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NOTE

New Plant Host Record and First Record of the Burrower Bug *Sehirus cinctus* (Palisot de Beauvois) (Hemiptera: Cydnidae) Associating with Honey Bees, *Apis mellifera* L. (Hymenoptera: Apidae)

The entomo- and acarofauna interacting with honey bees (*Apis mellifera* L.) is quite diverse. Some pose a serious threat to honey bee health, transmitting pathogens and parasitizing or preying on individual bees, others destroy comb or rob honey and pollen stores, whereas still others have more benign associations with honey bee colonies (Caron 1997). The most serious threats to honey bee colonies include parasites such as honey bee tracheal mites (*Acarapis woodi* (Rennie)) and varroa mites (*Varroa destructor* Anderson and Trueman) and other pests, such as small hive beetles (*Aethina tumida* Murray) and the lesser wax moths (*Galleria mellonella* L.), which can destroy much of the wax comb of weakened or dead colonies. A multitude of insects, including some taxa within the orders Coleoptera, Diptera, Hemiptera, and Hymenoptera, interact with honey bees outside of the colony, with many preying on foraging bees as they visit flowers. Caron (1997) cited honey bee interactions with species from thirteen insect orders. Here, we report on a new, apparently benign, insect associate of honey bees, the burrower bug *Sehirus cinctus* (Palisot de Beauvois) (Hemiptera: Cydnidae), which was found foraging in discarded honey bee wax comb.

Sehirus cinctus is found in open habitats (i.e., fields, forest edges and clearings, lots, roadsides, etc.) east of the Rocky Mountains, from southern Canada to Northern Mexico, and California (Froeschner 1960, 1988; McPherson 1982). They overwinter as adults (Parshley 1923), which are active from April through September. Nymphs emerge in August and September (Sites and McPherson 1982). Females exhibit maternal care, typically standing guard over a cluster of 29–59 eggs in a shallow chamber in the soil (Sites and McPherson 1982). Specimens are often collected directly from host plants, or as a by-catch in various traps and sweep nets. Plant host records were reported by McPherson and Mohlenbrock (1976) (Table 1). Sites and McPherson (1982) indicated that these burrowing bugs prefer mints (Lamiaceae), but because adult *S. cinctus* are often also encountered on non-lamiaceous hosts, forage plants may include a broader range of alternate choices, including those listed by McPherson and Mohlenbrock (1976) as host plants from which the species has been collected.

Sehirus cinctus has not been observed, *in vivo*, interacting with *A. mellifera* or within the honey bee hive. Caron (1997) indicated that the single specimen of *S. cinctus* recovered from a dead bee trap by Morse and Gary (1961) was an incidental encounter, suggesting that this species was not likely to be a predator of honey bees. It has not been reported to compete with honey bees for food sources, prey on eggs, larvae, pupae or adults, or rob from honey or pollen stores.

In mid-afternoon on April 11, 2006, a routine queen-rearing certification inspection of honey bee colonies was conducted in Manheim Township, York County, Pennsylvania. The queen-rearing yard was composed of seven full-

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Table 1. Host plant records for *Sehirus cinctus*, identified by family, scientific and common names and published records. To date, only mints (Lamiaceae) have been verified as sources of forage for *S. cinctus*. Published records are abbreviated as follows: Blatchley 1926 (B 1926); Froeschner 1941 (F 1941); Hart 1919 (H 1919); McPherson and Mohlenbrock 1976 (M & M 1976); Stoner 1920 (S 1920).

Family	Host Taxon/Taxa	Common Name	Published Record
Anacardiaceae	*Toxicodendron radicans* (L.) Kuntze	Poison Ivy	M & M 1976
Apiaceae	*Chaerophyllum procumbens* (L.) Crantz.	Wild Chervil	M & M 1976
Apocynaceae	*Apocynum cannabinum* L.	Indian Hemp	M & M 1976
	Asclepias spp.	Milkweed	B 1926
Asteraceae	*Ageratina altissima* (L.) King and H.E. Rob.	White Snakeroot	M & M 1976
	Antennaria plantaginifolia (L.) Richards.	Pussy-toes	M & M 1976
	Erigeron philadelphicus L.	Daisy Fleabane	M & M 1976
	Helianthus spp.	Sunflower	F 1941
	Solidago spp.	Goldenrod	F 1941
	Verbesina alternifolia (L.) Britton ex. Kearney	Yellow Ironweed or Wingstem	M & M 1976
Ebenaceae	*Diospyros virginiana* L.	Common Persimmon	M & M 1976
Lamiaceae	*Melilotus* spp.	Sweet Clover	H 1919
	Monarda punctata L.	Spotted Beebalm	H 1919
	Perilla frutescens (L.) Britt.	Beefsteak Plant	M & M 1976
	Physostegia virginiana (L.) Benth.	Obedient Plant	New Record
	Stachys spp.	Lamb's Ear	H 1919
	Teucrium canadense L.	Wood-sage or Germander	M & M 1976
Poaceae	*Elymus virginicus* L.	Common Wild Rye	M & M 1976
	Phleum pratense L.	Timothy	S 1920
	Poa spp.	Bluegrasses	S 1920
Polygonaceae	*Rumex crispus* L.	Curly Dock	M & M 1976
Rosaceae	*Prunus* spp.	Wild Cherries, Wild Plums	S 1920, B 1926
	Rubus spp.	Raspberries, Blackberries	S 1920, F 1941
Scrophulariaceae	*Verbascum thapsus* L.	Common Mullein	M & M 1976

