



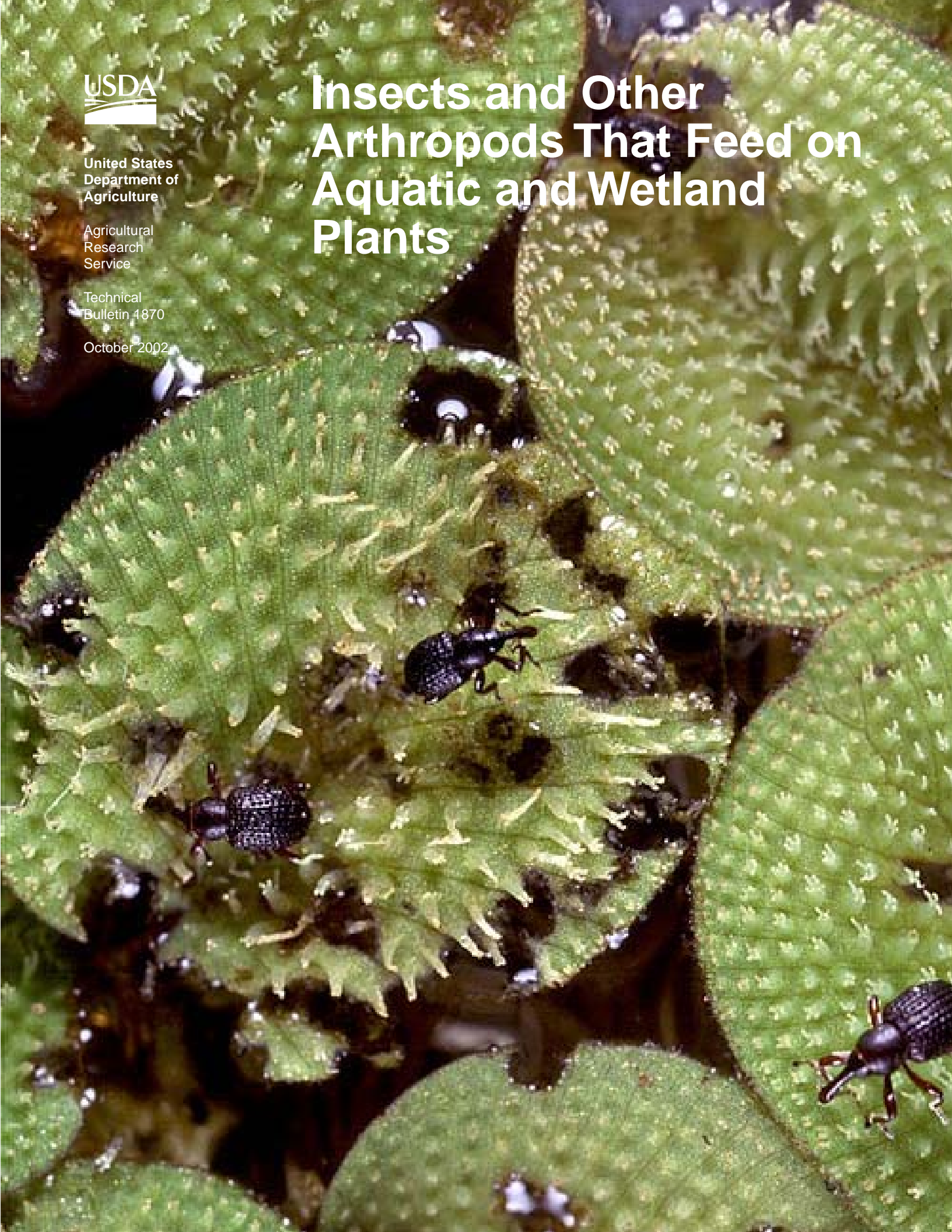
United States  
Department of  
Agriculture

Agricultural  
Research  
Service

Technical  
Bulletin 1870

October 2002

# Insects and Other Arthropods That Feed on Aquatic and Wetland Plants



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Here is the citation:

Center, T. D., F. A. Dray, G. Jubinsky and M. J. Grodowitz. 2002. Insects and other arthropods that feed on aquatic and wetland plants. USDA, Agric. Res. Serv., Tech. Bull. 1870, Fort Lauderdale, FL. 200 pp.

