice dated 22 June 1903 but precise printing date not given; previous printer invoice dated 10 September 1902. Journal title page is dated 1902; journal cover is dated 1903; Directors' report on page 11 is dated April 1903. Explicit offprint data not found.

Foslie, M. 1904a [1904a]. Den botaniske samling. *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* 1903: 22.

Effective publication date: 23 June 1904.

Comments: Article printed on 23 June 1904. Journal title page is dated 1904. Explicit offprint data not found.

Foslie, M. 1904c [1904c]. Algologiske notiser. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1904 (2): 1-9.

Effective publication date: between 24 December 1904 and 11 January 1905.

Comments: Article itemized on the printer invoice dated 24 August 1905 but precise printing date not given; previous printer invoice dated 23 December 1904. Article title page dated 1904, journal title page dated 1905. Binder invoice for affixing offprint covers dated 11 January 1905.

Foslie, M. 1905a [1905a]. A new squamariacea from the Adriatic and the Mediterranean. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1905 (1): 1-9.

Effective publication date: between 25 August 1905 and 30 April 1906.

Comments: Article itemized on the printer invoice dated 30 April 1906 but precise printing date not given; previous printer invoice dated 24 August 1905. Article title page dated 1905; journal title page dated 1906. Explicit offprint data not found.

Foslie, M. 1905b [1905b]. *Lithothamnion vardoense*, a new alga. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1905 (2): 1-4.

Effective publication date: between 8 September 1905 and 30 April 1906.

Comments: Article itemized on the printer invoice dated 30 April 1906 but precise printing date not given; previous printer invoice dated 24 August 1905. Date of 8 September 1905 on page 4 presumably is submission date. Article title page dated 1905; journal title page dated 1906. Explicit offprint data not found.

Foslie, M. 1905c [1905c]. Remarks on northern lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1905 (3): 1-138.

Effective publication date: between 25 August 1905 and 30 April 1906.

Comments: Article itemized on the printer invoice dated 30 April 1906 but precise printing date not given; previous printer invoice dated 24 August 1905. Article title page dated 1905; journal title page dated 1906. Explicit offprint data not found.

Foslie, M. 1905d [1905d]. New lithothamnia and systematical remarks. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1905 (5): 1-8.

Effective publication date: between 25 August 1905 and 30 April 1906.

Comments: Article itemized on the printer invoice dated 30 April 1906 but precise printing date not given; previous printer invoice dated 24 August 1905. Article title page dated 1905; journal title page is dated 1906. Explicit offprint data not found.

Foslie, M. 1905e [1905e]. Den botaniske samling. *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* 1904: 15-18.

Effective publication date: between April 1905 and 24 August 1905.

Comments: Article itemized on the printer invoice dated 24 August 1905 but precise printing date not given; previous printer invoice dated 23 December 1904. Journal title page dated 1905; Directors' report dated April 1905 on page 6. Explicit offprint data not found.

Foslie, M. 1906b [1906b]. Algologiske notiser II. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1906 (2): 1-28.

Effective publication date: between 1 December 1906 and 30 March 1907.

Comments: Article itemized on the printer invoice dated 30 March 1907 but precise printing date not given; previous printer invoice dated 30 November 1906. Article title page dated 1906; journal title page dated 1907. Explicit offprint data not found.

Foslie, M. 1906c [1906c]. Den botaniske samling. *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* 1905: 17-24.

Effective publication date: between 1 May 1906 and 30 November 1906.

Comments: Article itemized on the printer invoice dated 30 November 1906 but precise printing date not given; previous printer invoice dated 30 April 1906. Journal title page dated 1906; Directors' report is dated April 1906 on page 6. Explicit offprint data not found.

Foslie, M. 1907a [1907a]. Algologiske notiser III. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1906 (8): 1-34.

Effective publication date: between 21 June and 29 June 1907.

Comments: Article itemized on the printer invoice dated 30 September 1907 but precise printing date not given; previous printer invoice dated 20 June 1907. Article title page dated 1907; journal title page dated 1907. Invoice for affixing offprint covers dated 29 June 1907.

Foslie, M. 1907b [1907b]. Algologiske notiser IV. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1907 (6): 1-30.

