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L. A. STANGE - MYRMELEONTIDAE OF THE GALAPAGOS ISLANDS (INSECTA: NEUROPTERA)

(págs. 187-198 – 2 láms.-1 foto)

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# MYRMELEONTIDAE OF THE GALAPAGOS ISLANDS
## *(INSECTA: NEUROPTERA)*

by LIONEL A. STANGE

**RESUMEN**

**Myrmeleontidae de las Islas Galapagos.-** Dos especies han sido descriptas de las Islas Galapagos, pero una de ellas, *Dimares nummatus* Navás probablemente no pertenece a esa fauna, correspondiendo su localidad típica posiblemente a Ecuador. Se describe una especie nueva, *Brachynemurus darwini,* lo que mantiene el número de dos especies conocidas. Las dos pertenecen a la subfamilia Myrmeleontinae, aunque a tribus distintas. Una de ellas, *Myrmeleon perpilosus* Banks, ahora es conocida desde Méjico hasta Perú. La otra especie, *B. darwini,* forma grupo aislado del resto del género *Brachynemurus* que está restringido a las Américas.

Two species of Myrmeleontidae have been described from the Galapagos Islands. Navás (1912) described *Dimares nummatus* from "S. Elena, Galapagos I., 1876" which Esben-Petersen (1920) placed in synonymy with *D. formosus* Banks. I have been unable to locate this place name in the Galapagos Islands and according to the detailed list of expeditions to the Galapagos Islands given by Linsley and Usinger (1966), no insects were collected there in 1876. Further more I have studied the holotype male of *D. nummatus* and have found it to be conspecific with *D. subdolus* (Walker), a species known from Ecuador and Peru. I am of the opinion that the specimen was incorrectly labeled and that the type locality should be corrected to Santa Elena, Ecuador. The remaining described species is *Myrmeleon perpilosus* Banks. The present account provides additional records and description of this species as well as the description of a new species.

Specimens studied in the present account were collected on three different occasions. Small collections were made by F. X. Williams in 1905 on the Califor nia Academy of Sciences Expedition (CAS) and by Miss Cheesman in 1924 on the St. George Expedition (British Museum, BM). The largest collections were made by the members of the 1964 Galapagos International Expedition and this material is deposited in the Entomology Museum of the University of California, Davis (UCD) and California Academy of Sciences. Paratypes are distributed to the following museums: Museum of Comparative Zoology, Harvard University (MCZ) United States National Museum (USNM), Instituto Miguel Lillo (IML), and the collection of the author (Stange coll.). I am indebted to Messrs. Robert Schuster (UCD), Hugh B. Leech (CAS) and D. E. Kimmins (BM) for the loan of material.