**Figure 1.** Alligatorweed flea beetle

A, Alligatorweed heavily damaged by *Agasicles hygrophila* intermixed with water pennywort

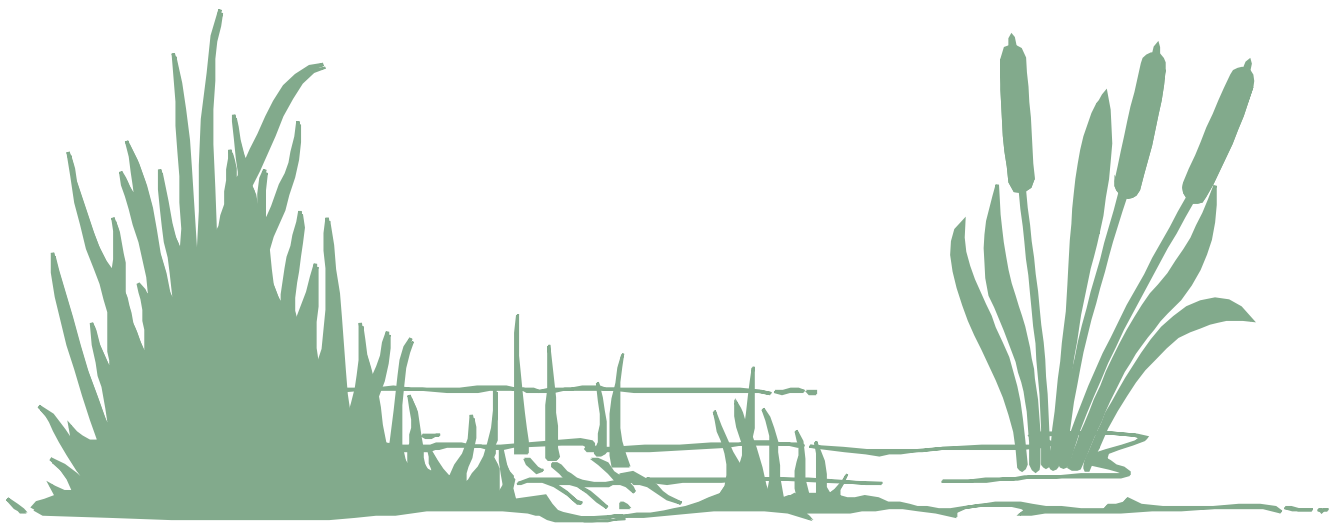
B, Cluster of hatched alligatorweed flea beetle eggs with two first-instar larvae

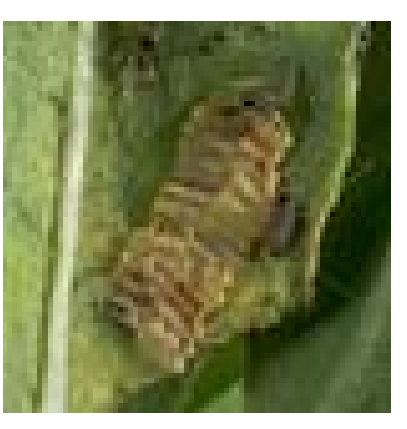
C, Adult alligatorweed flea beetle

D, Late instar *Agasicles hygrophila* larva on an alligatorweed leaf that shows damage caused by larval feeding

E, Adult *Agasicles hygrophila* on an alligatorweed stem that shows epidermal damage caused by the adult beetles

F, Alligatorweed flea beetle emerging from its pupal chamber in an alligatorweed stem



