

## HYMENOPTERA

### FORMICIDAE OF GUAM

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The ants collected in Guam by D. T. Fullaway in 1911 were identified by W. M. Wheeler and published in the *Journal of the New York Entomological Society* (20: 44-48, 1912). There were 21 forms listed. Some of the records were on single specimens, and a few others were recorded on a meager amount of material.

Our collections made in 1936 included all but two of the forms listed by Wheeler, most of them in quite large quantities. We also collected 10 species not previously recorded. Only a single specimen of *Strumigenys godeffroyi* was found, and of a few others, only about a dozen specimens were obtained, collected in only one or two localities. For the majority, however, much material was collected from numerous localities, indicating that these species were widely distributed to all parts of the island.

Several of the species collected in houses were troublesome pests. Of the six species, three of them were numerous: *Anoplolepis longipes*, a longlegged yellow ant which was continually racing around the floors; *Monomorium pharaonis*, a tiny yellow ant; *Monomorium floricola*, a tiny black ant which was a nuisance with insect vials and tins, often getting in and destroying living material. Nine species were obtained one afternoon in a garden, and at one time, six species were obtained from bamboo stumps. Five species were usually to be found in cane fields; two of them (*Solenopsis geminata rufa* and *Tetramorium guineense*) were associated with an aleurodid and mealybugs.

Nine of the species, or nearly half, occur in the Hawaiian islands (marked with an asterisk). The others are mostly species which are widely distributed among the islands of the Pacific and the Philippines, even extending to India. Although fewer species of ants were found in Guam than those recorded for Hawaii, ants seemed much more numerous in Guam because of the abundance of several of the species. Being chiefly insect feeders, they must take an enormous toll of the usual insect life and be an important factor in checking some of the pests.

#### SUBFAMILY PONERINAE

- \*1. *Cerapachys (Syscia) silvestrii* Wheeler, Lab. Zool. Agrar., Portici, Boll. 3: 269, 1909; B. P. Bishop Mus., Occ. Papers 10(21): 9, 1934, and 11(11): 8, 1935.

Piti, in house, July, Swezey; in garden, Sept. 20, Swezey; Yigo, Oct. 18, Swezey.

This ant was described from Hilo, Hawaii, and has also been collected in Honolulu. It is now recorded outside of the Hawaiian islands for the first time. It was not previously collected in Guam.

2. ***Ponera punctatissima*** subspecies ***schauinslandi*** Emery, Zool. Jahrb. Abt. Syst. 12: 438, 1899. Wheeler, New York Ent. Soc., Jour. 20: 44, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 13, 1935.

Agana Swamp, May 4, in rotten *Pandanus* log, Swezey, Usinger; Piti, in house, Aug. 9, at base of sedges, Aug. 24, swept from sedges, Sept. 21, Swezey.

This subspecies was described from Laysan Island. Previously collected in Guam by Fullaway in 1911.

3. ***Odontomachus haematoda*** (Linnaeus).

*Formica haematoda* Linnaeus, Syst. Nat., 10th ed. 1: 582, 1758.

*Odontomachus haematodes* (Linnaeus) Bingham, Fauna Brit. India, Hymenopt. 2: 47, 1903.

*Odontomachus haematoda* (Linnaeus) Wheeler, New York Ent. Soc., Jour. 20: 45, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 15, 1935.

Yona, Mar. 28, Bryan; Nov. 18, Swezey; Ritidian Pt., April 16, Bryan; Upi Trail, May 5, Swezey; Machanao, June 2, Swezey; Piti, July, Oct. 11, Swezey; Dededo, Aug. 11, Swezey; Tarague, May 17, Swezey; Barrigada, Aug. 28, Swezey.

This tropicopolitan ant has a wide distribution, occurring in tropics of America, Africa, Asia, and the various groups of islands in the Pacific. Previously collected in Guam by Fullaway in 1911. It is a large black species with long mandibles. One winged male was collected in house, but we collected most of the others among leaves and trash on the ground in the forest areas. Once a colony was found at the base of a rotten banana stem.

#### SUBFAMILY MYRMICINAE

4. ***Cremastogaster biroi*** Mayr, Termész. Füzetek. 20: 428, 1897. Wheeler, New York Ent. Soc., Jour. 20: 45, 1912.

*Crematogaster (Orthocrema) biroi* Mayr, Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 21, 1935.

Ritidian Pt., April 15, Bryan; Dededo, May 11, under bark or in rotten log, Swezey; Machanao, June 5, Usinger; Yigo, Nov. 13, Swezey.

