



POST-COPULATORY BEHAVIOR OF THE TWO-SPOTTED TREE CRICKET, *NEOXABEA BIPUNCTATA*—(Note). Crickets of the subfamily Oecanthinae are called tree crickets and belong to the genera *Oecanthus*, *Neoxabea*, and *Xabea*. Mating behavior has been described only for *Oecanthus* spp. (J. P. Jenson, 1909, Can. Ent. 41:25-7; B. B. Fulton, 1915, N.Y. Agr. Exp. Sta. Tech. Bull. 42:1-47; R. D. Alexander and D. Otte, 1967, Misc. Pub. Mus. Zool. Univ. Mich. 133:1-62). I have observed mating in 8 species of *Oecanthus*, including 168 matings within and between 5 species during a laboratory study of reproductive isolation (T. J. Walker, 1963, Ann. Ent. Soc. Amer. 56:772-89). All matings of *Oecanthus* spp. observed by me or reported by others follow this pattern: After a courtship of variable duration the female mounts the male and the male attaches a spermatophore by inserting its tube into the female's genital opening. The female remains astride the male and feeds at his metanotal glands (T. J. Walker and A. B. Gurney, 1967, Proc. Ent. Soc. Wash. 69:157-61). If she dismounts, the male solicits remounting by backing toward her and making the same short bursts of sounds that are characteristic of courtship. The female often remounts and resumes feeding. After a total feeding time of approximately half an hour the female dismounts, removes the spermatophore, and eats it. Whenever the female is mounted on the male her hind tarsi remain in contact with the substrate and her middle tarsi generally do. Her fore tarsi usually grip the male (but not his folded hindwings). The male keeps all six tarsi firmly on the substrate (for a picture, see B. B. Fulton, loc. cit., Plate II).

I observed and photographed 1 mating of a pair of *Neoxabea bipunctata* (De Geer). A male and female, kept isolated for a week, were placed on a branch of dogwood in the laboratory. Courtship and transfer of the spermatophore resembled that of *Oecanthus* spp., but the female gripped the male's folded hindwings with her hind tarsi during the transfer of the spermatophore. Once the spermatophore was attached the male assumed the posture shown in Fig. 1, and the female clung to his folded hindwings while she fed on the metanotal glands. When she moved as though to dismount, he used his hind legs to prevent it. She eventually succeeded in dismounting and removed and ate the spermatophore.

Post-copulatory feeding by female tree crickets occurs while the spermatophore is emptying its contents into the spermatheca. If the female were prevented from feeding on the products of the metanotal glands (by removing the male or by tampering with his glands), she would presumably remove the spermatophore before it had emptied. (No one has preformed this simple experiment.) Another potential advantage to the male of post-copulatory feeding is that the female remains in the vicinity while he forms another spermatophore—with which he may more fully inseminate her. It is even possible that the female will use the sperm she accepts only if the male provides her with valuable substances via his metanotal secretions.

Whatever the role(s) of post-copulatory feeding, it surely contributes to the male's reproductive success. The post-copulatory posture of males of *N. bipunctata* probably decreases the probability that the female will end metanotal feeding prematurely. The posture is noteworthy similar to that of the final stages of molting in some ensiferan Orthoptera.—T. J. Walker, Dept. of Ent. and Nem., University of Florida, Gainesville.

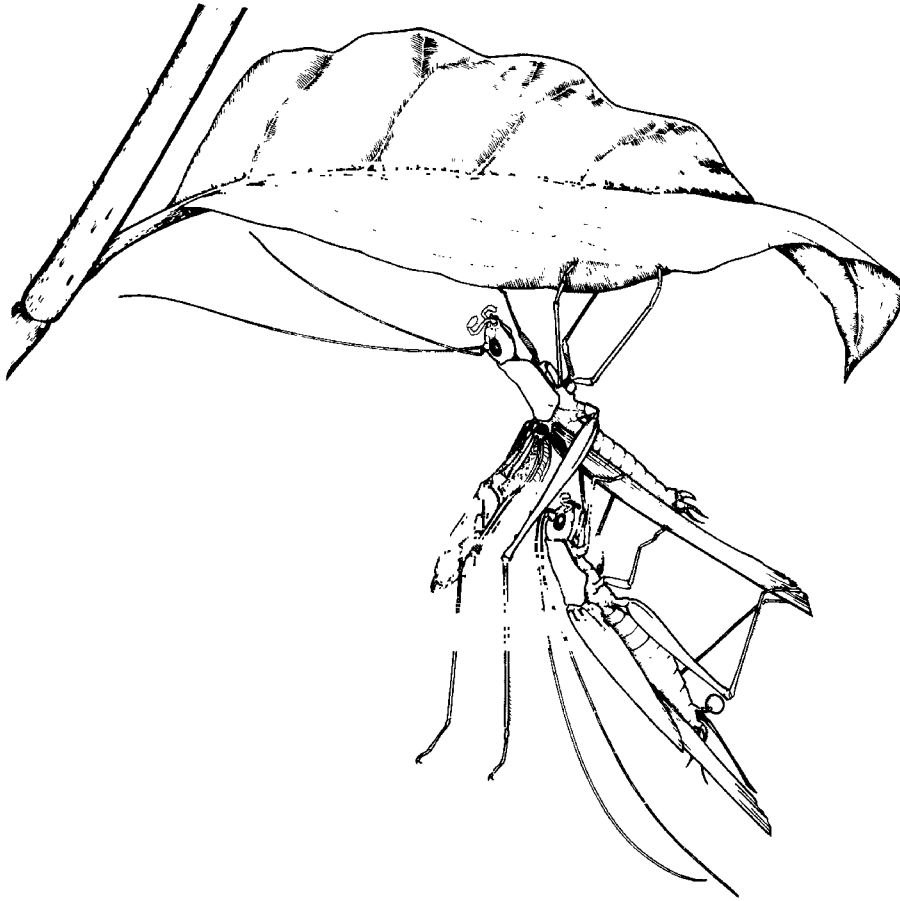


Fig. 1. Post-copulatory posture of male and female *Neoxabea bipunctata*. (Pair from Shelby County, Ohio; drawn by Harry McVay from a 35 mm colored transparency.) Male hangs from leaf by pro- and mesothoracic legs. Female grips the male's folded hindwings. She has paused in feeding at the male's metanotal glands, which empty into the depression at the base of his uplifted forewings.