strength colonies, as well as a number of nucleus colonies, or "nucs," made only a few days prior for use in future queen-mating. All colonies faced south and were located at the north end of a recently plowed field at the edge of an oak woodlot. The weather was sunny and clear, with temperatures near 70°F. During preparation of the "nucs," a few days prior to the inspection, burr comb (i.e., excess wax comb made along the edges of the wax frames) was removed from the frames and discarded in front of several hives. During the inspection, twelve to thirty *S. cinctus* adults were observed on each of at least five

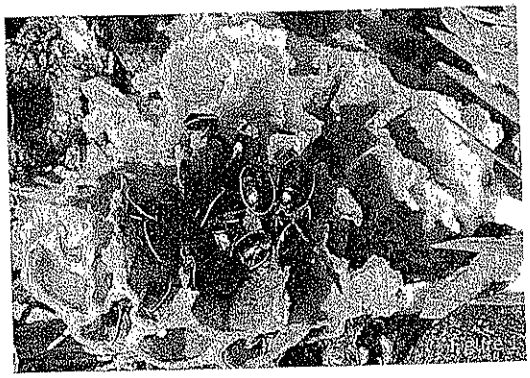

Fig. 1. A group of burrower bugs, *Sehirus cinctus* (Palisot de Beauvois) (Hemiptera: Cydnidae), apparently foraging on bee bread stores in wax comb discarded from honey bee colonies.

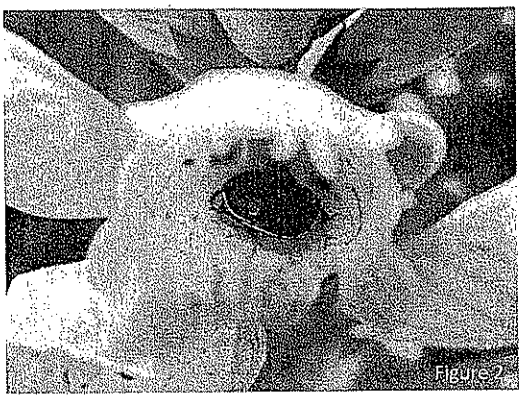

Fig. 2. A burrower bug, *Sehirus cinctus* (Palisot de Beauvois) (Hemiptera: Cydnidae), apparently nectaring in the flower of obedient plant, *Physostegia virginiana* (L.) Bentham.

separate discarded burr combs (Fig. 1), likely scavenging for remnants found in the comb. The burrower bugs were seemingly feeding on the contents of cells containing bee bread, a mixture of pollen and honey. Upon further examination of the frames removed from the hives, a few adult burrower bugs were observed wandering on empty, unused combs, away from the honey bees. Examination of the stomach contents of collected specimens from the original field observations could not confirm or refute the presence of pollen. Based on *in situ* and laboratory observations of field-collected, bee bread-fed *S. cinctus* adults, it is suspected that those observed foraging on the burr comb were likely feeding on the pre-digested, liquified proteins, lipids and carbohydrates found in bee bread and honey.

In addition to finding this interaction with honey bees and their products, we observed a new host plant interaction. The burrower bugs were observed apparently nectaring on Obedient Plant, *Physostegia virginiana* (L.) Bentham (Lamiaceae). *P. virginiana* blooms from late summer to early fall (July–September) and is found in open areas with moist to well-drained soils, in the eastern United States, overlapping the range of *S. cinctus* (Gleason and Cronquist 1991). Seed-set occurs from September through October. While making field observations and collecting bees (Hymenoptera: Apoidea) at the Tom Ridge Environmental Center in Erie, Erie County, Pennsylvania, in August, 2008, more than 50 adult *S. cinctus* were observed on the above-ground parts of *P. virginiana* (Fig. 2). Because seed-set occurs in the fall, typically at the end of or following the active season for adult burrower bugs, those observed with their head buried in the center of a flower (in August) were likely nectaring, not gathering nutlets. More than twenty adult *S. cinctus* were observed in flowers of *P. virginiana*, indicating that this was not an isolated or incidental encounter.

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