This small, pale ant occurs in India and Ceylon. It was first collected in Guam in 1911 by Fullaway.

5. ***Strumigenys godeffroyi*** Mayr, Sitzungsber. k. Akad. Wiss. Wien 53(1): 516, 1866. Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 32, 1935. Tarague Beach, May 17, Swezey.

This small ant is distributed widely in the Pacific, from Tahiti to the Solomon Islands. It is now recorded from Guam for the first time. A single specimen was found in a decaying coconut husk beneath a coconut tree.

\*6. **Monomorium pharaonis** (Linnaeus).

*Formica pharaonis* Linnaeus, Syst. Nat. 10th ed. 1: 580, 1758.

*Monomorium pharaonis* (Linnaeus) Bingham, Fauna Brit. India, Hymenopt. 2: 202, 1903. Wheeler, B. P. Bishop Mus., Occ. Papers 11 (11): 24, 1935.

Piti, May 8, July 24-30, abundant in house, Swezey; Barrigada, July 22, 1 winged male, Swezey.

This little yellow cosmopolitan ant was not previously recorded from Guam.

\*7. **Monomorium (Parholcomyrme) destructor** (Jerdon).

*Atta destructor* Jerdon, Madras Lit. Sci., Jour. 17: 105, 1851.

*Monomorium destructor* (Jerdon) Bingham, Fauna Brit. India, Hymenopt. 2: 209, 1903. Wheeler, New York Ent. Soc., Jour. 20: 45, 1912.

*Monomorium (Parholcomyrme) destructor* (Jerdon) Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 25, 1935.

Tiyan, April 2, Bryan; Orote Peninsula, April 9, Bryan; Piti Hills, May 1, Usinger; Piti, July, Swezey; Fadian, Aug. 19, Swezey.

A yellowish-brown, pantropical ant with dark abdomen. Collected by Fullaway in 1911.

\*8. **Monomorium floricola** (Jerdon).

*Atta floricola* Jerdon, Madras Lit. Sci., Jour. 17: 107, 1851.

*Monomorium floricola* (Jerdon) Bingham, Fauna Brit. India, Hymenopt. 2: 211, 1903. Wheeler, New York Ent. Soc., Jour. 20: 45, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 23, 1935.

Ritidian Pt., April 15, Bryan; Upi Trail, May 5, Bryan, Swezey; Umatac, May 28, Swezey; Barrigada, June 14, Swezey; Machanao, June 2, 4, 30, Swezey; Piti, July, Aug. 8, Oct. 5, 9, 27, Swezey; Orote Peninsula, Sept. 27, Swezey.

A tiny, black, pantropical ant. Collected by Fullaway in 1911. A bad house pest, sometimes destroying insect specimens by gaining access to tins and vials.

9. **Monomorium minutum** Mayr, Zool.-bot. Ges. Wien, Verh. 5: 453, 1855.

Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 23, 1935.

Piti, Aug. 4, Sept. 26, Nov. 3, swept from lawn grass and found in garden, Swezey; Fadian, Aug. 19, Swezey.

Another very small black ant, having several varieties distributed to various Pacific island groups. Not previously recorded from Guam.

10. *Cardiocondyla emeryi* Forel [?], München ent. Ver., Mitt. 5(1) : 5, 1881. Wheeler, New York Ent. Soc., Jour. 20 : 45, 1913; B. P. Bishop Mus., Occ. Papers 11(11) : 20, 1935.

Piti, Nov. 3, swept from lawn grass; Piti Hills, May 1, Usinger; Santa Rosa Peak, May 19, Swezey; Barrigada, July 6, Swezey; Fadian, Aug. 19, Swezey; Piti, in dead bamboo, Oct. 27, Swezey.

This small ant was collected in Guam by Fullaway in 1911. We collected what may be this insect in different localities, but the identification is not positive. This ant is known from the West Indies, Palestine, Madagascar, India, and Tahiti.

11. *Cardiocondyla wroughtoni* (Forel) ?

*Emeriya wroughtoni* Forel, Soc. Ent. Belg., Ann. 34 : cxi, 1890.

*Cardiocondyla wroughtoni* (Forel) Bingham, Fauna Brit. India, Hymenopt. 2 : 287, fig. 86, 1903.

Piti, in garden, Sept. 20; Oct. 7, in dead orange twigs, Swezey.

This is paler than the preceding species, if I have them rightly placed. It occurs in India; not previously collected in Guam.

- \*12. *Solenopsis geminata* subspecies *rufa* (Jerdon).

*Atta geminata* Fabricius, Syst. Piezatorum, 423, 1804.