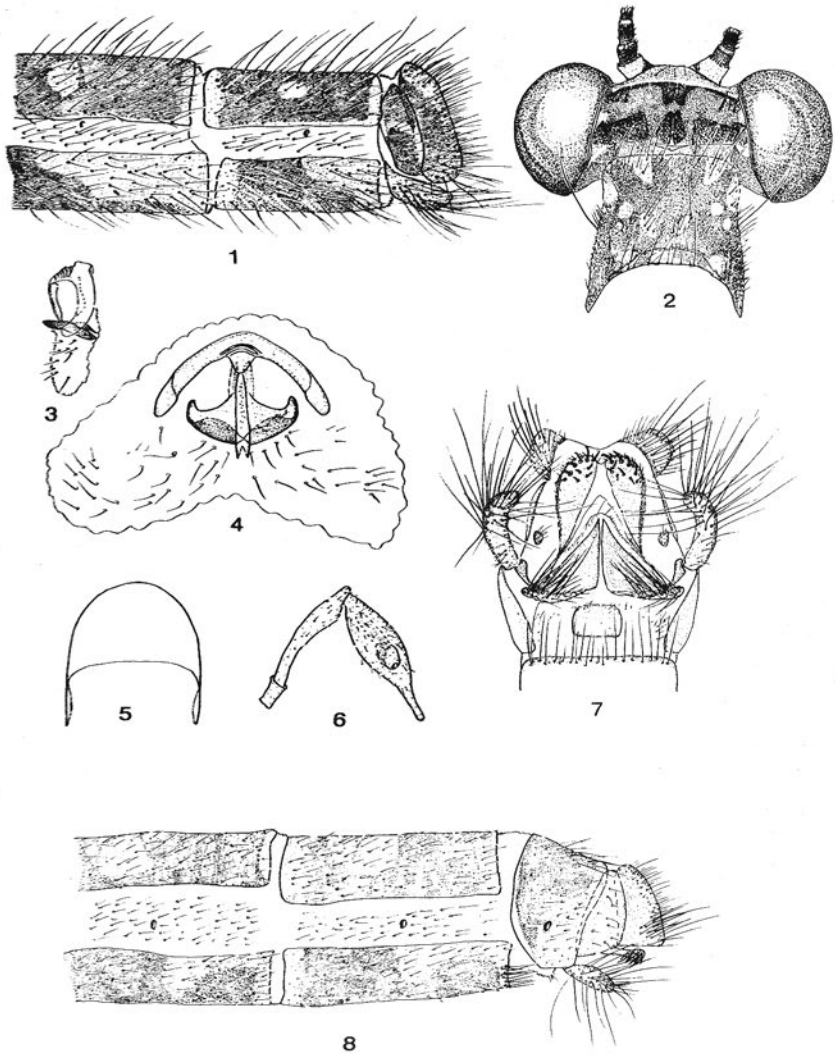
## SUBFAMILY MYRMELEONTINAE
### TRIBE BRACHYNEMURINI

**Brachynemurus darwini** Stange, new species
(figures 1-8, 15)

**DIAGNOSIS.** This species does not belong to any known species-group of *Brachynemurus*. *B. darwini* is structurally a rather generalized species but has atypical female terminalia (fig. 7). In particular the curved posterior gonapophysis does not fit well with the *Brachynemurus* pattern and provides a good diagnostic feature for that sex. The male can be distinguished from all other known species of *Brachynemurus* by the combination of simple ectoproct, weakly developed pilula axillaris and lack of specialized knobbed setae on the forefemur.

**DESCRIPTION (Holotype male).** Length to apex of tergite IX about 23 mm, forewing length about 18 mm, greatest width 5 mm; hindwing length about 17.5 mm, greatest width about 4 mm; overall coloration dark brown, abdomen banded.

**Coloration.** 1. Clypeus, labrum and most of frons pale. 2. Interantennal mark a broad, dark brown band below antennae with a short median line below, continuous with dark brown lower epicranial mark. 3. Antenna with scape dark brown anteriorly, pale brown posteriorly; pedicel and flagellomeres mostly dark brown with narrow apical pale ring, paleness decreasing toward club until preclub flagellomeres which are mostly pale brown, club pale brown above with numerous dark brown spots, paler below with an irregular pattern of dark spots except for a prominent line of dark brown spots near outside margin. 4. Maxilla with distal three palpomeres mostly dark brown, basal ones pale. 5. Labium with basal palpomere pale brown, intermediate one mostly pale brown except sub apically, distal palpomere dark brown. 6. Vertex and pronotum patterned as in fig. 6. 7. Thorax predominately dark brown except for lateral pale spot on each side of spiracle II and prescutum II, spot near wing base, series of three irregular spots on each side of mesoscutellum, four irregular and partially connected pale brown spots at apical margin of scutelli, median spot on postnotum II and various small pale brown areas on pleura. 8. Meron mostly dark brown. 9. Coxae mostly dark brown except medially (especially forecoxa). 10. Forefemur mostly dark brown with broad pale brown area near middle with apical dark brown band broken by narrow subapical pale brown ring. 11. Midfemur pale brown with small dark brown subbasal area on exterior surface, broad subapical brown band and dark spot at base of each bristle. 12. Hindfemur similar to mid femur except for lack of subbasal dark brown spot. 13. Tibiae with basal, sub basal, subapical and apical dark brown rings, latter two connected on closing surface with dark spot at each bristle base. 14. All tarsi similarly patterned,