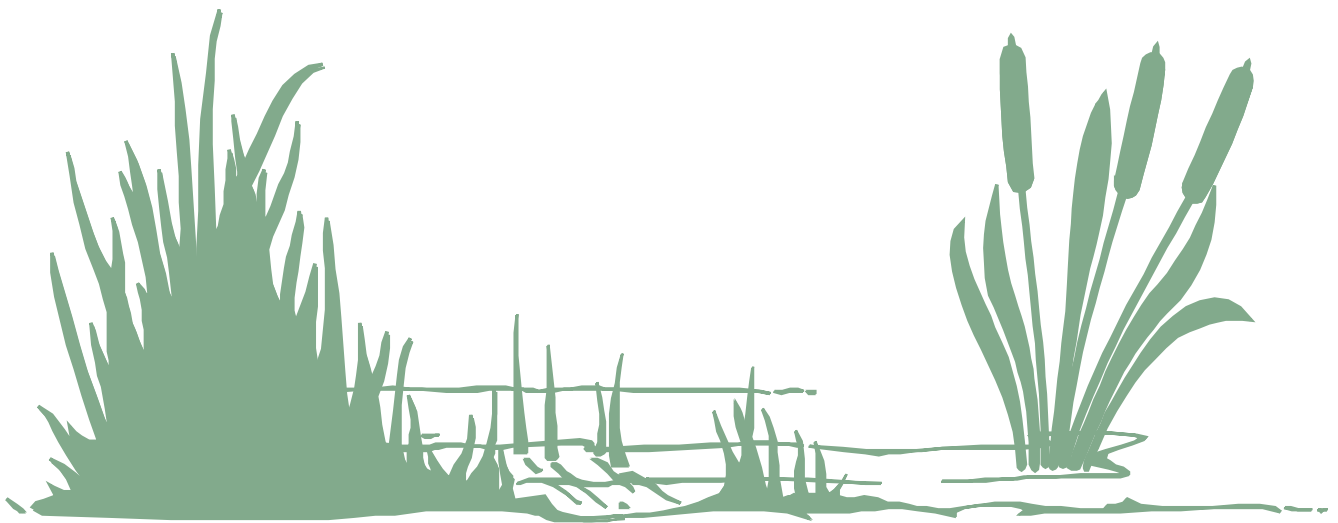


**Figure 10.** Frog's bit weevil

A, Larval galleries (light streaks) of *Bagous lunatoides* on frog's bit leaves. The holes in the leaves were caused by moth larvae.

B, *B. lunatoides* adult

C, Adult frog's bit weevils and feeding scars





**Figure 14.** Hydrilla stem weevil

A, Adult hydrilla stem weevil and feeding damage on a hydrilla sprig

B, Egg of the hydrilla stem weevil in a leaf node

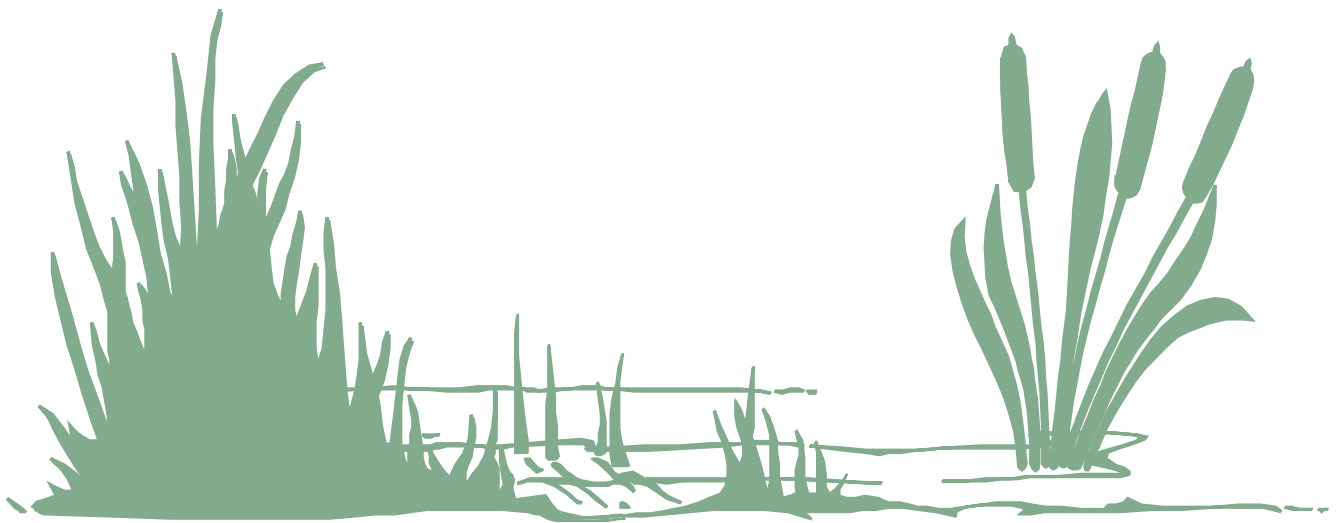
C, Fully grown hydrilla stem weevil larva

