BLATTELLA ASAHINAI INTRODUCED INTO FLORIDA (BLATTARIA: BLATTELLIDAE).

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On March 3, 1986, Dr. Philip G. Koehler of the Florida Extension Service, University of Florida, sent me some cockroaches from Lakeland, Florida, for identification. These had been submitted to him by Mr. Ed Shower, a pest control worker, who referred to them as German cockroaches, but pointed out that they were unusual because they flew readily and were common outdoors. Until now only 2 species of *Blattella* occur in the United States, namely, *vaga* Hebard (India, Afghanistan, Pakistan, Sri Lanka, Mexico, and the United States [California, Arizona, Texas]), and the cosmopolitan *germanica* (Linn.), both originating from Asia (Roth, 1985).

I decided that the "unusual *germanica*" could be *Blattella beybienkoi* Roth, which is found in Sri Lanka, Andaman Islands, Burma, Chagos Archipelago, China, India, and Thailand (Roth, 1985). However, it also agreed with specimens of *Blattella asahinai* Mizukubo, described from Okinawa (Mizukubo, 1981; Asahina, 1985). I was unaware of this species when I completed my revision of *Blattella* and submitted it for publication in 1982.

I sent several Lakeland specimens to Dr. Mizukubo, who concluded that they are *asahinai.* He also made a detailed comparison of Sri Lanka paratypes of *B. beybienkoi,* and *asahinai* from Florida and Okinawa, and could find no significant differences between the two species, which I am here synonymizing.

My (Roth, 1970) attempts to cross *B. germanica* with 6 other species of *Blattella,* namely, *bisignata* (Brunner), *lituricollis* (Walker), *sauteri* (Karny), *roederi* Roth [as sp. C], *humbertiana* (Saussure) [as sp. D], and *lobiventris* [as sp. E], were generally unsuccessful. *B. germanica* males mated only once with *bisignata*

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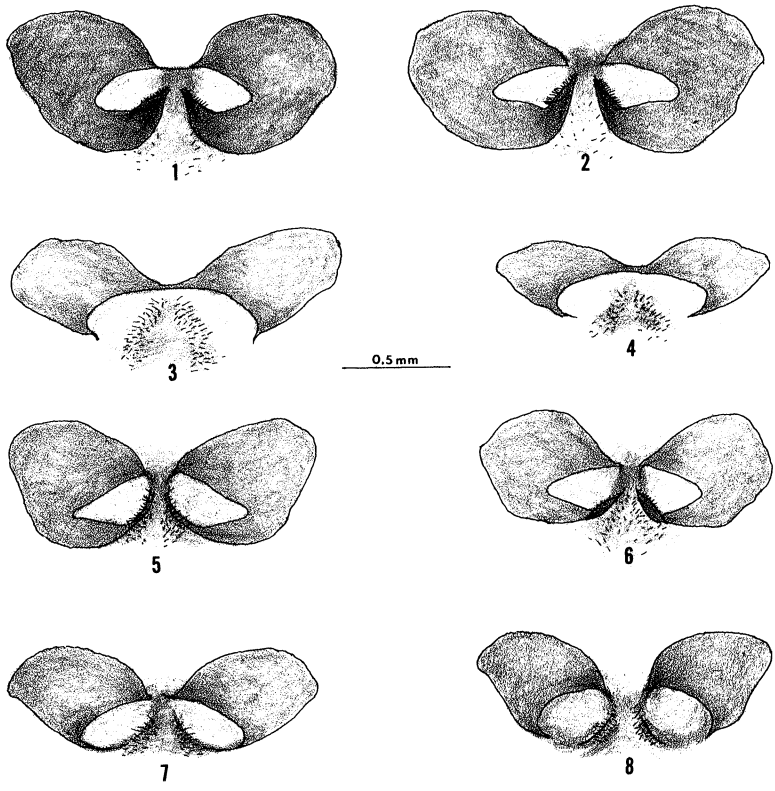
Manuscript received by the editor August 23, 1986



Figs. 1–5. Tergal gland reservoirs on abdominal segment 8 of *Blattella* spp.: Figs. 1, 2. *B. germanica* from Lakeland, Fla. Figs. 3, 4. *B. asahinai* from Lakeland and Okinawa, respectively. Figs. 5–8. F_1 males resulting from a cross between male *asahinai* and female *germanica*.

and a male of the latter mated once with a female *germanica*. No offspring resulted from these 2 crosses. However, in the laboratory, *B. asahinai* males do cross readily with *germanica* females producing F_1 offspring which, to date, have produced F_2 nymphs. Attempts to produce offspring from the opposite cross of *germanica* males and *asahinai* females, have been unsuccessful (Patterson, et al., 1986); these results suggest that the 2 species are distinct, but very closely related.

One of the best diagnostic morphological characters for distinguishing *asahinai* from *germanica* is the shape (KOH preparation)

of the male tergal gland reservoirs on the eighth abdominal segment (cp. Figs. 1 and 2 with Figs. 3 and 4). Although there is some variation in the shapes of these sacs in *germanica* (see Figs. 6, 7, *in* Roth, 1985), their posterior margins curve cephalad where they may or may not join with the anterior margins. In *asahinai* the sacs are connected anteriorly, but their hind margins are widely separated (see Figs. 12B, C, 13A–F, *in* Roth, 1985). The F_1 males resulting from crossing male *asahinai* with female *germanica* have reservoirs which are more typical of *germanica* (Figs. 5–8).

Blattella asahinai is very widely distributed. On Okinawa it is usually found among dead leaves and litter on the ground, and occasionally was collected by sweeping over tree blossoms (Mizukubo, 1981). In Florida it is considered to be a potential pest since it is found in large numbers in lawns, on bushes, and invades houses. It is now being studied by members of the USDA-ARS, and the University of Florida, Household Insects Project (Patterson et al., 1986).

Acknowledgments

I thank the following: Dr. Takayuki Mizukubo, National Institute of Agro-Environmental Sciences, Japan, for his opinions concerning *B. asahinai* from Florida and *B. beybienkoi;* Dr. Syoziro Asahina, retired, for specimens of *B. asahinai* from Okinawa; Mr. Donald Azuma, Academy of Natural Sciences of Philadelphia for sending paratypes of *B. beybienkoi* to Dr. Mizukubo at my request; Dr. R. S. Patterson, Dr. R. J. Brenner, and Dr. P. G. Koehler, USDA-ARS, Gainesville, Florida, and the University of Florida, for specimens and biological information of *asahinai* from Florida and for F_1 specimens resulting from a cross between *asahinai* and *germanica.*

I am grateful to The American Philosophical Society for partial support.

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