

ON *CULEX SPINOSUS* LUTZ, 1905 (DIPTERA: CULICIDAE). DESIGNATION OF A NEOTYPE

RICARDO LOURENÇO-DE-OLIVEIRA & BRUCE TOWNSEND*

Instituto Oswaldo Cruz, Departamento de Entomologia, Caixa Postal 926, 20001 Rio de Janeiro, RJ, Brasil

* Department of Entomology, British Museum (Natural History), Cromwell Road, London SW 7 5BD, UK

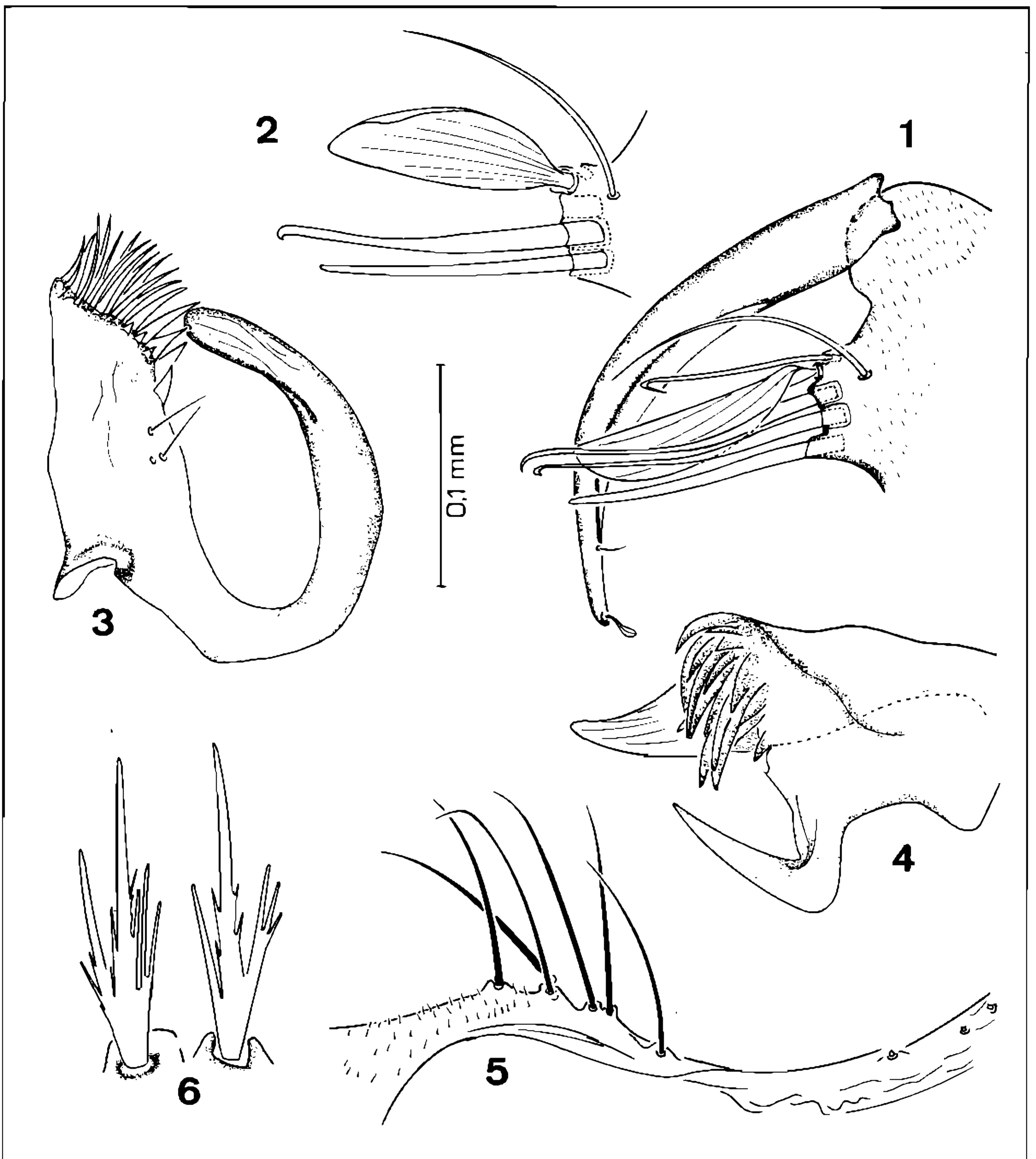
In 1905 A. Lutz (*Impr. Med.*, S. Paulo, 13: 26-29) described *Culex spinosus* from a batch of male and female specimens bred from larvae collected in São Paulo in water accumulated in the axils of the leaves of *Eriocaulon vaginatum* (Fam. Eriocaulaceae) and *Eryngium alvofolium* (Fam. Umbelliferae), marsh-dwelling plants similar to bromeliads. According to Lutz, the adults did not have the aggressive and haematophagous habits attributed at that time to *Cx. secutor* Theobald. The adult male and female external morphological characters described by Lutz coincide with those of the genus *Culex*. The same is true of the characters redescribed by F. V. Theobald (1907, *A monograph of the Culicidae*. Vol. 4, 639 pp., 16 pls.) and H. G. Dyar (1928, *The mosquitoes of the Americas*, Carnegie Institute Wash. Publ. 387, 616 pp., 123 pls.), from single specimens given to them by Lutz; and by A. G. Peryassu (1908, *Os Culicídeos do Brasil*. Tese. Inst. de Manguinhos, Rio de Janeiro, 407 pp.), who probably used specimens collected by Lutz or by both of them together away from the type locality, in Rio de Janeiro.