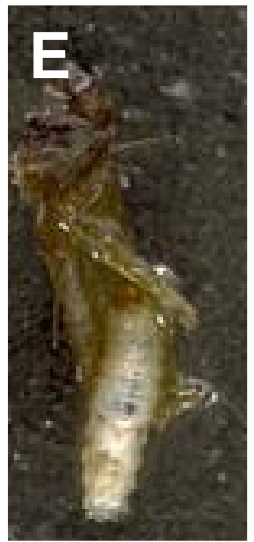
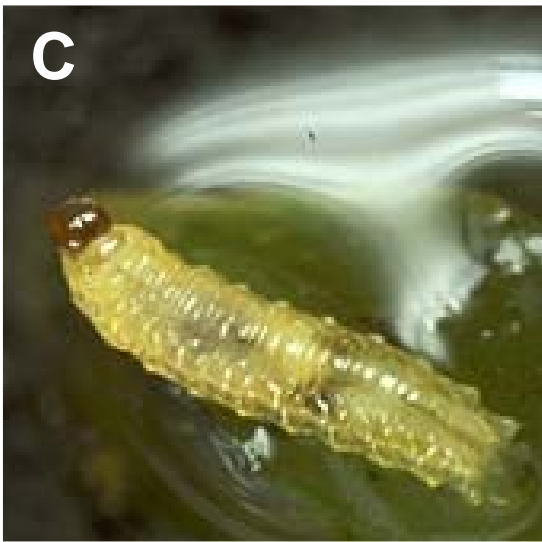
D, Hydrilla fragment harboring a fully grown hydrilla stem weevil larva

E, Stem fragment dissected to show the enclosed larva

F, Hydrilla damaged by hydrilla stem weevil larvae and adults

G, *Bagous hydrillae* pupa





**Figure 20.** Pickerelweed borer

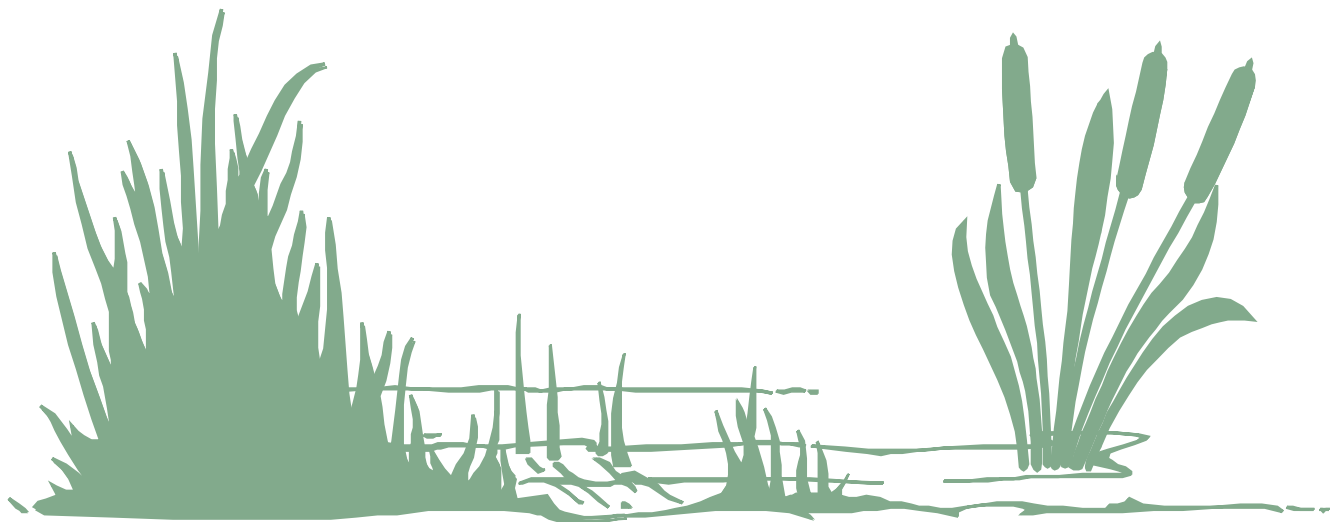
*A, Bellura densa* adult

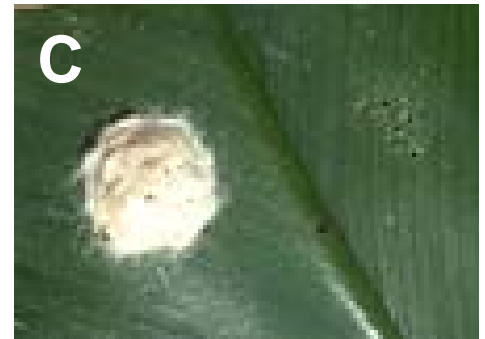
*B, Late-instar Bellura densa* larva

*C, Bellura densa* egg mass

*D, Waterhyacinth* plant showing the typical crown damage caused by feeding of a *Bellura densa* larva

