

NOTE

First Record of *Acropyga* (Hymenoptera: Formicidae) in Israel, with a biological note

J. OFER

*Kibbutzim College of Education – Tel Aviv, 149 Namir Road,
Tel Aviv 62507, Israel. Email: oferyac@zahav.net.il*

In the course of a survey on ants carried out along the banks of Nahal (stream) Keziv, western Galilee, Israel, in April, 2004, two peculiar queen ants were collected. They were caught immediately after their nuptial flight, in a pit-fall trap containing a solution of 70% ethylene glycol. Each queen, even after death, continued to clasp a coccoid specimen between her mandibles (Fig. 1). These ants were identified as *Acropyga* sp., using Prins (1982). The coccoids were tentatively identified by me as a species of *Eumyrmeoccus* sp. (Williams and Terayama, 2000). No other such queens were collected in Israel, and as *Acropyga* is not mentioned in the list of ants of Israel (Kugler, 1988), this is a new record for Israel.

Species of *Acropyga* have so far been recorded from Greece, around the southern part of the Red Sea, southern Africa, the Oriental and Australasian regions as far north as Japan and China, and the Neotropical region. The phenomenon of young queen ants carrying coccids has so far been recorded from China (Bünzli, 1935), French Guyana (Brown, 1945), South Africa (Prins 1982), Greece (Buschinger et al., 1987), and Japan (Imai *et al.*, 2003).

Symbiotic relationships between ants and other insects exist among many ant species (Hölldobler and Wilson, 1990), and many species of homopterans, beetles and butterfly caterpillars are known as a source of “honey-dew” (a generic name in this case for secretions from the digestive system or certain glands of such insects). For ants, honey-dew is a rich nutrient. They, in return, protect their symbionts (Hölldobler and Wilson, 1990). The transportation of coccoids by young queens in nuptial flight, apparently to ensure a source of the nutritional honey-dew to sustain the future colony, is unique to the ant world, and even there it is rare. The evolutionary age of this phenomenon is at least 15 to 20 million years (Johnson et al, 2001), as established from amber inclusions.



Fig. 1. Queen of *Acropyga* sp. carrying a coccid (drawing from specimens from Israel by T. Kurtz).

REFERENCES

- Brown, W.L., Jr. 1945. An unusual behavior pattern observed in a Szechuanese ant. *Journal of the West China Border Research Society* B 15: 185–186.
- Bünzli, G.H. 1937. Untersuchungen über coccidophile Ameisen aus den Kaffeefeldern von Surinam. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 16: 453–593.
- Buschinger, A., Heinze, J., Jessen, K., Douwes, P. and Winter, U. 1987. First European record of a queen ant carrying a mealybug During her mating flight. *Naturwissenschaften* 74: 139–140.
- Hölldobler, B. and Wilson, E.O. 1990. *The ants*. Cambridge: Harvard University Press. 732 pp.
- Imai, H.T., Kihara, A., Kondoh, M., Kubota, M., Kuribayashi, S., Ogata, K., Onoyama, K., Taylor, R.W., Terayama, M., Tsukii, Y., Yoshimura, M. and Ugawa, Y. 2003. *Ants of Japan*. Gakken. 224 pp.
- Johnson, C., Agosti, D., Delabie, J., Dumpert, K., Williams, D.J., von Tschirnhaus, M. and Maschwitz, U. 2001. *Acropyga* and *Azteca* ants (Hymenoptera: Formicidae) with scale insects (Sternorrhyncha: Coccidea): 20 Million years of intimate symbiosis. *American Museum Novitates* 3335: 1–18.
- Kugler, J. 1988. The zoogeography of social insects of Israel and Sinai, pp. 251–275. In: Yom Tov, J. and Tchernow, E. (Eds.). *Zoogeography of Israel*. Dr. W. Junk, Dordrecht. 600 pp.
- Prins, A.J. 1982. Review of *Anoplolepis* with reference to male genitalia, and notes on *Acropyga* (Hymenoptera, Formicidae). *Annals of the South African Museum* 89(3): 235–247.
- Williams, D.J. and Terayama, M. 2000. A new species of the mealybug genus *Eumyrmococcus* Silvestri (Hemiptera: Pseudococcidae, Rhizoecinae) associated with the ant *Acropyga* (*Rhizomyrma*) *kinomurai* Terayama et Hashimoto (Hymenoptera: Formicidae) in the Ryukyu Islands, Japan. *Entomological Science* 3(2): 373–376.