Theobald (1907) described the male genitalia of *Cx. spinosus* for the first time, from a specimen mounted on a slide. In the text Theobald himself states "described from a single male given me by Dr. Lutz under this m. s. name. The specimen has been dissected and mounted in balsam". The slide is mounted in Theobald's style, and the label is in his handwriting, not Lutz's, and it is clear that Theobald made the preparation himself.

Examination of the slide used by Theobald (1907) to describe the male genitalia reveals that the specimen mounted does not belong to the genus *Culex*, but is an *Aedes* (*Ochlerotatus*), as both claspette and basal dorsomesal lobe are developed. The fact that Theobald's description of the external morphology of *Cx. spinosus* adult coincides with that of *Culex*, while the description of the male genitalia of the slide mounted specimen is an *Aedes*, indicates a mixing of specimens by Theobald. The specimen mounted by Theobald is in very poor condition, but is apparently a male of *Ae. (Och.) scapularis* (Rondani, 1848), a very common and aggressive species in Rio de Janeiro and São Paulo States where Lutz worked most of the time. It is most unlikely that Lutz would have sent a specimen of *scapularis* to Theobald in mistake for a *Culex*. The description of *Cx. spinosus* made by Lutz is unlike *Ae. scapularis* or any other related *Ochlerotatus*, and furthermore, according to Lutz *Cx. spinosus* breeds in water accumulated in plant axils, a place never used by *Ae. scapularis*.

The specimen mounted by Theobald (1907) was designated lectotype by J. N. Belkin et al. (1971, *Contr. Am. Ent. Inst.*, 7: 1-64), who believed it to be the only remaining syntype. There is no specimen identified as *Cx. spinosus* by Lutz in any of the entomological collections at the Instituto Oswaldo Cruz, Rio de Janeiro, Brazil, where Lutz worked, and no other syntype is known to exist, including that one used by Dyar (1928).

Considering all this, we do not think that Theobald's slide-mounted specimen is the one sent to Theobald by Lutz as *Cx. spinosus*, or that it is one of the original syntypes of that species. On this basis, its selection as lectotype is invalid under Article 74 of the International Code of Zoological Nomenclature (1975). There being no other extant syntype material, and in order to avoid any confusion which might result from this earlier invalid designation of a specimen of the wrong species as lectotype, it seems desirable to designate a neotype for *Cx. spinosus*.



Culex spinosus Lutz, 1905. Neotype. Male Genitalia. Figs 1 and 2: subapical lobe of gonoxite. Fig. 3: Paraproct. Fig. 4: Phallosome. Fig. 5: tergum IX. Larva. Fig. 6: seta 1-C.

After the original description of Lutz (1905), and other early descriptions by Theobald (1907), Peryassu (1908) and Dyar (1928), a more detailed description of *Cx. spinosus* published by J. Lane (1953, *Neotropical Culicidae*. Univ. São Paulo, 1112 pp.) was accepted by other authors (O. P. Forattini, 1965, *Entomologia Médica*. Univ. São Paulo, vol. 2, 506 pp.; R. A. Bram, 1967, *Proc. U. S.*

Nat. Hist. Mus., 120: 1-122). He based his description, on reared material with associated larval and pupal exuviae collected as larvae from leaf-axils of bromeliads in São Paulo, the type locality. These specimens agree with Lutz's description and with the currently accepted concept of *Cx. spinosus*, and we have selected a neotype from among them.