*E, Bellura densa* pupa within a waterhyacinth leaf petiole



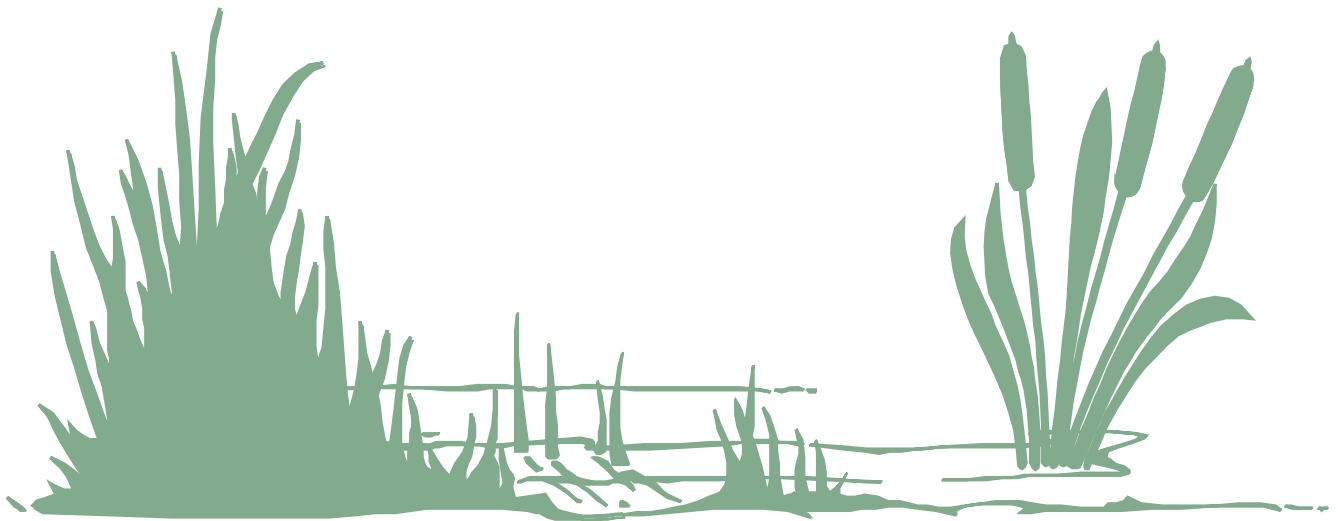


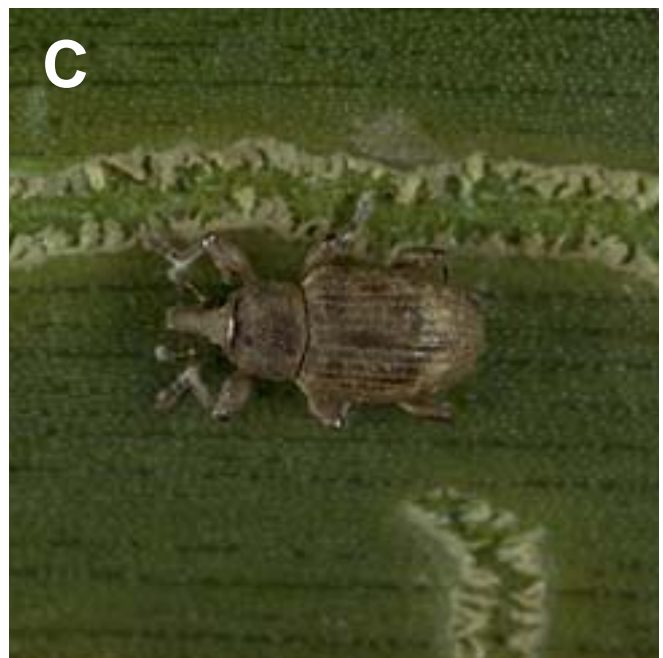
**Figure 21.** Pickerelweed weevil

A, Typical leaf scarring caused by the feeding of adult pickerelweed weevils

B, Adult pickerelweed weevil on a *Pontederia cordata* leaf

C, Adult pickerelweed weevil on a waterhyacinth leaf





**Figure 29.** Waterhyacinth moth

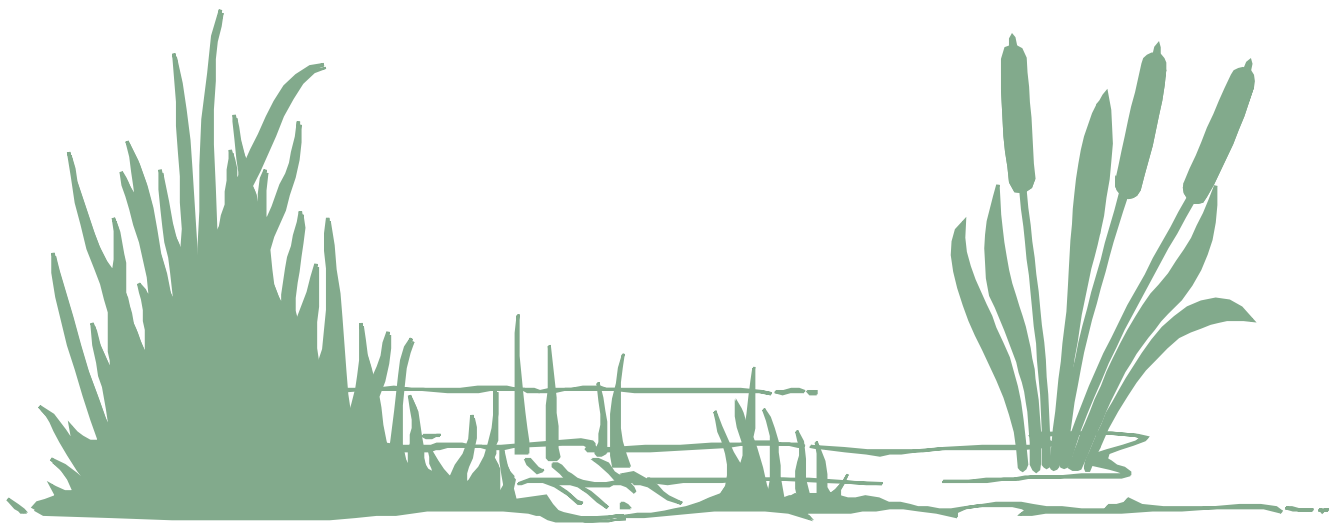
*A*, Waterhyacinth plant showing crown damage and the wilted central leaf caused by *Niphograptus albiguttalis* larval feeding

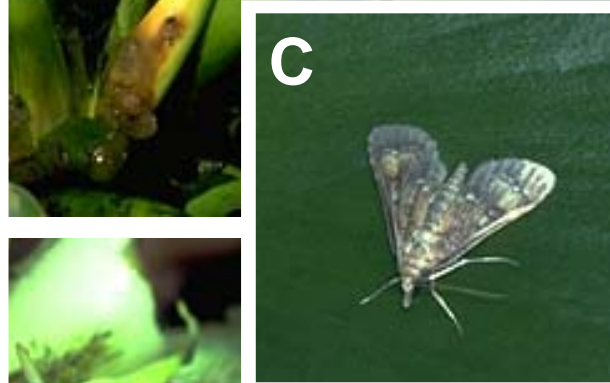
*B*, Adult male waterhyacinth moth

*C*, Adult female waterhyacinth moth

*D*, Late-instar *Niphograptus albiguttalis* feeding on the apical bud of a waterhyacinth rosette

*E*, Typical damage done to a waterhyacinth leaf petiole by early-instar *Niphograptus albiguttalis* larvae