Effective publication date: between 30 September 1907 and 27 January 1908.

Comments: Article itemized on the printer invoice dated 12 June 1908 but precise printing date not given; previous printer invoice dated 30 September 1907. Article title page dated 1907; journal title page dated 1908. Invoice for affixing offprint covers dated 27 January 1908.

Foslie, M. 1907g [1907g]. Den botaniske samling. *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* 1906: 18.

Effective publication date: between 31 March 1907 and 20 June 1907.

Comments: Article itemized on the printer invoice dated 20 June 1907 but precise printing date not given; previous printer invoice dated 30 March 1907. Journal title page dated 1907, Directors' report dated March 1906 on page 8. Explicit offprint data not found.

Foslie, M. 1908b [1908b]. Remarks on *Lithothamnion murmanicum*. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1908 (2): 1-8, 2 pls.

Effective publication date: between 13 June and 31 August 1908.

Comments: Article itemized on the printer invoice dated 31 August 1908 but precise printing date not given; previous printer invoice dated 12 June 1908. Article title page dated 1908; journal title page dated 1909. Explicit offprint data not found.

Foslie, M. 1908d [1908d]. Algologiske notiser V. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1908 (7): 1-20.

Effective publication date: between 1 September and 28 September 1908.

Comments: Article itemized on the printer invoice dated 22 December 1908 but precise printing date not given; previous printer invoice dated 31 August 1908. Article title page dated 1908; journal title page dated 1909. Invoice for affixing offprint covers dated 28 September 1908.

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Effective publication date: between 1 September 1908 and 22 December 1908.

Comments: Article itemized on the printer invoice dated 22 December 1908 but precise printing date not given; previous printer invoice dated 31 August 1908. Article title page dated 1908; journal title page dated 1909. Invoice for affixing offprint covers dated 24 December 1908.

Foslie, M. 1908f [1908f]. Nye kalkalger. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1908 (12): 1-9.

Effective publication date: between 23 December 1908 and 14 January 1909.

Comments: Article itemized on the printer invoice dated 31 March 1909 but precise printing date not given; previous printer invoice dated 22 December 1908. Article title page dated 1908; journal title page dated 1909. Invoice for affixing offprint covers dated 14 January 1909.

Foslie, M. 1908g [1908g]. Den botaniske samling. *Det Kongelige Norske Videnskabers Selskabs Aarsberetning* 1907: 17-18.

Effective publication date: between 1 October 1907 and 18 May 1908.

Comments: Article itemized on the printer invoice dated 12 June 1908 but precise printing date not given; previous printer invoice dated 30 September 1907. Journal title page dated 1908; Directors' report dated March 1908 on page 8. Invoice for affixing covers dated 18 May 1908.

Foslie, M. 1909a [1909a]. Remarks on two fossil lithothamnia. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1909 (1): 1-5.

Effective publication date: between 1 June and 18 December 1909.

Comments: Article itemized on the printer invoice dated 18 December 1909 but precise printing date not given; previous printer invoice dated 31 May 1909. Article title page dated 1909; journal title page dated 1910. Explicit offprint data not found.

Foslie, M. 1909b [1909b]. Algologiske notiser VI. *Det Kongelige Norske Videnskabers Selskabs Skrifter* 1909 (2): 1-63.

Effective publication date: between 1 June and 18 December 1909.

Comments: Article itemized on the printer invoice dated 18 December 1909 but precise printing date not given; previous printer invoice dated 31 May 1909. Article title page dated 1909; journal title page dated 1910. Explicit offprint data not found.

Table 5. List of specific and infraspecific taxa described by Foslie for which types have not been designated or located.