*Atta rufa* Jerdon, Madras Lit. Sci., Jour. 17 : 106, 1851.

*Solenopsis geminata* variety *rufa* (Jerdon) Bingham, Fauna Brit. India, Hymenopt. 2 : 158, 1903. Wheeler, New York Ent. Soc., Jour. 20 : 45, 1912; B. P. Bishop Mus., Occ. Papers 11(11) : 26, 1935.

Agana, at light, April 27, Bryan, May 4, Usinger; Barrigada, nest in passion fruit, June 14, Swezey; Piti, with mealybugs on cane, July 24, 27, Oct. 23, nest under bark, July 31, Swezey; Machanao, on spiny amaranth, Aug. 6, Swezey; Mata, very abundant with aleurodid (*Neomaskellia bergii*) on cane, Nov. 11, Swezey.

The "fire ant" is widely distributed in the Pacific islands to Papua and India. It was collected in Guam by Fullaway in 1911. We found it in various situations.

13. *Solenopsis* species.

Yigo, Nov. 13, Swezey. Two workers of a black species, identification by M. R. Smith, U. S. National Museum.

14. *Pheidole javana* Mayr, Tijdschr. Ent. 10 : 98, 1867. Wheeler, New York Ent. Soc., Jour. 20 : 45, 1912.

This large black *Pheidole* was collected by Fullaway in Guam in 1911, but we did not get it in 1936. Specimens of two or three smaller species of *Pheidole* were collected in several regions.

15. ***Pheidole umbonata*** Mayr, Sitzungsab. k. Akad. Wiss. Wien 53(1): 510, 1866; Zool. bot. Ges. Wien, Verh. 20: 978, 1870. Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 19, 1935.

Mt. Tenjo, May 3, under stones, Swezey; Machanao, May 4, 16, in moss, Swezey; Tumon, May 30, under bark, Usinger; Piti, July, Swezey; Barrigada, July 6, 22, Swezey; Yigo, Nov. 13, Swezey.

This dark brown ant is widespread in the Pacific islands from Marquesas, Tahiti, Samoa, Fiji, Tonga, New Caledonia, New Britain, Solomons and Papua. Now recorded from Guam for the first time. We found it widely distributed, and the most abundant of the species of *Pheidole* in Guam. Determination by M. R. Smith.

16. ***Pheidole umbonata***, variety.

Yona, May 12, Swezey, a pale variety, collected in rotten sugar cane.

17. ***Pheidole***, species near *philemon*.

Yigo, Oct. 18, Swezey, twelve specimens.

A small black species with a specially large big-headed soldier. Determination by M. R. Smith.

18. ***Pheidole*** species.

Piti, Aug. 4, Sept. 26, in garden, Swezey, about 30 specimens.

A light brown species. Determination by M. R. Smith.

- \*19. ***Tetramorium guineense*** (Fabricius).

*Formica guineense* Fabricius, Ent. Syst. 2: 357, 1793.

*Tetramorium guineense* (Fabricius) Bingham, Fauna Brit. India, Hymenopt. 2: 184, 1903. Wheeler, New York Ent. Soc., Jour. 20: 46, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 30, 1935.

This red pantropical ant is distributed throughout the Pacific area and to India. It was collected in Guam by Fullaway in 1911, and is one of the very abundant species. It was collected practically everywhere, and in many situations: in cane fields, often nesting in rotten cane, often associated with mealybugs; in the house, the garden, and lawn; nesting under bark of *Pithecolobium*, in dead branch of breadfruit and orange, in rotten bamboo stumps; on corn, cacao, and pumpkin vines. In one nest among bases of coconut leaf stems were the small yellow lepisimids which are inhabitants of ant nests.

20. ***Triglyphothrix striatidens*** (Emery).

*Tetramorium obesum* race *striatidens* Emery, Mus. civ. stor. nat. Genova, Ann. II, 7: 501, 1889.

*Triglyphothrix obesa* (Emery) Wheeler, New York Ent. Soc., Jour. 20: 46, 1912.

*Triglyphothrix striatidens* (Emery) Bingham, Fauna Brit. India, Hymenopt. 2: 173, 1903. Wheeler, B. P. Bishop Mus., Occ. Papers 11 (11): 30, 1935.

Mt. Tenjo, May 3, Usinger; Barrigada, June 12, sifted from leaf mold on ground, Usinger; Piti, Nov. 3, swept from lawn grass, Swezey.

A dark brown ant, smaller than the preceding species. Occurs in New Britain, Solomon Islands, Ceylon and India. Collected in Guam by Fullaway in 1911. We found it in only a few places in 1936.