**Figure 30.** Waterhyacinth weevils

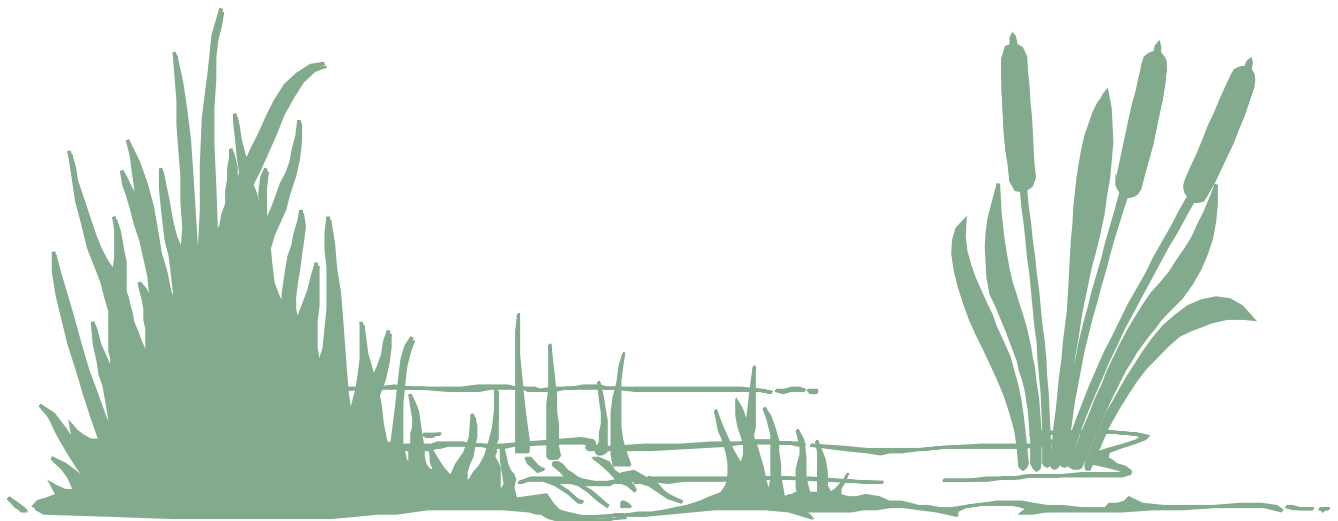
A, Adult *Neochetina eichhorniae* (left) and *N. bruchi* (right)

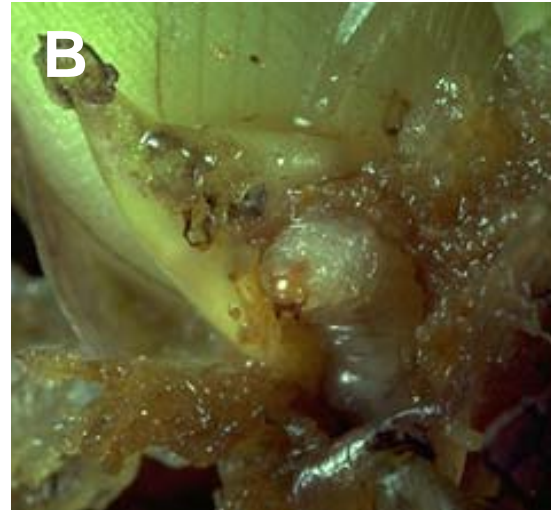
B, *Neochetina* larva feeding on the base of an axillary bud

C, *Neochetina* adult and the typical adult feeding "pits" on a waterhyacinth leaf