FINAL EPITHET	BASIONYM AND PROTOLOGUE REFERENCE
<i>capitellata</i>	<i>Lithothamnion crassum</i> f. <i>capitellata</i> Foslie 1895, p. 59.
<i>contigua</i>	<i>Lithophyllum okamurai</i> f. <i>contigua</i> Foslie 1904c, p. 7.
<i>curvirostra</i>	<i>Lithothamnion fruticulosum</i> f. <i>curvirostra</i> Foslie 1895, p. 46.
<i>distans</i>	<i>Lithothamnion norvegicum</i> f. <i>distans</i> Foslie 1891, p. 42.
<i>flabelliformis</i>	<i>Lithophyllum moluccense</i> f. <i>flabelliformis</i> Foslie 1901d, p. 24.
<i>flabelligera</i>	<i>Lithothamnion coralloides</i> f. <i>flabelligera</i> Foslie 1895, p. 90.
<i>foliacea</i>	<i>Lithothamnion expansum</i> f. <i>foliacea</i> Foslie 1897c, p. 3.
<i>intermedia</i>	<i>Lithophyllum africanum</i> f. <i>intermedia</i> Foslie 1900h, p. 3.
<i>macrospora</i>	<i>Lithothamnion stroemfeltii</i> f. <i>macrospora</i> Foslie 1895, p. 173.
<i>mediocris</i>	<i>Lithophyllum zosteriolum</i> f. <i>mediocris</i> Foslie 1900h, p. 5 (type missing).
<i>repens</i>	<i>Lithothamnion expansum</i> f. <i>repens</i> Foslie 1897c, p. 3.
<i>rupicola</i>	<i>Lithothamnion lichenoides</i> f. <i>rupicola</i> Foslie 1897c, p. 4.
<i>subhemisphaerica</i>	<i>Lithophyllum gardineri</i> f. <i>subhemisphaerica</i> Foslie 1907a, p. 30.
<i>subtilis</i>	<i>Lithothamnion fasciculatum</i> f. <i>subtilis</i> Foslie 1897c, p. 8.
<i>subvalida</i>	<i>Lithothamnion coralloides</i> f. <i>subvalida</i> Foslie 1899c, p. 7.
<i>tenuissima</i>	<i>Lithothamnion stroemfeltii</i> f. <i>tenuissima</i> Foslie 1895, p. 173.
<i>trabuccoi</i>	<i>Lithophyllum trabuccoi</i> Foslie 1900i, p. 17.
<i>tuberculata</i>	<i>Lithothamnion polymorphum</i> f. <i>tuberculata</i> Foslie 1895, p. 114.
<i>tuberculatum</i>	<i>Lithophyllum tuberculatum</i> Foslie 1906b, p. 21.

Table 6. Geographic origins of type collections in Foslie's herbarium. Entries arranged by regions and subregions with number of type collections indicated after the name of the region.

Europe		Puerto Rico	10
Belgium	1	St. Barthélemy	1
Denmark	3	St. Helena Island	1
France	10	Santo Domingo Is.	1
Germany	3	São Tomé Island	7
Greece	1	US Virgin Islands	14
Ireland	11	West Indies	2
Italy	9	Pacific Oceania	
Norway	51	Amsterdam Island	1
Sweden	1	Australia	27
United Kingdom		Bering Strait	1
England	4	Caroline Islands	1
Isle of Man	1	Chatham Islands	2
Scotland	4	Cocos-Keeling Is.	1
Asia		Easter Island	2
Caspian Sea	2	Galapagos Islands	3
Gulf of Bahrain	1	Gambier Islands	1
Japan	20	Gilbert Islands	1
Novaya Zemlya	2	Hawaiian Islands	6
Taiwan	1	Indonesia	22
Thailand	6	Kurile Islands	1
Turkey	2	New Guinea	5
North America		New Ireland	1
Canada	6	New Zealand	13
Greenland	2	Philippines	1
Mexico	6	Samoa	3
USA		Tahiti	7
Alaska	2	Tuvalu	5
California	24	Indian Oceania	
Florida	3	Coevity Island	2
Maine	1	Fundu Island	1
Massachusetts	2	Malagasy	
Washington	4	(Madagascar)	5
South America		Maldives	
Brasil	3	Laccadive Is.	5
Chile	5	Mauritius	3
Peru	1	Moluccas Islands	1
Africa		Réunion Is.	2
Algeria	4	St. Paul Island	1
Egypt	9	Saya de Malha Bank	3
Morocco	3	Seychelles Islands	1
South Africa	15	Sri Lanka	5
Mediterranean		Antarctic and Subantarctic	
Malta	1	Auckland Islands	1
Mediterranean Sea	1	Coulman Is.	1
Atlantic Oceania		Falkland Islands	4
Bahamas	7	Hermite Island	1
Bermuda	8	Kerguelen	6
Canary Islands	8	Observatory Is.	1
Cape Verde Islands	8	Straits of Magellan	2
Faeroes Islands	1	South Orkney Is.	2
Guadeloupe	1	Tierra del Fuego	8
Jamaica	2	Wandel Is.	1

Table 7. Summary of changes/differences in typifications between Adey (1970) and the present study. Taxa grouped alphabetically within categories by final epithet with reference to basionym; details for each change/difference provided in taxonomic accounts.