21. ***Vollenhovia oblonga* subspecies *pedestris*** (F. Smith).

*Myrmica oblonga* Smith, Linn. Soc. London, Zool., Jour. Proc. 4, Suppl.: 107, 1860.

*Myrmica pedestris* Smith, Linn. Soc. London, Zool., Jour. Proc. 6: 47, 1861.

*Vollenhovia pedestris* (Smith) Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 22, 1935.

Dededo, under bark or in rotten log, May 11, Usinger; Mt. Alifan, May 25, Usinger; Barrigada, July 6, Swezey; Fadian, Sept. 18, Swezey.

This ant is known from New Britain, Solomons, Celebes, Papua, New Caledonia and Santa Cruz. It was not previously recorded from Guam. It is a large black ant which we found in only a few localities. Determination by M. R. Smith.

SUBFAMILY DOLICHODERINAE

\*22. ***Tapinoma melanocephalum*** (Fabricius).

*Formica melanocephalum* Fabricius, Ent. Syst. 2: 353, 1793.

*Tapinoma melanocephalum* (Fabricius) Bingham, Fauna Brit. India, Hymenopt. 2: 304, 1903. Wheeler, New York Ent. Soc., Jour. 20: 46, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 36, 1935.

Piti Hills, May 1, Usinger; Mt. Tenjo, May 3, Swezey; Mt. Alifan, June 27, in rotten log, Swezey; Sumay Road, June 23, in rotten stump of *Lumnitzera*, Swezey; Piti, July 30, 31, Sept. 26, in garden, Oct. 23, in cane field, Oct. 27, in dead bamboo, Swezey; Fadian, Aug. 19, Swezey; Machanao, Aug. 11, Swezey; Fonte Valley, Aug. 7, Swezey.

A very small pale pantropical ant, widely distributed throughout the Pacific area and the tropics of both hemispheres. Collected by Fullaway in Guam in 1911. Common in many situations.

22a. ***Tapinoma indicum*** Forel, Bomb. Nat. Hist. Soc., Jour. 9: 472, 1895; Bingham, Fauna Br. India, Hym. 2: 304, 1903.

What appears to be this species was obtained in a few places. It is of a uniformly brownish color, with shorter antennae than the preceding species. It occurs in India and New Britain. Our Guam specimens are from Santa Rosa

Peak, May 19, Swezey; Piti, July 30, on sugar-cane leaf, Swezey; Yigo, November 13, Swezey.

\*23. *Technomyrmex albipes* (F. Smith).

*Tapinoma albipes* Smith, Linn. Soc. London, Zool., Jour. Proc. 6: 38, 1861.

*Technomyrmex albipes* (Smith) Bingham, Fauna Brit. India, Hymenopt. 2: 301, fig. 91, 1903. Wheeler, New York Ent. Soc., Jour. 20: 46, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 37, 1935.

Yona, Mar. 28, on tangerine trunk, Bryan; Orote Peninsula, April 9, Bryan; Piti, April 30, on *Pithecolobium*, Usinger; Mt. Tenjo, May 3, Swezey; Mt. Chachao, May 16, Usinger; Mt. Alifan, May 21, in breadfruit log, Swezey; Libugon, July 10, Swezey; Fadian, Aug. 19, nest in old seed of (*chopag*) *Ochrocarpus obovalis*, Swezey; Piti, in garden Sept. 26, Swezey; Piti, Oct. 7, in dead orange twigs, Swezey; Yigo, Nov. 13, Swezey.

SUBFAMILY FORMICINAE

24. *Anoplolepis longipes* (Jerdon).

*Formica longipes* Jerdon, Madras Lit. Sci., Jour. 17: 122, 1851.

*Plagirolepis longipes* (Jerdon) Bingham, Fauna Brit. India, Hymenopt. 2: 320, fig. 97, 1903.

*Anoplolepis longipes* (Jerdon) Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 37, 1935; 12(18): 15, 1936.

This lively, long-legged, yellowish ant is distributed throughout the Pacific islands, Papua, Indomalaya, Reunion, Ceylon, India, and Burma. It was collected in Guam by Fullaway in 1911. We collected it practically everywhere we went in Guam in 1936, and in many kinds of situations. Nests were in rotten logs, under stones, and one populous nest was in the dead frond of the giant fern (*Angiopteris evecta*). They were lively on garden plants and shrubbery, and could be swept from most plants in the forests. They were always running on the floor of our residence and in corners, and any insect dropped on the floor would soon be found and dragged off. The female is brown and many times larger than the worker. The male is a little larger than the worker and of the same color.

