

## A review of the spider subfamily Palpimaninae (Araneae, Palpimanidae), I

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### Summary

The spider genus *Palpimanus* is delimited to include only those palpimanines in which the abdominal scutum of adult females is undivided. The known species of *Palpimanus* are assigned to three species groups and those species belonging to the *gibbulus* and *maroccanus* groups are reviewed.

### Introduction

At present, the spider subfamily Palpimaninae contains approximately 35 species placed in two genera: *Ikuma* Lawrence, with two species from Namibia, and *Palpimanus* Dufour, with species from Europe, Asia, Africa and South America. The purposes of this paper are to redefine the genus *Palpimanus*, to assign the described species actually belonging to *Palpimanus* to species groups, and to review two of those species groups.

Palpimanines vary in the structure of their abdominal scuta. Juveniles of all species have the abdominal scutum divided into a small dorsal sclerite and a large ventral and lateral sclerite which are separated by unsclerotised cuticle (as in the otiothopine genus *Anisaedus*; Platnick, 1975, figs. 72, 79). In adult males, the two sclerites fuse, resulting in a ring-like scutum that surrounds the entire anterior end of the abdomen (as in the otiothopine genus *Otiothops*; Platnick, 1975, figs. 13, 20). Adult females of some species have a divided scutum, whereas those of other species have the scutum entire. These sets of species have some geographic unity: only species from the Ethiopian and Neotropical regions retain the divided scutum in adult females; the species from north Africa, Europe and Asia all have females with entire scuta (as do a few central African species).

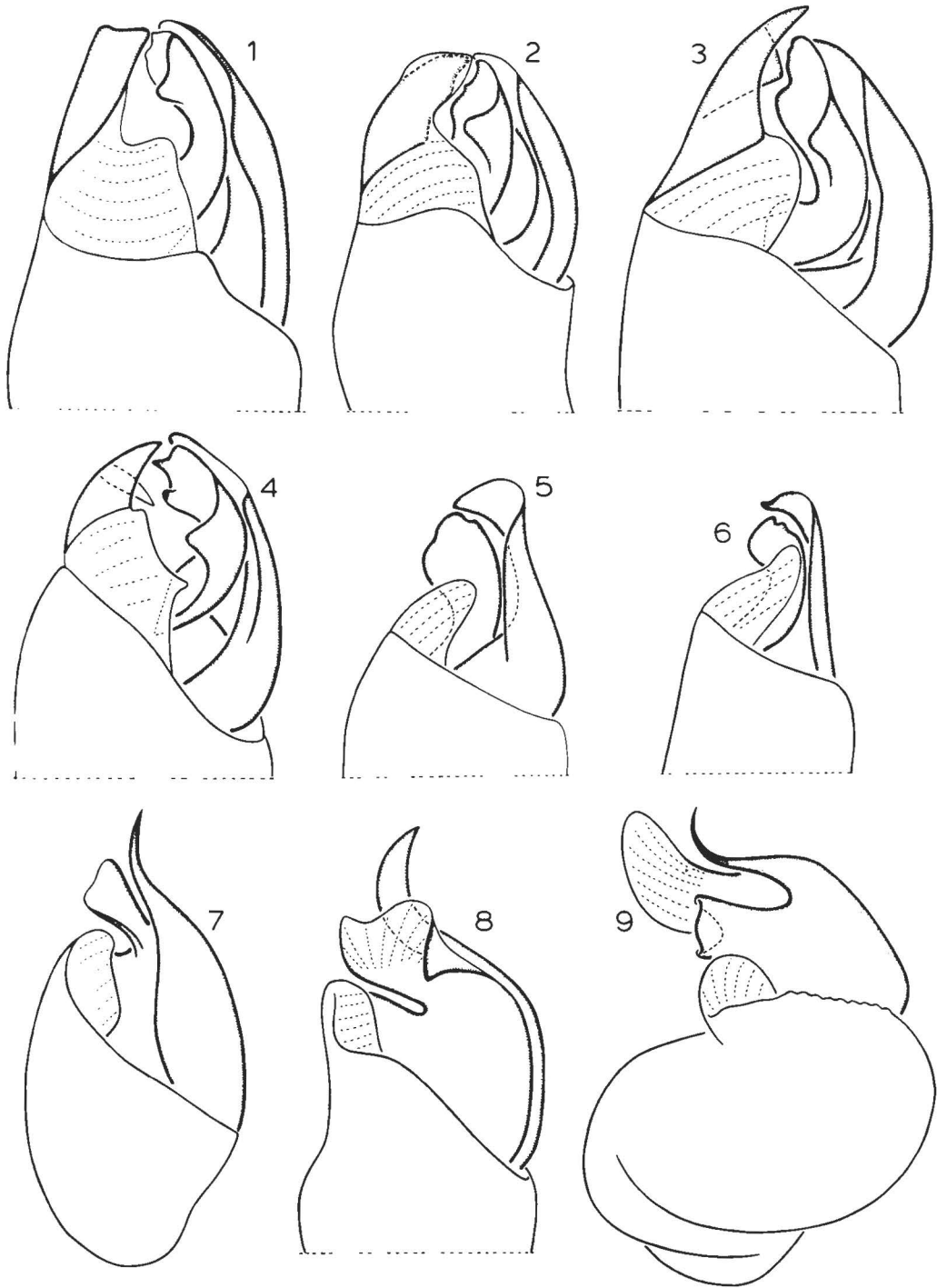
The question thus arises as to which type of scutum represents the derived condition. Outgroup comparison provides little help as both types of