A. Holotypes identified as lectotypes by Adey (1970)

<i>brasiliense</i>	<i>Lithothamnion brasiliense</i> Foslie 1900a, p. 4 (as <i>L. brasiliense</i> f. <i>genuina</i>).
<i>coarctatum</i>	<i>Lithothamnion coarctatum</i> Foslie 1907a, p. 31.
<i>discrepans</i>	<i>Lithothamnion discrepans</i> Foslie 1907b, p. 8.
<i>dispalatum</i>	<i>Goniolithon dispalatum</i> f. <i>dispalatum</i> Foslie et Howe in Foslie 1908f, p. 6 (as f. <i>typica</i>).
<i>fumigatum</i>	<i>Lithothamnion fumigatum</i> Foslie 1901a, p. 7.
<i>sargassi</i>	<i>Melobesia marginata</i> f. <i>sargassi</i> Foslie 1904a, p. 22.

B. Holotypes identified as co-types by Adey (1970)

<i>acervatum</i>	<i>Lithothamnion acervatum</i> Foslie 1907b, p. 4.
<i>gibbosum</i>	<i>Lithothamnion gibbosum</i> Foslie 1907a, p. 7.
<i>muricatum</i>	<i>Phymatolithon muricatum</i> Foslie 1906c, p. 19.

C. Lectotypes identified as holotypes by Adey (1970)

<i>affinis</i>	<i>Litholepis affinis</i> Foslie 1906b, p. 17.
<i>africanum</i>	<i>Lithophyllum africanum</i> Foslie 1900h, p. 3.
<i>orbiculatum</i>	<i>Lithothamnion orbiculatum</i> Foslie 1895, p. 171.
<i>pacifica</i>	<i>Goniolithon notarisii</i> f. <i>pacifica</i> Foslie 1907a, p. 12.
<i>samoense</i>	<i>Lithophyllum samoense</i> Foslie 1906b, p. 20.
<i>sibogae</i>	<i>Archaeolithothamnion sibogae</i> Weber van Bosse et Foslie in Foslie 1901c, p. 3.

D. Lectotypes identified as co-types by Adey (1970)

<i>asperulum</i>	<i>Lithothamnion repandum</i> f. <i>asperulum</i> Foslie 1906b, p. 5.
<i>australe</i>	<i>Lithothamnion australe</i> Foslie 1904b, p. 24.
<i>incisa</i>	<i>Lithothamnion patena</i> f. <i>incisa</i> Foslie 1906b, p. 6.
<i>prolifer</i>	<i>Lithothamnion prolifer</i> Foslie 1904b, p. 18.
<i>subtenellum</i>	<i>Goniolithon subtenellum</i> Foslie 1899c, p. 11.

E. Isotypes identified as holotypes by Adey (1970)

<i>accretum</i>	<i>Goniolithon accretum</i> Foslie et Howe 1906b, p. (131).
<i>acropetum</i>	<i>Goniolithon acropetum</i> Foslie et Howe 1906a, p. 577.
<i>antillarum</i>	<i>Lithophyllum antillarum</i> Foslie et Howe 1906a, p. 579.
<i>chamaedoris</i>	<i>Lithophyllum chamaedoris</i> Foslie et Howe 1906b, p. (134).

