

## THE ANTS OF EASTER ISLAND AND JUAN FERNÁNDEZ

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*Abstract*: The Formicidae of Easter Island, which has not changed appreciably since 1922, consists of 7 pantropical tramp species: *Hypoponera punctatissima* (Roger), *Cardiocondyla nuda* (Mayr), *Tetramorium guineense* (F.), *T. simillimum* (Smith), *Plagiolepis alluaudi* Forel, *Paratrechina bourbonica* (Forel) and *P. longicornis* (Latr.). *H. punctatissima* seems also to occur on Juan Fernández.

Easter Island holds a particular interest for zoogeographers because of its extreme remoteness and resulting depauperate fauna. Collections of ants made fifty years ago by K. Bäckstrom of the Skottsberg Expedition indicated that the fauna consisted then of a very small number of widespread tramp species introduced to the island by human commerce (Wheeler, 1922). Two collections have been made more recently that gives us a second look at the fauna. Ian E. Efford and Jack A. Mathias of the University of British Columbia visited the island in January-February 1965, while L. Campos and L. E. Peña of the University of Chile, Santiago, worked there in May 1971. I am grateful to them for the opportunity to study their collections.

These new samples establish three facts of interest concerning the Easter Island fauna. First, all of the series belong to pantropical "tramp" species which were almost certainly introduced to the island by man. Second, the fauna is truly depauperate and "unbalanced." Only six species are known from recent collections on the island, of which two belong to a single genus (*Tetramorium*). On the other hand the tramp species of *Pheidole*, *Solenopsis*, and *Tapinoma*, so prominent elsewhere in Polynesia, are missing. Finally, the fauna appears to be relatively stable. All five of the species collected by Efford and Mathias in 1965 were also found by Bäckstrom in 1922. A sixth species collected by Bäckstrom, *Hypoponera punctatissima* (Roger) (= *Ponera trigona opactor*, *sensu* Wheeler), was not included in the Efford-Mathias or Campos-Peña samples; but this is a small, cryptobiotic species often overlooked by collectors, and it may still exist on the island. Each of five species found in 1965 was collected repeatedly by Efford and Mathias, indicating relatively thorough sampling of the epigaecic forms. One of the surprises is the discovery of *Paratrechina longicornis* (Latr.) at Hanga-Roa by Campos and Peña in 1971. Since Hanga-Roa was well covered by Efford and Mathias in 1965, and *P. longicornis* is a conspicuous ant, there is a good possibility that the species has been introduced quite recently. Other introductions may soon follow now that international air service to Easter Island has been inaugurated and tourism increased. It will be useful to continue close monitoring of the island in the years immediately ahead. In the following list the collectors are cited by their initials, and mention is made of the total distributions of the species. A more thorough treatment can be found in the revision of Polynesian ants by Wilson and Taylor (1967).

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## Ants of Easter Island

1. *Hypoponera punctatissima* (Roger). Recorded by Wheeler (1922) as *Ponera trigona* var. *opacior* Forel but not collected in 1965 or 1971. A pantropical tramp species that originated in the New World tropics. Widespread elsewhere in Polynesia.

2. *Cardiocondyla nuda* (Mayr). On grass, hillside behind beach at Ovahe, winged queen; "on vegetation in Cabin," worker; Rano Raraku, winged queens (IE, JM). A pantropical tramp species that originated in Africa. Widespread elsewhere in Polynesia.

3. *Tetramorium guineense* (Fabricius). In corn, *Zea mais*, at Hanga-Roa; on grass, hillside behind beach at Ovahe; "litter under *Eucalyptus* village"; in crater, Rano Raraku. Winged queens and males were collected on 26 and 29 January (IE, JM). Hanga-Roa (LC, LP). A pantropical tramp species that probably originated in Africa. Widespread elsewhere in Polynesia.

4. *Tetramorium simillimum* (Fr. Smith). At camp, Hanga-Roa (IE, JM). A pantropical tramp species that probably originated in Africa. Widespread elsewhere in Polynesia.

5. *Plagiolepis alluaudi* Forel. (Listed as *Plagiolepis mactavishi* Wheeler, a junior synonym, by Wheeler in 1922.) In corn, *Zea mais*, Hanga-Roa; outer slopes of Rano Kao, litter beneath *Eucalyptus*; in crater of Rano Kao; in crater of Rano Raraku (IE, JM). Rano Kao (LC, LP). A pantropical tramp species apparently originating from Africa. In Polynesia known only from the central and eastern archipelagoes, from the Society Islands to Hawaii.

6. *Paratrechina bourbonica* (Forel). Hanga-Roa, 4 collections; garden of Carlos Rapu; on grass, hillside behind beach at Ovahe; Motu-nui; Rano Raraku; winged males were collected on 19, 29, and 30 January and 1 February; a winged queen was collected on 22 January (IE, JM). Ahu-Akidi, Hanga-Roa, Peka-Peka; males were collected on 21 and 22 May (LC, LP). A pantropical tramp that apparently originated in Asia. Widespread throughout the remainder of Polynesia.

