NEW RECORDS OF INTRODUCED ANTS (HYMENOPTERA; FORMICIDAE) IN THE GALAPAGOS ISLANDS

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SUMMARY

Recent collections on Santa Cruz island and review of the Reference Collection of Terrestrial Invertebrates of the Charles Darwin Research Station, found five new records of ant species (Hymenoptera: Formicidae) possibly introduced to the Galapagos Islands: *Brachymyrmex heeri*, *Adelomyrmex myops*, *Cyphomyrmex rimosus*, *Pyramica membranifera* and *Rogeria curvipubens*. Four of these are also new records for Ecuador.

RESUMEN

Colectas recientes en la Isla Santa Cruz y revisión de la Colección de Referencia de Invertebrados Terrestres de la Estación Científica Charles Darwin, reportan cinco nuevos registros de hormigas (Hymenoptera: Formicidae) posiblemente introducidas para las islas Galápagos: *Brachymyrmex heeri*, *Adelomyrmex myops*, *Cyphomyrmex rimosus*, *Pyramica membranifera* y *Rogeria curvipubens*. Cuatro de estos registros también son nuevos para el Ecuador.

INTRODUCTION

The Galapagos Islands, 1000 km off the coast of Ecuador, have an ant fauna with a high proportion of introduced species (Wheeler 1919, 1924, 1933, Clark *et al*. 1982, Lubin 1984, 1985, Pezzatti *et al*. 1998, H.H. unpubl. data). As part of an ant survey, several new records are reported here.

METHODS

Material from collections on Santa Cruz island and material in the Reference Collection of Terrestrial Invertebrates of the Charles Darwin Research Station, Galapagos, Ecuador (IC CDRS) was examined in June 2005. The determination of the new records for Galapagos are based on Wheeler (1919, 1924, 1933), Kempf (1972), Clark *et al*. (1982), Lubin (1984, 1985), Brandão (1991), Pezzatti *et al*. (1998), Fernández & Sendoya (2004), Aesch & Cherix (2005) and Aesch (2006). The identified material was deposited in IC CDRS and the J.T. Longino Collection, Evergreen State College, Olympia WA, U.S.A. (JTLC).

RESULTS

Subfamily Formicinae

***Brachymyrmex heeri* Forel, 1874.** Santa Cruz: 13 workers (Fig. 1), Puerto Ayora, Cancha de Squash, 25 Jan 2001 (M. Soria) [IC CDRS, JTLC]. The first record for Galapagos and continental Ecuador; widely reported from Central and South America and the Antilles (Kempf 1972). *Brachymyrmex heeri* is common in disturbed areas and has been introduced to many regions. In Galapagos, workers were attracted to honeydew produced by the introduced

Figure 1. *Brachymyrmex heeri* worker.

hemipteran *Icerya purchasi* Maskell. The species has also been collected in the agricultural zone of San Cristóbal island and urban zone of Isabela island.

Subfamily Myrmicinae

***Adelomyrmex myops* (Wheeler 1910).** Isabela: one worker (Fig. 2) and one female, Cerro Verde, Agricultural Zone, 7 Jan 2003, Berlese (M. Lincango, A. Mieles) [IC CDRS]. First record for Galapagos. Not recorded elsewhere in (continental) Ecuador. Previously known from the lowlands of Guatemala, Honduras, Costa Rica, Panama and Colombia (Kempf 1972, Fernández 2003). There are no records of *Adelomyrmex myops* being introduced elsewhere. Its distribution and impact in Galapagos are not known. It is possible that *Adelomyrmex myops* occurred in Galapagos prior to human arrival, but was not reported before due to under-sampling. Additional Berlese or Winkler sampling throughout the islands may reveal more about its status as introduced versus native.

***Cyphomyrmex rimosus* (Spinola 1853).** Light form: Santa Cruz: two workers (Fig. 3), Mina de Granillo Rojo, 580 m. 23 Jul 2001, pitfall (H. Herrera, P. Pozo) [IC CDRS]. Dark form: Santa Cruz: eight workers (Fig. 4), Km 4, Puerto Ayora, casa de L. Roque-Albelo & V. Cruz (in Transition Zone, *sensu* Wiggins & Porter 1971), 4 Aug 2005 (L. Roque) [IC CDRS, JTLC]. The *C. rimosus* complex is widespread in the Neotropics, from the southern U.S.A. to northern Argentina. In some cases local communities appear to contain multiple sympatric forms, as in Florida, where a native form (*C. minutus*) is sympatric with an introduced form, the darker *C. rimosus fuscus* from southern South America. This also appears to be the case in Galapagos. The light form has also been collected from the agricultural zone of Isabela island. On Santa Cruz, workers of the dark form were found transporting leaves of *Cynodon dactylon* (L.) Pers., an introduced grass. On this island, nests of the light and dark form of *Cyphoymrmex* have been collected in areas dominated by the aggressive introduced species *Wasmannia auropunctata* Roger and *Solenopsis geminata* (F.).

