

Tityus obscurus
(Gervais, 1843)

by
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T. obscurus adult couple, left : ♀, right: ♂ M.A.C.Cozijn © 2009

What's in a name?

Tityus obscurus has no generally accepted common name.

Etymology:

The name 'obscurus' in apposition to the generic name (*Tityus*) means dark or the dark one

Junior synonyms: *T. amazonicus* Giltay 1928, *T. cambridgei* Pocock 1897, *T. paraensis* Kraepelin 1896, *T. weneri* Mello-Leitão 1931, *T. sampaiocrulsi* Mello-Leitão 1931 (Lourenço, 2008). *T. piceus* Caporiacco 1947 is a junior synonym of *T. cambridgei* Pocock 1897 (Kovařík, 1999).

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Distribution

Brazilië (Amapá, Pará), Frans Guyana, Suriname (Tafelberg, Brownsberg, Suriname and Marowijne riversystems). Ecuador, Guyana, Venezuela and Panama (1).



Area of reports of *T. obscurus* (after Lourenço et al, 2000). © Google maps 2009

Natural habitat

T. obscurus is a common element of the tropical forests of the Amazon basin. In Suriname, it occurs in mesic highland forests. The lower vegetation of these forests consists of palm trees (i.e. *Astrocaryum spp.*), and there are also trees of 35-45 meters, like *Ceiba pentandra* (kapok tree) and *Manilkara bidentatus* (balata/ rubber tree) that form the canopy. The forest floor is covered with ferns and fernmoss. *T. obscurus* can be found in the canopy, but also on the forest floor under fallen logs and other debris, as well as in the rootsystems of large trees. They are also found in rural areas near human settlements, in example in the villages of Moengo and Albina, along the “east-west connection” in Suriname.

Venom

The LD₅₀ (mg/ kg) value of the venom is 12.14 and this value seems rather high when compared to *T. serrulatus* Lutz & Mello 1922 (0.43 Zlotkin et al, 1978) or *T. bahiensis* Perty 1833 (1.38, Hassan 1984). Lethal incidents have been reported in this species. The symptoms that were caused in three patients by *T. obscurus* envenomation are localized pain, discoloration of the sting site, profuse sweating and cyanosis, hypersensitivity, salivation and vomiting. One of the patients experienced numbness of the legs, muscle contractions,

convulsions, collaps and he eventually became semi-comatose. This patient recovered after treatment, but he felt ill for five days (Floch *et al*, 1950). In 1997 a seven year old child died in Cayenne, French Guyana after being stung by *T.obscurus*. The child was admitted to a hospital seven hours after the sting incident. Six hours later the child was transferred to the intensive care unit. This child suffered from breathing problems, which led to unconsciousness, resulting in heart failure. Attempts to resuscitate the child failed and 16,5 hours after being stung, the patient passed away (Hommel *et al*, 2000). Because of its medical importance, this species should only be kept by very experienced keepers.



T.obscurus adult ♀ (4 days after molting) M.A.C.Cozijn © 2009

Morphological information

The genus *Tityus* C.L.Koch, 1836 comprises more than 180 valid species and subspecies. It is a complex and dynamic genus and the taxonomic position of some of its species is unclear. Earlier described species (2) are frequently synonymized and new species are still being described regularly. A revision of the genus is much needed to solve taxonomic unclarities and to gain more insight into this genus. Given the number of species, this would be a labourintensive and timeconsuming project. *T.obscurus* belongs to the subgenus *Atreus*. This subgenus contains mostly large (65-100 mm+) scorpions, that have a dark, blackish coloration when adult. Juveniles have a yellowish, variegated pigmentation. The basal middle lamellae of the females is dilated in most species (Lourenço,2006). The total size of *T.obscurus* is between 80-100 mm. Their overall coloration is darkbrown to blackish, with only some pale area's on the sternites. Pectinal toothcount is 18-22 for both sexes. They have 17 rows of granules on the moveable finger. The subaculear tooth is strong and spinoid. The species shows strong sexual dimorphism, the adult males having longer and more slender pedipalps and metasomal segments. Even someone who knows nothing about scorpions should be able to see the differences between males and females. Juveniles can be sexed by checking the exuvia's for dilated basal middle lammelae, indicating the females (3).