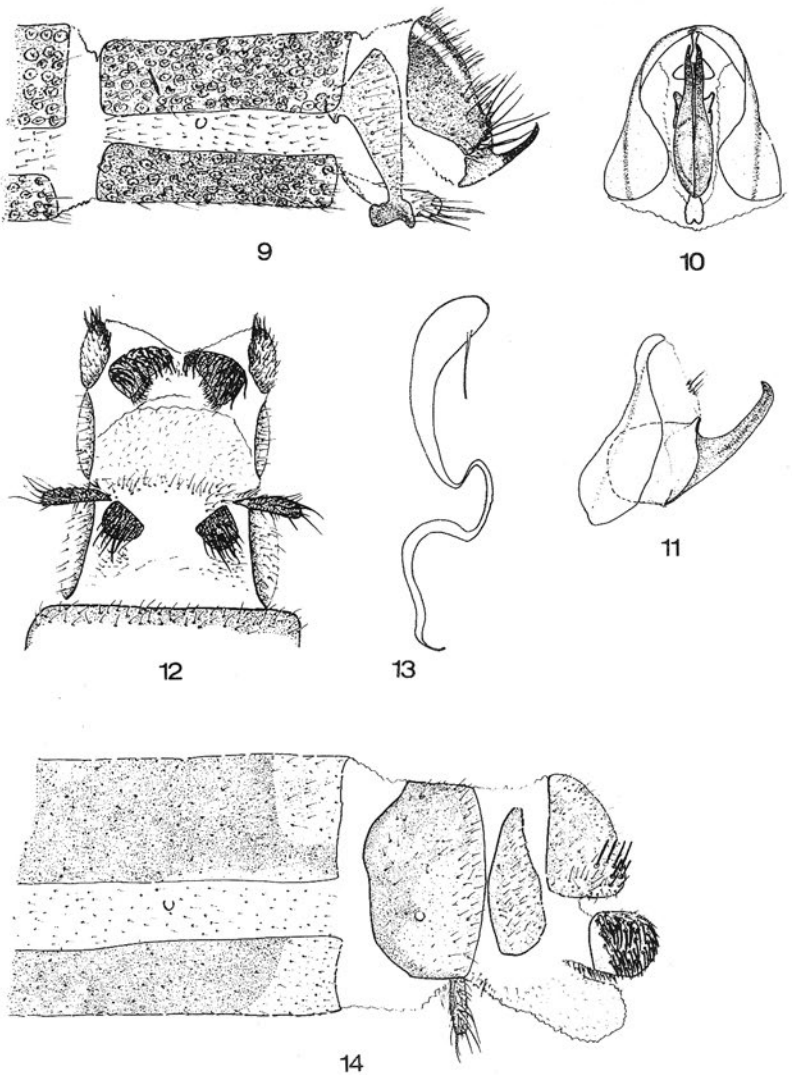



Figs. 1-8. *Brachynemurus darwini* Stange. 1. Male terminalia, lateral view. 2. Head and pronotum, dorsal view. 3. Male genitalia, lateral view. 4. Male genitalia, posterior view. 5. Male sternite IX, ventral view. 6. Female labial palpus. 7. Female terminalia, ventral view. 8. Female terminalia, lateral view.

tarsomeres I and V mostly pale brown with dark brown apices, II to IV mostly dark brown. 15. Abdomen dark brown except tergites I and II basally, prominent pale yellow area basally and at middle of tergites III and IV, pale area decreasing from V-on toward posterior end although apical margin also pale brown; sternites with irregular pale brown area basally and at middle of segments III-on decreasing in paleness posteriorly. 16. Forewing veins nearly evenly alternating in dark and light brown streaks although few crossveins wholly white or brown, dark brown mostly at vein junctures where membrane is suffused, especially at origin of RS + MA and its forks, cubital fork, terminus of vein CuP + 1A, prominent dark brown rhegmal spot; stigma white preceded by dark brown spot. 17. Hind wing veins mostly dark brown with little membrane suffusion.

**Chaetotaxy.** 1. Clypeus with four dark brown setae, longer than length of labrum and several smaller ones. 2. Ocular setae absent. 3. Forecoxa without prominent bristles, one short pale one at middle of posterior margin. 4. Forefemur without series of long bristles on exterior surface except for three relatively short white subapical ones. 5. Femoral sense hair of forefemur about three-fourths length of femur and over twice as long as that of midfemur. 6. Most leg bristles white, black ones mostly on foretibia and hindtibia. 7. Abdomen with rather long setae arising from simple bases, especially on upper margins of sternites and on posterior segments. 8. Genitalic membrane with numerous simple setae (figs. 2,3) .