- daedaleum* *Lithophyllum daedaleum* Foslie et Howe 1906b, p. (133).
- dimotum* *Archaeolithothamnion dimotum* Foslie et Howe 1906b, p. (128).
- munitum* *Lithophyllum munitum* Foslie et Howe 1906b, p. (132).
- rhizophorae* *Goniolithon rhizophorae* Foslie et Howe 1906b, p. (130).
- F. Isolectotypes identified as co-types by Adey (1970)**
- fragilissimum* *Lithothamnion fragilissimum* Foslie 1904b, p. 13.
- G. Syntypes identified as co-types by Adey (1970)**
- nodulosum* *Lithothamnion nodulosum* Foslie 1901e, p. 4.
- occidentalis* *Lithothamnion fruticulosus* f. *occidentalis* Foslie 1906b, p. 12.
- H. Syntypes lumped together as a holotype by Adey (1970)**
- tuberculatum* *Lithophyllum tuberculatum* Foslie 1906b, p. 21.
- I. Superseded holotype**
- incertum* *Lithothamnion incertum* Foslie 1904c, p. 5.
- J. Superseded lectotypes**
- heterocladum* *Lithothamnion heterocladum* Foslie 1905e, p. 16.
- philippii* *Lithothamnion philippii* Foslie 1897c, p. 7.
- siamense* *Lithothamnion siamense* Foslie 1901b, p. 19.
- timorense* *Archaeolithothamnion timorense* Foslie 1904b, p. 42.
- K. Superseded neotype**
- colliculosum* *Lithothamnion colliculosum* Foslie 1891, p. 43.

Table 8. Norwegian Place Names used by Foslie and their Modern Equivalents. Modern equivalents have been supplied or checked by Sigmund Sivertsen, Botanisk Avdeling, Vitenskapsmuseet, Universitetet i Trondheim.

Name used by Foslie	Modern Equivalent
Ballstad, Lofoten	Ballstad, Lofoten
Beiskjæret, Ørlandet	Beiskjæret, Ørland
Bejan, Trondheimsfjord, Ørlandet	Beian, Ørland
Bergsfjord, Finnmark	Bergsfjord, Finnmark
Berlevåg, Finnmark	Berlevåg, Finnmark
Brækstad (Ørlandet)	Brekstad, Ørland
Bø	Bø, Vesterålen
Dalsøren	Daløra, Stjørnfjorden
Drøbak, Oslofjorden	Drøbak, Oslofjorden
Finnmark	Finnmark
Frøen, Trondheimsfjord	Frøya
Galtene, Hvaløene	Galtane, Hvaler
Gjesvær, Finnmark	Gjesvær, Finnmark
Herø	Herøy, Nordland
Honningsvaag, Finnmarken	Honningsvåg, Finnmark
Hvaløene	Hvaler, Oslofjorden
Inderøen, Trondheimsfjord	Inderøy, Trondheimsfjorden
Kjelmø, Finnmark	Kjelmøya, Finnmark
Kragerø	Kragerø
Kristiansund	Kristiansund
Kvænangen	Kvænangen
Kvalsund, Finnmark	Kvalsund, Finnmark
Lebesby, Finnmark	Lebesby, Finnmark
Lofoten	Lofoten
Lyngø, Tromsø	Lyngøy, Tromsø
Malangen	Malangen
Mandal, Risø Bank	Mandal, Risøy Bank
Mestervik, Malangen	Mestervik, Malangen
Moldøen	Måløy (?)
Rottingsund, Frøen, Trondheimsfjord	Rottingen, Frøya
Rotvold, Trondheimsfjord	Rotvoll, Trondheim
Røberg, Trondheimsfjord	Røberg, Trondheimsfjorden
Røvær	Røvær
Skjærn, Dalsøren	Stjørna, Daleøra
Skjærn, Trondheimsfjord	Stjørna, Trondheimsfjorden
Skorpen, Kvænangen	Skorpa, Kvænangen
Smælingraasa, Bejan, Trondheimsfjord	Smellingsråsa, Ørland
Sogn	Sogn
Stensund, Sulen, Sogn	Steinsund, Solund, Sogn
Storfosen	Storfosen
Strømmen, Trondheimsfjord	Straumen, Trondheimsfjorden
Sulen, Sogn	Solund, Sogn
Svolvær, Lofoten	Svolvær, Lofoten
Søndre Mela	Sørmela, Andøya
Tromsø	Tromsø
Tusteren (north of Kristiansund)	Tustna
Vardø	Vardø
Ørlandet	Ørland

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