Keeping in captivity

Most of the following information is based on my own experience and should be regarded as an example. In my opinion the minimum size for keeping a pair of adults is around 30x20x20 cm (12x 8x 8 inch). Juveniles can be kept in all kind of deli cups. I keep my juveniles separate to avoid the risk of cannibalism (especially just molted specimens are vulnerable for hungry siblings). I keep adults in pairs, but I separate the male before the female gives birth. I try to maintain a temperature of 26-30 Celsius (78.8-86 F) in the daytime and around 18-20 C (64,4-68 F) at night. The relative humidity should be around 75-80%, this can be done by keeping ca. one third of the substrate dry (or an occasional misting) and two thirds moist (not wet to prevent mold or mites). I mist the enclosure well once a week or occasionally twice if necessary (depending on temperatures and evaporationrate). When the scorpions are getting close to a molt, make sure the relative humidity is sufficient, to prevent molting problems. Most of the time these scorpions molt on a vertical structure facing downwards to the substrate.



T.obscurus ♀ with instar I M.A.C.Cozijn © 2009

Plain humus is ideal as a substrate. This species does not dig burrows and pieces of cork bark will be accepted as a retreat. Sometimes, a small scrape is made under the bark. They hide during the day, but at night they can be observed sitting on top of the cork bark with open pedipalp fingers, or walking around on the substrate. It does not actively hunt it's prey, but it rather uses the sit-and-wait tactic. These scorpions typically walk very slowly, they almost creep across the substrate, this makes them seem docile, but they can flee or react very fast when startled. I have never seen any *Tityus* species drink from a source of standing water, like a bottle cap. They drink the drops of water from the sides of the enclosure after misting. It is best to mist their enclosures in the afternoon or early evening, to prevent the drops of water to evaporate before the scorpions can drink them. Provide adequate ventilation to create airflow. This is very important because of the high relative humidity that *Tityus* species generally need. Insect remains (and exuvia) need to be removed regularly, because they decompose

quickly in humid environments, which attracts mold and also unwanted organisms like mites (*Acari sp.*).



T. obscurus ♀ with instar 2 M.A.C.Cozijn © 2009

Adults should be fed one or two appropriate sized prey items once a week. I feed my scorpions housecrickets (*Acheta domestica*) twice a week until they are passed the third instar. Prey is killed by a quick sting or stings, this depends on the size of the prey and on the size of the scorpion. Juveniles can subdue surprisingly large prey for their size, sometimes up to 150% of their own bodysize. Newborn scorpions will readily feed on small crickets. This species has been bred several times in captivity and *T. obscurus* is known for producing iteroparous litters. The young molt for the first time after 4 to 5 days. Average litter size is between 15-40 (Lourenço et al 2000, Kovařík 2005).

The adult male and female shown in picture 1 of this factsheet mated on the 8th of february 2009, and on the 15th of july (gestation 157 days) 33 juveniles where born. The young molted to instar 2 on the 19th of July. They started to explore their surroundings from the 23rd of July and they all left their mother on 26th of July. Because of it's medical importance, this species should only be kept by very experienced keepers.

Notes

- (1) Reports from Ecuador, Guyana, Venezuela and Panama (Fet & Lowe, 2000: 254) are not confirmed by reliable specimens. The presence in Guyana could yet be confirmed and reports from the other countries mentioned here most certainly correspond to misidentifications of *Tityus asthenes* Pocock 1893 (Lourenço, 2008).
- (2) For example see junior synonyms, pg.1
- (3) I use this method to sex my specimens, but sometimes it is difficult to see the differences (especially in earlier instars) between the basal middle lammellae of the available specimens.

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