Culex spinosus:

Neotype, by present designation.

Male with genitalia and associated pupal and larval skins; Cidade Jardim, São Paulo, São Paulo State; September, 1942, coll. J. Lamosa, as a larva from bromeliad, determined by J. Lane, 1943, deposited in the Entomological Collection of the Department of Epidemiology, Faculdade de Saúde Pública, Universidade de São Paulo, Brazil (FSP), n^o 3438.

Other examined material from which the neotype was selected: two females with associated pupal and larval skins; other data and depository, same as the former; n^o 3439 and 3440.

DESCRIPTION

Cx. spinosus is reliably distinguished by the combination of the following characters: *Adult*. Head. Vertex with narrow falcate pale scales; postgena with white spatulate ones; forked scales numerous, darkish brown; setae brown. Proboscis brown, with a patch of whitish scales around middle. Maxillary palpus coated with brown scales, whitish ones on ventral palpomeres 3 to the base of palpomere 5; palpomere 3 with a row of 15 pale setae on ventro-lateral side and palpomeres 4 and 5 densely pilose. Clypeus darkish brown. Thorax. Integument pale brown. Scutum covered by narrow falcate yellowish scales; whitish ones on the prescutellar, supraalar and antero-lateral scutal fossal areas; acrostical, dorsocentral and supraalar setae, brown. Scutellar integument pale, except the median lobe which is darkish, covered by whitish falcate scales; median and lateral lobes bearing 6 and 5 strong brown setae, respectively, besides 3,4 weak pale ones. Anteprepronotum brown, with some falcate pale scales and short darkish brown setae. Postpronotum almost covered by scales like the scutal ones; some whitish ones near the scutal angle; setae brown. Upper proepisternal setae pale brown. Pleural sclerites brown. Patches of white spatulate scales on lower and upper

meskatepisternum, and anterior and upper mesanepimeron. Lower and upper meskatepisternum and upper mesepimeral setae short and yellowish; prealar brown; one lower mesepimeral, pale brown. Wing. Upper calypter with a complete fringe of pale setae. Scales spatulate brown; narrower on veins R₂, R₃, R₄₊₅, M₁, M₂, M₁₊₂ and M₃₊₄; remigium with 2 short brown setae. Legs. Coxae brown with patch of whitish spatulate scales laterally; coxa III paler. Other leg segments dark, except for the whitish scaling on ventral surface of femora; few white scales on apice of femora and tibiae. Abdomen. Tergites II-VI dark scaled with pale basolateral spots. Setae abundant, long and pale. Segments VII and VIII mounted in balsam. Sterna largely covered by pale scales and distally by dark ones. *Genitalia*. (Figs. 1-5). Apical lobe of the basistyle with three rods, one hooked and one straight seta, and one oval and striated leaf. Phallosome. Ventral arm pointed and smooth, little larger than the teeth of the lateral arm, which ones are around 12 and of variable size. Dorsal arm robust basally, long, gradually tapering to a point. Dorso-basal process of the lateral arm bent at an acute angle so as to be directed posteriorly. Paraproct crown composed only by pointed spines. *Larva*. Head. Antenna of uniform shape; seta 1-A branched (12-15 branches), slightly aciculate. Seta 1-C heavy, with several strong and spiniform branches (Fig. 6); 4-C long, 5-branched. Thoracic integument glabrous; seta 4-P single, long and aciculate. Siphon long; index 5.6 (width measured at base); integument glabrous, with no apical strong spine; pecten (16-18 aciculate spines, increasing in size distally) restricted to the basal third; seta 1-S with three pairs of 2-3 branched setae.

ACKNOWLEDGEMENTS

To Prof. Oswaldo Forattini (Fac. Saúde Pública, USP) for borrowing the specimens; to Dr R. Harbach (Smithsonian Inst., Washington) for searching for the *spinosus* specimens in Dyar's Collection; to Teresa F. Silva for making the illustrations; to Prof. Leonidas Deane and Monique Motta for discussing the manuscript.