scutum are found in other palpimanids and there is as yet no corroborated hypothesis of palpimanid interrelationships that would allow designation of the primitive condition within the family. As noted by Nelson (1978), however, ontogeny can provide the same information as outgroup comparison: that one condition is more generally distributed (i.e. more primitive) than another. In this case, the divided scutum is more general (being found in juvenile males, juvenile females, and some adult females) than the entire scutum (found only in adult males and some adult females). The fusion of the scutum in adult females can thus be regarded as a synapomorphy. The genus *Palpimanus* is therefore here delimited to include only the species, occurring from Portugal and the Canary Islands east to India and south to Zimbabwe, with entire scuta in adult females. Whether all of the remaining species also form a monophyletic group (for which the name *Ikuma* would be available) is a question that will be considered in a later paper in this series.

The 12 described species belonging to *Palpimanus* (as here defined) belong to three species groups, although there is at least one other species group containing undescribed African species\*. In the *gibbulus* group, the male palp bears three terminal prongs (because the homologies of these structures to those of other spiders are not understood, the neutral term "prong" is preferable to embolus, conductor, etc.), the most prolateral of which is long and distally sclerotised (Figs. 1-4). In the *maroccanus* group, the prolateral palpal prong is present but is short and unsclerotised (Figs. 5-9), whereas in the *vultuosus* group, the prolateral prong is absent. Females of the *vultuosus* group generally have more complex internal genitalia, but no clear-cut characters have been found by which to place the females in groups. The *vultuosus* group contains only three described species (*vultuosus* Simon from India and *sogdianus* Charitonov and *wagneri* Charitonov, both from the Uzbek Soviet Socialist Republic), but several additional species

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\*(Note added in proof): Recent examination of the holotype of *Palpimanus processiger* Strand from Zaire (described without illustrations) indicates that it belongs to this fourth species group and is therefore the 13th true *Palpimanus*.



Figs. 1-9: Left male palpal bulb, removed from cymbium, ventral view. 1 *Palpimanus gibbulus*; 2 *P. aegyptiacus*; 3 *P. orientalis*; 4 *P. uncatus*; 5 *P. maroccanus*; 6 *P. canariensis*; 7 *P. cypricus*; 8 *P. schmitzi*; 9 *P. simoni*.

from India, Pakistan, Russia and Turkey will be described in a later study

The species here assigned to the *gibbulus* and *maroccanus* groups were revised by Kulczyński (1909), who provided detailed descriptions and illustrations of the male palpi. As no additional species of these groups have been found in more recent collections, only brief diagnoses, illustrations and revised accounts of the species distributions are provided below. Although Kulczyński had females of most of the species, he found no somatic characters by which to distinguish them, did not examine their internal genitalia, and did not describe them in any detail. As indicated earlier (Platnick, 1975), the internal genitalia of female otiothopines and palpimanines are usually almost entirely unsclerotised and very difficult to examine. Differences in spermathecal shape (and particularly in the position and shape of the small sclerotised areas at the spermathecal bases) are apparent, however, in gross dissections (Figs. 10-18), and females can often be identified even if they are unaccompanied by males. A detailed microscopical examination being prepared for publication by Dr R. R. Forster indicates that the spermathecae generally bear tiny grape-shaped receptacula laterally: these are vaguely indicated in drawings by Charitonov (1946, figs. 13, 14) but are omitted from Figures 10-18 because they are not readily visible in dissections. In identifying males, it is necessary to remove the palpal bulb from the extremely hairy cymbium to see the terminal elements distinctly.

