



INSECTS ASSOCIATED WITH THE EXTRAFLORAL NECTARIES OF ELDERBERRY—(Note): W. M. Wheeler (1910 Ants, their structure, development, and behavior. Columbia Univ. Press, N.Y.) and J. C. Bequaert (1922 Ants and their diverse relations to the plant world. Bull. 45 Amer. Mus. Natural History) state that ants visit the extrafloral nectaries occurring on diverse parts of plants and upon hundreds of species of both ferns and flowering plants. Aside from M. W. Wing (1941. The attendance of extrafloral nectaries of *Sambucus racemose* L. by the ant, *Lasius neoniger* Emery Canad. Ent. 73), little occurs in literature of ants or other insects visiting extrafloral glands of elderberry. Wing states that the workers of *L. neoniger* imbibe saccharine droplets secreted by the stipules of young branches of *Sambucus racemosa*, and that 2 other species, *Formica subsericea* (Say) and *Tapinoma sessile* (Say), have similar habits.

*Sambucus simpsonii*, a southern species, blooms practically all winter except when the temperature becomes exceedingly low. After such cold periods the plants rebound quickly. These conditions afforded an excellent opportunity to study many insects that visited these glands, and many observations and collections were made.

The nectaries are arranged in pairs in the axils of the leaf petioles and branches, 4 on each side. They do not seem to be as well developed in the northern species. An examination of numerous herbarium specimens as well as field observations substantiate this. This may account for the fact that few records occur of insects visiting the glands of the northern species.

Ants are the most common visitors to the extrafloral nectaries of *Sambucus*. Some occasionally imbibed from the nectaries and from secretions from aphids feeding on the same host. Ten species have been observed feeding at these glands, 3 were recorded by Wing, 7 have been observed by the author: *Camponotus (Calobopsis)* sp.; *Camponotus abdominalis floridanus* (Buckley); *Conomyrma flavipecta* (M. R. Smith), also known from Ga., Ala., and Miss.; *Paratrechina longicornis* (Latr.), an introduced species common in Florida and often a pest in houses; minors of *Pheidole* sp. were frequently taken during November, December, and January; *Pseudomyrmex brunneus* (F. Smith) was noted particularly in December and January; and *Pseudomyrmex elongatus* (Mayer), a common species also known from Texas and Mexico.

A few other Hymenoptera were observed feeding at the glands of elderberry. These include 4 species of Vespidae: *Mischocyttarus cubensis* (Sauss), known also from Ga., Ala., Cuba, and Bahamas; *Stenodynerus histrio* (L. P.), known also from Ga., La., N.C., Va., and D.C.; *Stenodynerus lineatifrons* Boh, also known from the Carolinas; and *Polistes exclamans* widely distributed in the United States and known from Mexico.

A few small Diptera were frequently observed feeding at the glands of *Sambucus*, namely, 2 species of Ottidae; *Delphinia (Camptoneura) picta* (Fab.), known also from Minn., Maine, and Kans.; *Euxesta annonae* (Fab.), a neotropical species known also from Bermuda and the West Indies; and 1 Tephritidae, *Xanthaciura insecta* (Loew), a common species frequently seen at the glands during January, February, and March.—S. W. Frost, Frost Entomological Museum, Dep. Ent., Pennsylvania State University, University Park, Pennsylvania 16802.