25. *Nylanderia minutula* subspecies *atomus* variety *fullawayi* (Wheeler).

*Prenolepis minutula atomus fullawayi* Wheeler, New York Ent. Soc., Jour. 20: 46, 1912.

*Nylanderia minutula atomus* variety *fullawayi* (Wheeler), B. P. Bishop Mus., Occ. Papers 11(11): 50, 1935.

Upi Trail, May 5, Bryan, Swezey; Machanao, June 2, 4, Swezey; Barrigada, July 6, Swezey.

This tiny blackish ant (variety *fullawayi*) was described from specimens collected in Guam by Fullaway in 1911. We collected it, by sweeping, in only a few places. It may have been overlooked because of its small size.

26. ***Nylanderia bourbonica*** (Forel).

*Prenolepis bourbonica* Forel, Soc. Ent. Belg., Ann. 30: 210, 1886. Grandidier, Hist. Madagascar 20: 82, 1891. Wheeler, New York Ent. Soc., Jour. 20: 46, 1912.

*Nylanderia bourbonica* (Forel) Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 49, 1935.

Yona, Mar. 28, Bryan; Ritidian Pt., April 15, 16, Bryan; Mt. Alifan, April 20, Bryan; Merizo, April 24, Bryan; Mt. Tenjo, under stones, May 3, Swezey; Upi Trail, May 5, Swezey; Santa Rosa, May 19, Swezey; Umatac, May 28, Swezey; Piti, July 24, on cane, Sept. 26, in garden, Swezey; Machanao, Aug. 6, Swezey; Yigo, Oct. 18, Swezey; Piti, Oct. 27, in bamboo stump, Swezey.

A blackish, ordinary sized ant, known from Nicobar, Reunion, Cargados and Chagas Islands, and India. Collected in Guam by Fullaway in 1911. We found it one of the common ants in 1936.

\*27. ***Paratrechina longicornis*** (Latreille).

*Formica longicornis* Latreille, Hist. nat. Fourmis, 113, 1802.

*Prenolepis longicornis* (Latreille) Bingham, Fauna Brit. India, Hymenopt. 2: 326, 1903.

*Paratrechina longicornis* (Latreille) Wheeler, B. P. Bishop Mus., Occ. Papers 10(21): 17, 1934, and 11(11): 48, 1935.

Barrigada, July 22, Swezey; Piti, Oct. 23, in cane field, Swezey.

A dark brown ant the size of *Nylanderia bourbonica*, with very long scape to the antennae. It is a tropicopolitan ant, known in some places as the "crazy ant" because of its rapid movements. Previously collected in Guam by Fullaway in 1911. Apparently it is rare, as we have it from only two localities.

28. ***Camponotus (Tanaemyrmex) irritans chloroticus*** Emery.

*Camponotus maculatus chloroticus* Emery, Mus. civ. stor. nat. Genova 38: 574, 1897. Wheeler, New York Ent. Soc., Jour. 20: 47, 1912.

*Camponotus (Tanaemyrmex) irritans chloroticus* Emery, Wheeler, B. P. Bishop Mus., Occ. Papers 11(11): 39, 1935.

Ritidian Pt., April 15, 16, 22, Bryan; Mt. Tenjo, May 3, nest in rotten stick, Bryan, Swezey; Machanao, June 2, 30, Aug. 6, Swezey; Mt. Alifan, June 27, Usinger; Sumay Road, June 23, nest in stump of *Lumnitzera*, Swezey; Libugon, July 10, Swezey; Fadian, Aug. 19, Swezey; Piti, nest in bamboo stump, Oct. 27, Swezey.

This large pale brown wood ant occurs in New Caledonia, Loyalty Islands, New Britain, and Matupi Island. It was collected in Guam by Fullaway in



1911. We found it everywhere in stumps and rotten logs, sometimes in very populous nests.

29. **Camponotus (Myrmamblys) reticulatus** subspecies **fullawayi** Wheeler, New York Ent. Soc., Jour. 20: 47, 1912; B. P. Bishop Mus., Occ. Papers 11(11): 41, 1935.

Ritidian Pt., April 16, Bryan, June 2, Usinger; Upi Trail, May 5, Swezey; Agana, May 15, Swezey, Usinger; Santa Rosa Peak, May 19, Swezey; Machanao, June 2, 4, Swezey; Barrigada, July 6, Swezey; Yigo, Oct. 18, Nov. 13, Swezey.

The subspecies of this black wood ant was described from specimens collected in Guam by Fullaway in 1911. It is not so abundant as *C. (Tanaemyrmex) irritans chloroticus*, but we collected it in several localities.