7. *Paratrechina longicornis* (Latreille). Hanga-Roa (LC, LP). One of the most abundant and widespread of all pantropical ant species, and especially prevalent in the vicinity of human habitations and other very disturbed, open habitats. It probably originated within the Old World tropics, perhaps specifically in southeastern Asia or Melanesia.

## Ants of Juan Fernández

Ants appear to be scarce on Juan Fernández. The Skottsberg expedition was reported to have turned up only a species of *Paratrechina*, which Wheeler listed in his 1922 article as "*Prenolepis* (*Nylanderia*) *obscura* subsp. *vaga*," originating from Más a Tierra. On the other hand, type specimens of *Paratrechina bourbonica* subsp. *skottsbergi* Wheeler in the Museum of Comparative Zoology are labelled as coming from Juan Fernández, despite the fact that in his article Wheeler cites their origin as Easter Island. This uncertainty cannot be resolved until new collections are made. Two friends of mine have searched for ants on my behalf during visits to the islands in recent years. One succeeded in finding only one "ant"—which turned out to be a wingless female dryinid wasp. The other, Sylvia A. Earle, was able to find a single worker of *Hypoconera punctatissima* (Roger) at Villagra Bay, Más a Tierra, on 16 December 1965. The specimen was taken from dry soil around roots of grasses growing on a rocky slope approximately 200 meters from the edge of an extensive tidepool area. Future discoveries of ants in these islands will be of exceptional interest.

## LITERATURE CITED

- Wheeler, W. M. 1922. Formicidae from Easter Island and Juan Fernandez. *In* Skottsberg, Nat. Hist., Juan Fernández and Easter Island (Uppsala) 2: 317-19.
- Wilson, E. O. and R. W. Taylor. 1967. The ants of Polynesia. *Pacif. Ins. Monogr.* 14: 1-109.

## BOOK REVIEW

The phylogenetic classification of Diptera Cyclorrhapha, with special reference to the structure of the male postabdomen. By G. C. D. Griffiths. 1972. *Series Entomologica* vol. 8, 341 p., 154 fig., 2 pl. The Hague: W. Junk. Dutch guilders 70.-

This paper is presented in an interesting and innovative fashion and is said to be the result of 3 1/2 years' work at the University of Alberta. There is a useful discussion on the comparative merits of phylogenetic systematics and its alternatives, on the procedures of phylogenetic analysis, on the homology and general skeletal morphology (incl. some new terminology) of the male dipteran postabdomen including external genitalia, and on the nature of the hypopygial circumversion found in all male Cyclorrhapha. To show relative affinities of various suprafamilial taxa, a long series of hierarchic categories is employed. The Cyclorrhapha are graded as a phalanx of the superphalanx Eremoneura of the infraorder Brachycera and is divided into 2 subphalanges Acroptera (=Anatriata, incl. 1 family) and Atriata. The latter subphalanx is again divided into 4 infraphalanges, Hypocera (incl. 3 fam.), Platypezidea (incl. 1 fam.), Syrphidea (incl. 2 fam.) and Schizophora. Relationships between Cyclorrhapha and other Eremoneura, and between Schizophora and other Atriata are rather thoroughly but briefly reviewed. Over 70 % space of the entire paper is devoted to a familial revision of Schizophora which are divided into 5 superfamilies, 67 families and a number of intermediate taxa. The Lonchaeoidea include 2 families; Lauxanioidea, 3; Drosophiloidea, 5, Nothyboidea, 4; Muscoidea, 49; while Canaceidae, Braulidae and 2 other families are considered *incertae sedis* within the infraphalanx. For each family, the description of the male postabdomen as well as the critical discussion on the characters and systematic status are fairly detailed. Limits of many families and other higher taxa are re-defined (that of Scatophagidae, Anthomyiidae, Trixoscelididae and Halcomyzidae said yet to be clarified). This results in the lumping/splitting, upgrading/degrading of certain taxa, the transfer from one taxon to another, etc. For instance, Calliphoridae, Sarcophagidae, Oestridae and their relatives are lumped into Tachinidae, *s. l.* "because of their low position in any phylogenetic sequence of subordination;" Nycteribiidae and Streblidae, lumped into Hipposcidae, *s. l.* and degraded as tribes on the ground that their differentiation from one another "can hardly have preceded the early Tertiary radiation of bats;" Australiomyzidae, Campichoetidae, Borboropsidae and Notomyzidae, all monobasic, erected as new families; Conopidae, placed under Tephritoidea rather than Syrphoidea which do not belong to Cyclorrhapha; Phaeomyiinae and 3 other subfamilies, upgraded to family-rank. The author's classificatory scheme seems largely a modification of Hennig's (1958 *et seq.*) and is based on an evaluation of skeletal characters and on the hypothesis that all suprafamilial taxa accepted by him were monophyletic (e. g. the name Acalyptratae is rejected as not monophyletic) and each of such taxa was "characterized by groundplan