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AMERICAN SWALLOW BUG, *OECIACUS VICARIUS* HORVATH
(HEMIPTERA: CIMICIDAE), IN *HIRUNDO RUSTICA* AND *PETROCHELIDON*
PYRRHONOTA NESTS IN WEST CENTRAL COLORADO

Thomas Orr¹ and Gary McCallister¹

ABSTRACT.—*Oeciacus vicarius* bed bugs were collected from 32% of *Hirundo rustica* nests and 83% of *Petrochelidon pyrrhonota* nests on bridges in western Colorado in December 1984. A total of 409 bugs (158 adults and 251 juveniles) were counted in 47 nests, two months after the hosts had departed for the winter.

Two regular avian visitors to the Colorado River system in west central Colorado are the cliff swallow, *Petrochelidon pyrrhonota*, and the barn swallow, *Hirundo rustica*. They spend the warm late spring to autumn months in North America and winter in South America (Knopf 1977). The cliff swallow builds a gourd-shaped mud nest lined with grass and feathers beneath bridges and on natural cliff faces. The barn swallow builds an open nest with mud pellets and lined with feathers and straw under bridges or on buildings.

Oeciacus vicarius Horvath, the American swallow bug, has been previously reported from *Petrochelidon* (Meyers 1928) at Dolores, Colorado (Gillette and Baker 1895). Usinger (1966) lists *Hirundo* as a rare host, but some controversy seems to exist over host specificity. The previous report of *O. vicarius* in Colorado was from the inhabited nests in the spring of the year.

In this paper we report on the incidence of *O. vicarius* in both barn swallow and cliff swallow nests during December in west central Colorado, a new geographic area.

MATERIALS AND METHODS

In December 1984, 41 barn swallow nests and 6 cliff swallow nests were collected from beneath highway bridges west of Fruita, Colorado. They were placed into plastic bags, numbered, and sealed. Six nests at a time were weighed and then processed under Berlese funnels for six to eight hours. Visual examination and additional manual extraction of the bugs followed. Specimens were col-

lected into 70% ethanol. Mites, ticks, spiders, moths, and dermestids were included, but the most abundant species was *Oeciacus vicarius*.

These were identified under magnification (10X to 400X) using Slater and Baranowski's (1978) key to the true bugs. The immature stages were identified (I, II, III, IV, V) with a key in Usinger (1966). Some specimens were mounted using standard techniques in balsam on glass slides; others were mounted and cleared in lactophenol for photographs.

A total of 409 *Oeciacus vicarius* specimens was collected. Of 158 adults, 99 were male, 59 female. There were 39 stage I, 44 stage II, 49 stage III, 85 stage IV, and 24 stage V instars, a total of 251 immatures. Table I shows the composition of the population in each kind of nest.

Two hundred forty-eight bugs were in 13 of the 41 barn swallow nests, a prevalence of 32%. This is a mean of 19 bugs per infested nest; numbers ranged from 1 to 68 per nest. One hundred sixty-one bugs were in 5 of the 6 cliff swallow nests (prevalence = 83%), a mean of 32 bugs per infested nest, with numbers ranging from 2 to 103 per nest. It should be noted that the *P. pyrrhonota* nests are much bulkier (\bar{x} = 451 g/nest) than the *H. rustica* nests (\bar{x} = 199 g/nest). This means that there was 1 bug per an average of 96 gm of *Hirundo* nest and 1 bug per 70 gm of *Petrochelidon* nest.

DISCUSSION

The doubling of the spermatheca in *Oeciacus*

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TABLE 1. *Oeciacus vicarius* population in *H. rustica* and *P. pyrrhonota* nests in December 1984.

Host nest	Adults			Instar stages					
	M	F	Total	I	II	III	IV	V	Total
<i>H. rustica</i>	67	46	113	27	16	27	50	15	135
<i>P. pyrrhonota</i>	32	13	45	12	28	32	35	9	116

vicarius was noted by Cragg (1920) and Abraham (1934). Ludwig and Zwanzig (1937) reported it in 0.5 to 40% of the females in the populations they studied. In the present case it occurred in 1.7% of the females.

The red body color seen in some stage V instar nymphs is not mentioned in the literature, although Spencer (1930) describes a white specimen. This anomaly of red body occurred in 4.2% of the stage V instars.

Meyers (1928) names *Petrochelidon lunifrons* as a host but dismisses *Hirundo erythrogaster*. Usinger (1966) lists *P. albifrons* and, more rarely, *H. erythrogaster*. This study demonstrates this parasite in the winter nests of two additional hosts: *P. pyrrhonota* and *H. rustica*. It tends to support the claim that the barn swallow may be a less common host. It also establishes the geographic distribution of the parasite in a previously unreported area.

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