Many of the specimens examined for this study are from old collections and bear only indecipherable handwritten locality labels. Only unambiguous data were used in compiling the distributional information summarised below. In addition, a few anomalous records from Simon's material are rejected as spurious; they probably stem from Simon's well-known practice of combining material from different localities in single vials if he regarded the specimens as conspecific. Because there have been no changes in generic or specific synonymies since the extensive listing by Bonnet (1958), that material is not repeated here.

### Genus *Palpimanus* Dufour

*Palpimanus* Dufour, 1820, p. 364 (type species by monotypy *Palpimanus gibbulus* Dufour).

**Diagnosis:** Species of *Palpimanus* can be distinguished from other palpimanines by the entire, undivided abdominal scutum of adult females. Specimens of *Palpimanus* usually have small posterior median eyes, separated by five or more times their diameter; other palpimanines generally have large posterior median eyes, separated by four times their diameter or less.

### Species of the *gibbulus* group

1. *Palpimanus gibbulus* Dufour, 1820, p. 364, figs. 5, 5a-5c (female syntypes from Valencia, Spain, lost). (Figs. 1, 10).

**Diagnosis:** This species resembles *P. aegyptiacus* in having the tip of the prolateral palpal prong broadened, but differs in having that prong almost straight (Fig. 1).

**Distribution:** Circum-Mediterranean: Portugal, Spain, Italy (including Sardinia and Sicily), Yugoslavia, Greece (including Crete, Euboea and many of the Cyclades), Israel, Egypt, Libya, Tunisia and Algeria.

**Note:** Dufour's spelling of the specific name (*gibullus*) occurs only once in his text and is best regarded as a *lapsus* for *gibbulus*, the spelling used in the vast majority of citations of the species.

2. *Palpimanus aegyptiacus* Kulczyński, 1909, p. 675, figs. 9, 16, 17 (male holotype from Egypt, no specific locality, in MNHN, examined). (Figs. 2, 11).

**Diagnosis:** This species differs from *P. gibbulus* in having a distinctly curved prolateral palpal prong (Fig. 2).

**Distribution:** Known only from Egypt, Chad (Tibesti Mountains), Tunisia and Algeria.

3. *Palpimanus orientalis* Kulczyński, 1909, p. 674, figs. 6, 18 (male holotype from Ipsos, Corfu, Ionian Islands, Greece, in PAN, examined). (Figs. 3, 12)

**Diagnosis:** This species resembles *P. uncutus* in having a retrolaterally directed flange on the prolateral palpal prong, but differs in having the flange much longer, occupying about half the length of the sclerotised part of the prong (Fig. 3).

**Distribution:** Known only from Albania and Greece (including the mainland, Corfu, Peloponissos and Rhodes).

4. *Palpimanus uncatus* Kulczyński, 1909, p. 675, figs. 8, 11 (four male syntypes from Egypt, no specific locality, in MNHN, examined. (Figs. 4, 13).

*Diagnosis:* This species differs from *P. orientalis* in having a sharply pointed median palpal prong (Fig. 4).

*Distribution:* Known only from Egypt, Turkey (Izmir Province) and Greece (Kos, Southern Sporades).

#### Species of the *maroccanus* group

1. *Palpimanus maroccanus* Kulczyński, 1909, p. 671, figs. 4, 10 (two male syntypes from Mogador (=Essaouira), Morocco, in MNHN, examined). (Figs. 5, 14).

*Diagnosis:* This species resembles *P. canariensis* in having the tip of the retrolateral palpal prong curved prolaterally, but differs in having that tip much larger and smoothly narrowed distally (Fig. 5).

*Distribution:* Known only from Morocco and Algeria.

2. *Palpimanus canariensis* Kulczyński, 1909, p. 672, fig. 5 (three male syntypes from the Canary Islands, in MNHN, examined). New status. (Figs. 6, 15).