***Pyramica membranifera* (Emery 1869).** Isabela: one female (Fig. 5), Alcedo Volcano, high arid zone, 21–24 Apr 1998, Winkler (L. Roque) [IC CDRS]. First record for Galapagos. Not recorded elsewhere in (continental) Ecuador. Widely

Figure 2. *Adelomyrmex myops* worker.

Figure 3. *Cyphomyrmex rimosus* (light form) worker.

Figure 4. *Cyphomyrmex rimosus* (dark form) worker.

Figure 5. *Pyramica membranifera* female.

introduced to other tropical locations, including throughout the Caribbean and Florida (Kempf 1972). In the Galapagos it is recorded only on Isabela island. Its impact, and its distribution in the rest of the archipelago, are unknown.

***Rogeria curvipubens* Emery 1894.** Santa Cruz: two workers (Fig. 6), Bellavista, 180 m., 0°41′38.1′′S, 90°19′16.8′′W, 15 Jul 2005, Pooter (H. Herrera, #HWH 135) [IC CDRS, JTLC]. First record for Galapagos. Not recorded elsewhere in (continental) Ecuador. It is known from St Thomas, Cuba, Bahamas, Guyana, Bolivia (Kempf 1972) and Argentina (Fernández & Sendoya 2004). This species was collected in leaf litter in the agricultural zone. Its impact and distribution in the archipelago are unknown.

DISCUSSION

Although the impact of introduced species on island faunas is difficult to predict, none of these species are among those known to be pest ants or otherwise high-impact invasive species elsewhere. *Adelomyrmex myops*, *Pyramica membranifera* and *Rogeria curvipubens* are cryptic elements of the leaf litter fauna, not reaching high densities and generally going unnoticed. *Brachymyrmex heeri* is tiny but is a more noticeable epigaeic forager and can become locally abundant. It is not aggressive at resources and would not be expected to be a major threat to native species. However, impacts cannot be ruled out, especially when considering an island fauna. Finally, *Cyphomyrmex* forage for caterpillar droppings and dead insect parts, on which they cultivate a fungus for food. They can reach moderate abundances but are not aggressive or highly conspicuous. They are unlikely to have broad impacts on the native biota but could perhaps have an influence on the native *C. nesiotus* through competition.

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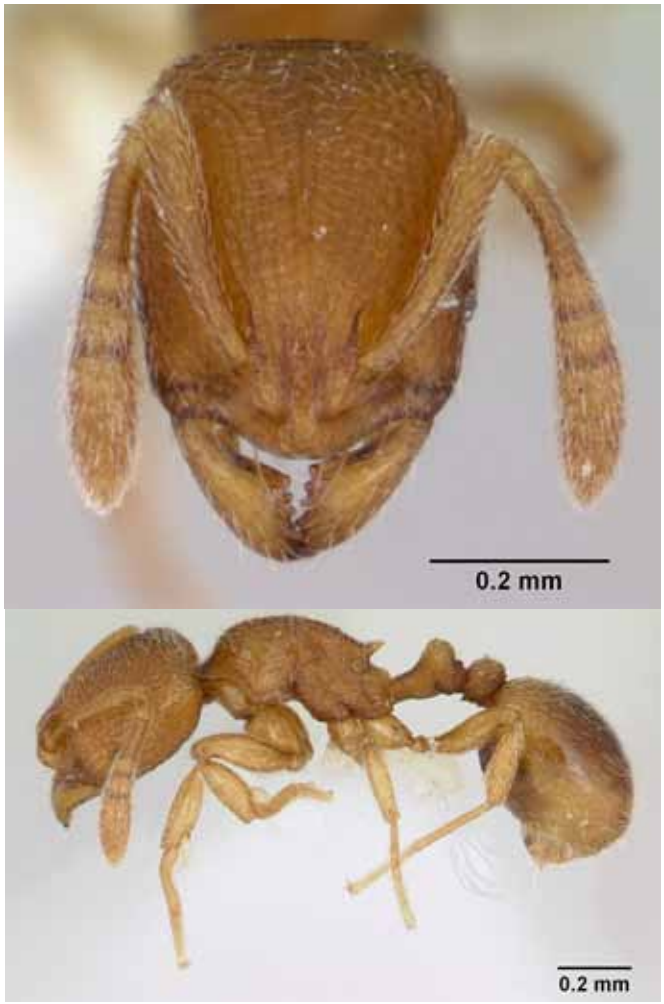

Figure 6. *Rogeria curvipubens* worker.

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