**STRUCTURE.** 1. Antenna with thirty flagellomeres, basal one about 1.5 times longer than wide, next ones about as long as wide decreasing in length distally. 2. Distal palpomere large and swollen (fig. 5). 3. Greatest ocular width about equal to interocular distance measured just below eyes. 4. Vertex raised slightly above eye level,scars not prominently elevated. 5. Pronotum somewhat longer than wide. 6. Mesoscutellum simple, not humped or otherwise raised. 7. Legs rather short, hindleg only a little longer than others. 8. Distal tarsomere about equal in length to others together, basal tarsomere of hindleg about 2.5 times longer than middle diameter. 9. Tibial spurs of hindleg reach somewhat beyond second tarsomere, of foreleg to third tarsomere. 10. Pretarsal claws prominent, longer than hind basitarsus but shorter than tibial spurs. 11. Hindwing shorter than forewing, in repose apices nearly coincide. 12. Banksian lines absent. 13. Forewing costal area with one series of cells, most cells wider than high, area above radial sector less than twice as high as subcostal area. 14. Hindwing radial sector arises only a little basad of medial fork, presectoral area with two cross veins. 15. Hindwing posterior area narrower than prefork area with three crossveins between CuA and hind margin. 16. Pilula axillaris weakly developed with knob weakly differentiated from pedicel, one apical row of long setae. 17.




Figs. 9-14. *Myrmeleon perpilosus* Banks. 9. Male terminalia, lateral view. 10. Male genitalia, posterior view. 11. Male genitalia, lateral view. 12. Female terminalia, ventral view. 13. Spermatheca. 14. Female terminalia, lateral view.

Abdomen only a little longer than wings. 18. Tergite VIII about 1 5 times longer than high. 19. Ectoproct simple without processes, postventral lobe hardly indicat ed (fig. 1). 20. Gonarcus an arched sclerite, mediuncus a little longer than middle width with strong cross ridges, paramere with hook (fig. 3, 4).

FEMALE. In general agreement with male except : 1. Abdomen much shorter than wings. 2. Wings somewhat shorter and broader. 3. Female terminalia (figs. 7, 8) with large pregenital plate which lacks median tooth; gonapophyseal plate large and expansive; posterior gonapophysis somewhat swollen and curved subapically; ectoproct lacks digging setae, those on lateral gonapophyses only moderately developed.

TYPES. All from the Galapagos Islands. Holotype male, Darwin Research Station, Isla Santa Cruz, January 31, 1964, Schuster (CAS). Paratypes as follows: 4 male, six females, same data as type, January 22 to February 10, 1964 (IML, CAS, MCZ, USNM, Stange coll.); 2 females, Isla Santa Fe, Feb. 5, 1964, D. Cavagnero (CAS); 1 male, Isla Santiago (= James), July 1924, Miss Cheesman (BM); 1 female, North Slope, Isla Pinzón (= Duncan), February 8, 1964, D. Cavagnero (CAS); 2 males, Isla Isabella (=Albemarle), Miss Cheesman (BM); 1 male, 1 fe male, Isla Pinta (=Abingdon), Sept. 18-23, 1906, F. X. Williams (CAS); 1 fe male, Isla Floreana (=Charles), October 3-13, 1905, F. X. Williams (CAS); 1 male, Isla Española (=Hood), October 1905, F. X. Williams (CAS).

VARIATION. There is little detectable variation between various island popula tions in either structure or color. The single female from Isla Floreana is the palest of all specimens studied with the mesoscutellum nearly completely margin ed with pale. Individual variation is minor. The forecoxa may have the dark brown lateral face broken by a conspicuous pale stripe at middle. The extent of paleness or darkness of markings is subject to minor variation as true for most ant-lions. In a few specimens there is a third hindwing presectoral crossvein. Size (body length) ranges from 20 to 23 mm in females and from 22 to 30mm in males. The number of antennal flagellomeres varies from thirty to thirty three.