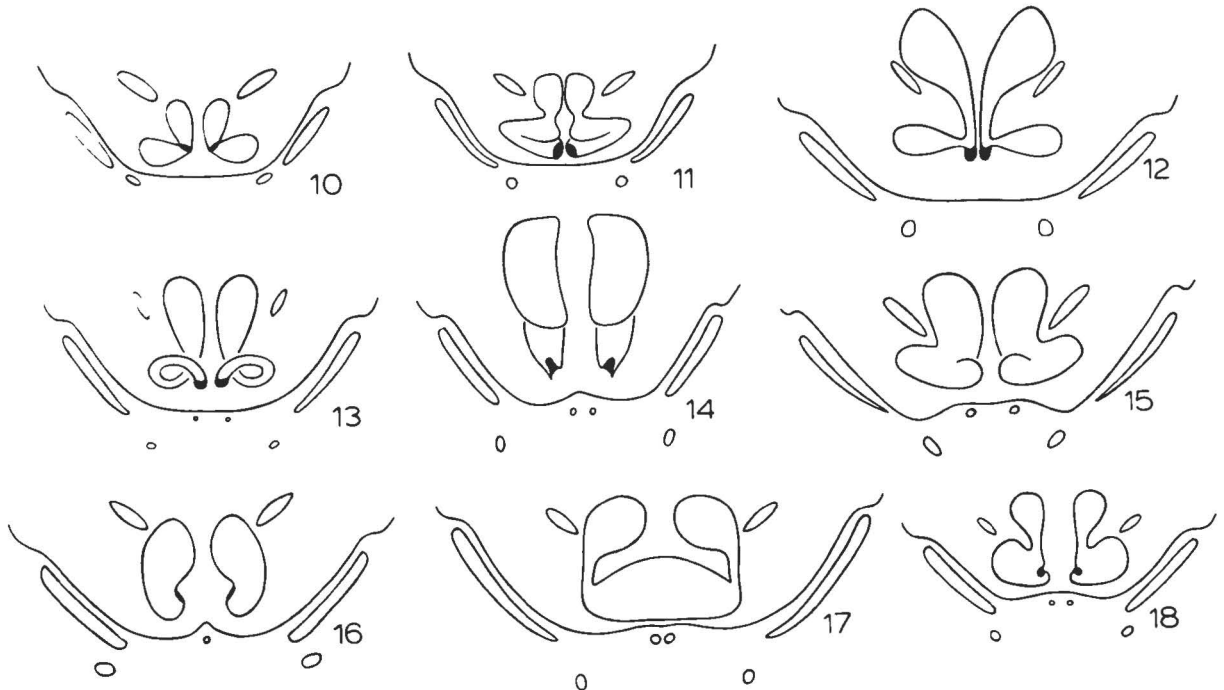
*Diagnosis:* This species differs from *P. maroccanus* in having a smaller tip and narrower flange on the retrolateral palpal prong (Fig. 6).

*Distribution:* Known only from Gran Canaria and Tenerife, Canary Islands.

*Note:* Kulczyński originally described this species as a 'variety' of *P. maroccanus*, to which it is indeed most closely related. However, specimens from the Canaries are consistently different from those on the mainland and can be distinguished without reference to their locality data. Adopting the species concept favoured by Rosen (1978), the population is here given specific status.

3. *Palpimanus cyprius* Kulczyński, 1909, p. 671, fig. 3 (male holotype from Cyprus, in PAN, examined). (Figs. 7, 16).

*Diagnosis:* This species resembles *P. schmitzi*



Figs. 10-18: Uncleared epigynum, gross dissections, showing posterior edge of abdominal scutum, post-scutal sclerotisations, anterior lateral apodemes (except Fig. 14, where hidden by spermathecae), and spermathecae, ventral view. 10 *Palpimanus gibbulus*; 11 *P. aegyptiacus*; 12 *P. orientalis*; 13 *P. uncatus*; 14 *P. maroccanus*; 15 *P. canariensis*; 16 *P. cyprius*; 17 *P. schmitzi*; 18 *P. simoni*.

and *P. simoni* in having a sharply pointed retrolateral palpal prong, but differs in having a short, narrow median palpal prong (Fig. 7).

*Distribution:* Known only from Cyprus, Syria and Israel.

4. *Palpimanus schmitzi* Kulczyński, 1909, p. 670, fig. 2 (two male syntypes from Syria and Palestine, in MNHN, examined). (Figs. 8, 17).

*Diagnosis:* This species differs from *P. cyprius* and *P. simoni* in having broader retrolateral and median palpal prongs (Fig. 8).

*Distribution:* Known only from Syria and Israel.

5. *Palpimanus simoni* Kulczyński, 1909, p. 669, fig. 1 (four male syntypes from Syria and Palestine, in MNHN, examined). (Figs. 9, 18).

*Diagnosis:* This species differs from *P. cyprius* and *P. schmitzi* in having a bifid retrolateral palpal prong (Fig. 9).

*Distribution:* Known only from Syria, Lebanon and Israel.

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