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## FIRST RECORDS FOR *ISCHNODEMUS VARIEGATUS* (HEMIPTERA: BLISSIDAE) IN NORTH AMERICA

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In this paper we give the first U.S. records of *Ischnodemus variegatus* Signoret from the United States, review the literature, provide a short diagnosis of the adult, and discuss the possible impact of this species in Florida.

*Ischnodemus variegatus* was described from Colombia and is known to occur throughout South America north to Belize, and in Trinidad (Slater 1987). Baranowski (1979), who first reported *I. variegatus* from Trinidad, provided information on its biology and described the egg and five instars. The nomenclatural history of this species was reviewed by Slater (1987), who raised *I. variegatus* from synonymy with another blissid, *Ischnodemus oblongus* Fabricius, with which it had been considered a junior synonym. Slater (1987) explained that although the adults of these two blissids are similar, they feed on different hosts and the nymphs are very distinct. He produced illustrations of the adults, fifth-instars, parameres, sperm reservoirs, and male genital capsules of both species. He stated that *I. variegatus* may be sympatric in some areas with *I. oblongus*, which is restricted to Central America.

Nine species of *Ischnodemus* are known from Florida, according to Slater and Baranowski (1990). When one uses the identification key to species of *Ischnodemus* in Florida (Slater and Baranowski 1990), *I. variegatus* keys to couplet #4, containing *I. rufipes* and *I. praecultus*. *Ischnodemus variegatus* adults strongly differ from these and other *Ischnodemus* in Florida primarily by wing coloration. It may be distinguished by a large black marking that covers most of the membrane of each front wing (Fig. 1) and by the mostly black femora.

*Ischnodemus variegatus* was first collected in the United States in Florida, Sarasota Co., Myakka River State Park, on 21-IX-2000, by Belinda Perry, from *Hymenachne amplexicaulis* (Rudge) Nees (Poaceae, Gramineae) leaves. Vouchers were deposited at the FSCA (#E2000-4134). Additional specimens, collected by others, have been deposited since then. This blissid has been found in Myakka River State Park, the Carlton Reserve, and the Crowley Museum and Nature Center, all in Sarasota County.

Baranowski (1979) found that *I. variegatus* in Trinidad feeds and breeds on the grass *Hymenachne amplexicaulis*. He found eggs in older parts of the grass, near the ground, and under the



Fig. 1. *Ischnodemus variegatus*, adult, feeding. Photo by F. Santana.

tightly appressed leaf sheaths; first instars in the same location as the eggs and also under older and looser leaf sheaths, along with older nymphs; and adults in the terminal whorl of the plants as well as on the ground. He stated that the population density of *I. variegatus* was lower where the grass was partially submerged or subject to frequent flooding.

*Hymenachne amplexicaulis*, also known as West Indian marsh grass or trompetilla, is a tall (up to 2.5 meters), perennial aquatic grass that occurs in tropical America and the West Indies (Wunderlin & Hansen 2003). It was introduced into Florida more than 30 years ago and has been found in at least twelve counties (Langeland & Burks 1998). *Hymenachne amplexicaulis* grows in or near shallow ponds, along or in streams, in ditches, swamps, marshes, wet disturbed sites including wet pastures, drainage canals, river banks, cypress swamps, and may be found floating (Baranowski 1979; FLEPPC 20003; Keith Bradley 2000, pers. comm.).

West Indian marsh grass is adapted to fluctuating water levels and is difficult to control (Florida Exotic Plant Pest Control—FLEPPC 2003). It is considered a Category I invasive plant, which is capable of disrupting native plant communities in wetlands (FLEPPC 2003). Feeding by large numbers of *I. variegatus* seems to cause death of the grass (it dies back at least to the soil level) (P.

Benshoff 2001, pers. comm.). However, when stress factors such as cold, flood, or drought reduce the number of bugs, the grass grows rapidly and continues to spread. In Myakka River State Park, where *I. variegatus* was first detected, herbicides have been applied to reduce the area covered by the grass that is not within the immediate river corridor (i.e., isolated marshes) (P. Benshoff 2001, pers. comm.).

*Hymenachne amplexicaulis* originally might have arrived in Florida in the form of seeds carried by migratory birds (FLEPPC 2003). It also might have been introduced intentionally to Florida, as it has been into many other countries because of its high nutritional value for cattle. For example, it was purposely introduced into Australia to provide a high quality forage for cattle in the winter (Inglis et al. 1996). Because *I. variegatus* is a recent introduction and because it lays its eggs on live plants, not on the ground or on the plant's seeds, it is possible that this insect was introduced into Florida with cuttings of fresh plant material, the primary way West Indian marsh grass is spread according to Inglis et al. (1996).

It appears that *Ischnodemus variegatus* feeds only on *Hymenachne amplexicaulis*. A single record of a specimen collected in Surinam on *Thalia geniculata* (Slater and Wilcox 1969) was considered a "sitting" or non-feeding record by Baranowski (1979).

The effect of *I. variegatus* in Florida is uncertain. Host-range testing is required to determine whether *I. variegatus* may be a threat to native or agriculturally important plants. If *I. variegatus* proves to feed only on *Hymenachne amplexicaulis*, however, then its introduction can be viewed as fortuitous biological control.

We extend appreciation to Belinda Perry (Natural Resources, Sarasota County Government), who collected the first specimens; Paula Benshoff (Myakka River State Park, Sarasota), who led us in the field to observe the insects and provided field observations; Keith Bradley (The Institute for Regional Conservation, Miami) for sharing his observations; James A. Slater (University of Connecticut, Storrs) for verification of the species identification; Nancy Coile, Mark Garland, and Richard Weaver (DOACS/DPI) for botanical information; Beverly Pope (DOACS/DPI) for assistance in library research; Oscar Perez (University of Florida, Gainesville), Susan Halbert (DOACS/DPI), William Overholt (University of Florida, Ft. Pierce) and Thomas Henry (USDA/SEL, Washington, D.C.) for reviewing the manuscript; and Paul Pratt (USDA/Ft. Pierce), William Overholt

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#### SUMMARY

*Ischnodemus variegatus* Signoret, a grass-feeding Neotropical blissid, has recently become established in Florida. It feeds and breeds on West Indian marsh grass, *Hymenachne amplexicaulis* (Rudge) Nees, an invasive exotic grass that grows in wetlands. This lygaeoid can be separated from all of the other *Ischnodemus* species that occur in Florida by the distinctive black and white color pattern on the wings. A photograph of *I. variegatus* is included.

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