DISCUSSION. The characters exhibited by the female terminalia probably re present a significant departure from the pattern found in other known species of *Brachynemurus* since I (Stange, 1969) have shown that the female terminalia are of generic and group importance in the tribe Brachynemurini. If one ignores the peculiarities of the female terminalia, then this species would be placed near *B. immitus* (Walker), a widespread South American species east of the Andean Cordillera. For the present *B. darwini* should be treated taxonomically as forming its own monobasic group within the genus *Brachynemurus*. According to the scheme presented by me (Stange, 1969) for evaluating relative specialization,

this species rates 15, the lowest overall specialization advance compared to the North American groups of *Brachynemurus*. The most generalized South American species, *B. immitus* (Walker), rates 20. The specialization according to this scheme are the reduction in size of the pilula axillaris, reduced hindwing length and absence of a median tooth of the pregenital plate (the primitive condition is controversial). Although *B. darwini* occupies a rather isolated position within the

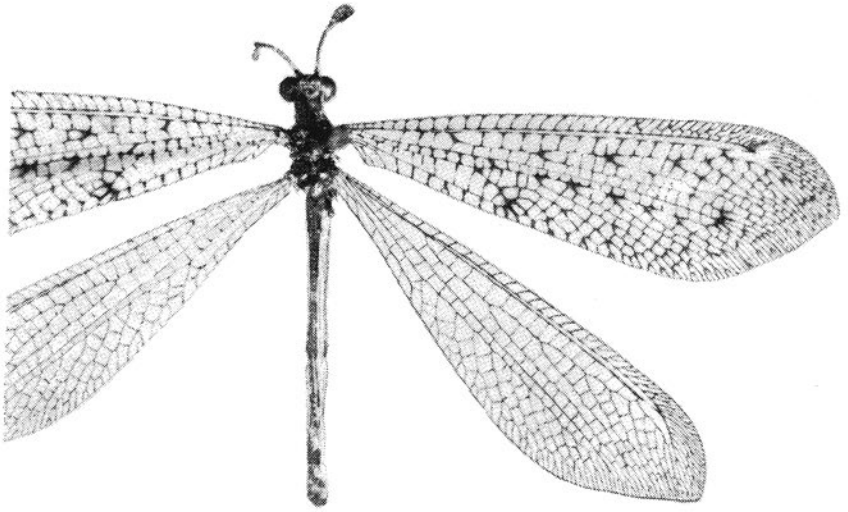


Fig. 15. *Brachynemurus darwini* Stange. Paratype female, Darwin Research Station, Isla Santa Cruz.

genus, it should be pointed out that the brachynemurine fauna of the coastal desert of Peru and Ecuador is poorly known and perhaps further links between *B. darwini* and the mainland fauna will be discovered when the needed collecting is done. Of interest also is the banded abdomen of *B. darwini* which occurs in diverse groups of *Brachynemurus* (*B. longipalpis, schwarzi, papago* and *indiges* groups) and which appears to be correlated with ground or rock diurnal resting as contrasted with resting on plants) in some cases (Stange, 1969).

## TRIBE MYRMELEONTINI

### Myrmeleon perpilosus Banks

(figures 9-14)

*Myrmeleon perpilosus* Banks 1924: 177. Type (? s), Conway Bay, Indefatigable (now Chá vez), Galapagos, April 1, 1923 (type not located).

Banks short original description of this species makes no mention of the details of the male and female terminalia. Figures 9 to 14 provide an illustrative account of these structures. This species appears to be a widespread one since I have seen specimens from Mexico (Veracruz, Oaxaca) south to Lima, Peru. In comparing these specimens with those from the Galapagos Islands I have found no structural differences. In fact the coloration of all of these specimens is extremely similar. Probably *M. perpilosus* will be placed in synonymy when need ed revisionary studies are made of the American *Myrmeleon* since there are many unplaced species described from those regions, some of which were described at an earlier date. I have not seen this species from east of the Andean Cordillera although *M. metuendus* Walker, known from Venezuela, is closely related.

**Material studied.** 52 males, 84 females, collected between January 22 and February 29, 1964, by David Cavagnero and Robert Schuster from the following Galapagos Islands: Chávez (50 ♂♂, 80 ♀♀, BM, CAS, IML, UCD, USNM, Stange coll.); Pinzón (2 ♂♂, UCD, Stange coll.); Wenman (2 ♀♀, UCD, Stange coll.); Santa Fe (1 ♀, UCD).

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