D, *Neochetina* cocoon on a waterhyacinth root

E, Waterhyacinth plants severely stressed by weevil attack





**Figure 33.** Waterlettuce weevil

A, Reddish-brown form of the waterlettuce weevil

B, Bluish-gray form of the waterlettuce weevil

C, Egg of *Neohydronomus affinis*

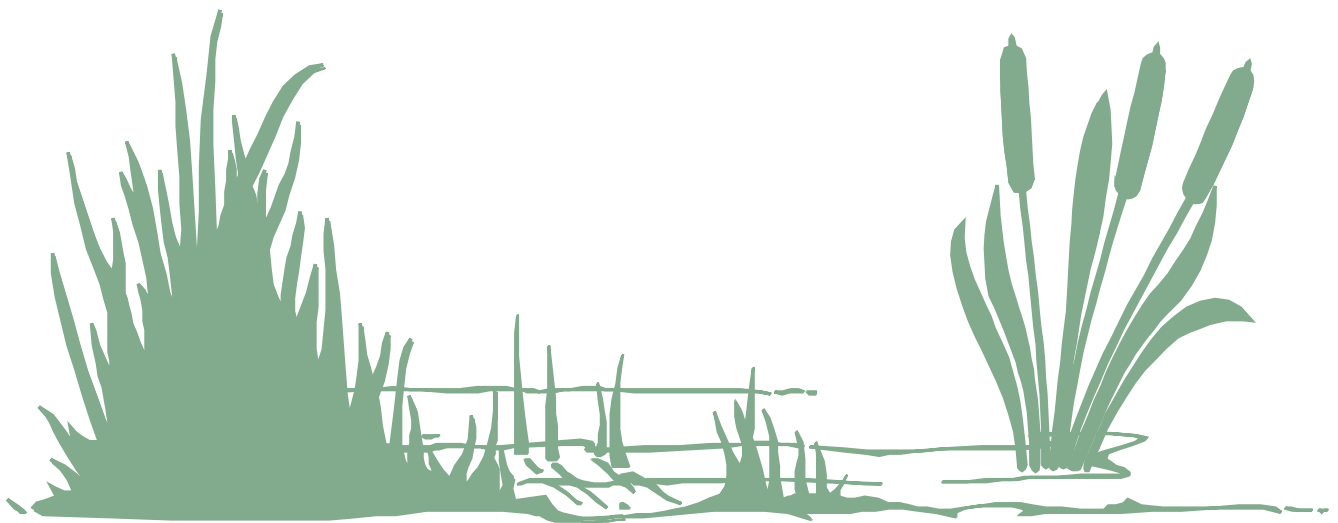
D, Larva of *Neohydronomus affinis*

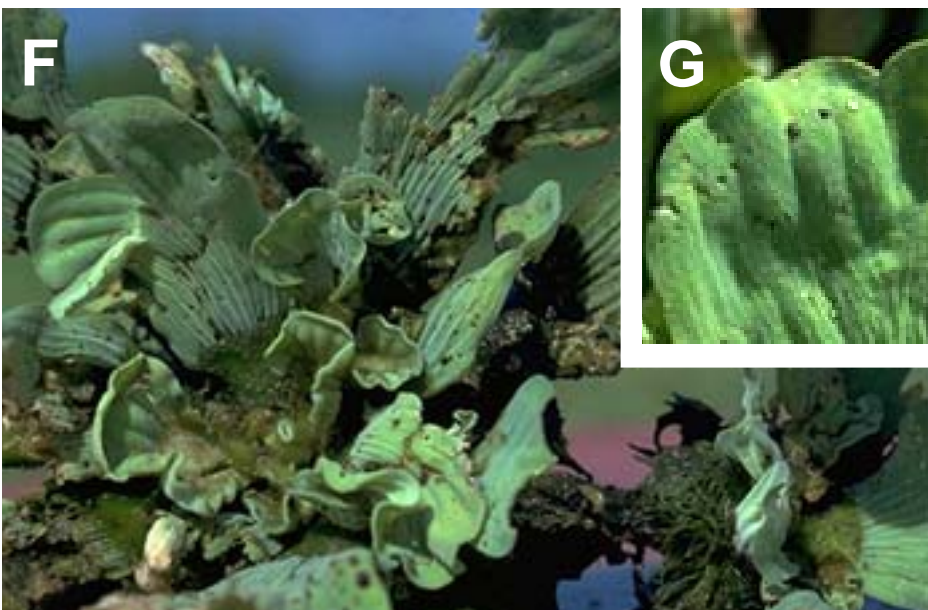
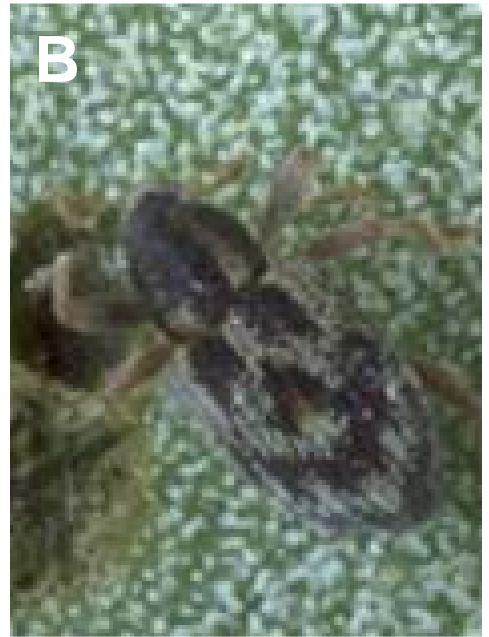
E, Pupa of *Neohydronomus affinis*

F, Waterlettuce plant showing extensive leaf and crown damage caused by feeding of *Neohydronomus affinis*

G, Leaf punctures typical of feeding by adult *Neohydronomus affinis*

H, Typical *Neohydronomus affinis* larval galleries





**Figure 35.** Water-primrose flea beetle

*A*, Adult *Altica litigata* with a cluster of eggs on a *Ludwigia octovalvis* leaf

*B*, Fully grown larva of the water-primrose flea beetle

*C*, Pupa of *Altica litigata*

