

## Abstracts Section II

The following abstracts are of papers presented or submitted for presentation but either were not given or complete manuscripts not prepared. They have not received the critical review to which full length papers have been subjected.

—Editor.

**ECOLOGY AND BEHAVIOR OF *ACENTROPUS NIVEUS*, AN AQUATIC MOTH ON WATERMILFOIL IN NEW YORK STATE**—S. W. T. Batra, USDA, ARS, Beneficial Insect Introduction Laboratory, Beltsville, Maryland, U.S.A. *Acentropus niveus* Oliver (Pyralidae), eats *Myriophyllum*, *Ceratophyllum* and *Elodea* in Europe and northern North America. It is common in dense stands of *Myriophyllum exalbescens* Fern. in the St. Lawrence River. Moths were reared in the laboratory for several generations on *M. spicatum* L. (Eurasian watermilfoil). Wingless females and winged males, emerging at night, live 24 hours or less. Nocturnal males briefly skitter in circles across the water surface but mainly rest on protruding vegetation. Females oviposit and die on milfoil just below the surface. Small larvae are endophytic in stems, larger ones crawl freely over the milfoil or leaves and feed from a succession of temporary shelters built on stems or leaves of milfoil leaflets and silk which trap oxygen bubbles. Pupation occurs in a shelter. Damage to the milfoil consists of loss and girdling of leaves and stems, primarily near the apical meristem. Breakage of girdled stems creates new propagules. Larvae develop normally in brackish water from the Chesapeake Bay.

**THE CONSEQUENCES OF FEEDING BY PHYTOPHAGOUS INSECTS ON THE PHENOLOGY OF WATERHYACINTHS**—Ted D. Center and Neal R. Spencer, USDA-ARS, Gainesville, FL, U.S.A. Since 1973, various morphometric characteristics of a population of waterhyacinths on the University of Florida campus has been monitored at regular intervals. These characteristics include standing crop, plant height, plant density, leaf density, and leaf area. The populations of an indigenous insect (*Arzama densa*: Noctuidae) and the degree of attack by it has also been monitored. Further, the population of a South American weevil (*Neochetina eichhorniae*) released in February 1974 was also followed and the resultant plant damage assessed. The effects of attack by these two insects on the seasonal aspects

of waterhyacinth growth is evaluated based on the plant characteristics enumerated above. Experimental greenhouse studies have been conducted to support our conclusions.

**AN IMPACT EVALUATION OF THE BIOLOGICAL CONTROL OF ALLIGATORWEED IN THE SOUTHEASTERN UNITED STATES OF AMERICA**—Neal R. Spencer, USDA-ARS, Gainesville, FL, U.S.A. Alligatorweed *Alternanthera philoxeroides* (Mart.) Griseb., an emersed aquatic amaranth, was introduced into the United States from South America before the turn of the century. It was recognized as a threat to the aquatic ecosystems as early as 1901. It was estimated in 1963 that alligatorweed infested 65,700 hectares of water surface in the Southeast. Biological control of alligatorweed was begun in 1960 with surveys in South America for natural enemies. Research in South America by U.S. Department of Agriculture entomologists resulted in the introductions of three species of insects into the United States for control of alligatorweed. *Agasicles hygrophila* (Coleoptera: Chrysomelidae) was first introduced in 1964, *Amynothrips andersoni* (Thysanoptera: Phlaeothripidae) in 1967, and *Vogtia malloi* (Lepidoptera: Pyralidae: Phycitinae) in 1971. A recent assessment has been made of the remaining area occupied by alligatorweed in an area extending from Texas to Florida and north to North Carolina. Biological control has caused a substantial reduction in the alligatorweed infestations in this area of the United States. A population ratio of the three released insect species is given for different sites.

**NATURAL ENEMIES AND THE PROSPECTS OF BIOLOGICAL CONTROL OF *TAMARIX* SP.**, Dan Gerling and Jehoshua Rugler, 17 Yiftah St., Ramat Hasharon, Israel. About 30 out of 230 phytophagous *Tamarix* feeders were appraised as possible biocontrol agents. They can be divided according to their direct damaging capacity into three categories. Insects that damage fruiting bodies, insects that cause moderate or long-range damage, and highly damaging insects (Table 1).

Table 1. Some insect species that feed upon *Tamarix* with an evaluation of their damaging potential.

Destroys of fruiting bodies	Causers of moderate and long-range damage	Highly damaging insects
<i>Corimania</i> spp. (Curculionidae, Coleoptera) <i>Crastina Linnavouri</i> Log. (Psyllidae Homoptera)	<i>Tuponia</i> spp. (Miridae, Heteroptera) <i>Opsius</i> spp. <i>Tamaricella</i> spp. (Cicadellidae, Homoptera) <i>Ornativalva</i> spp. (Gelechiidae, Lepidoptera) <i>Agdistis</i> spp. <i>Lepidogma tamaricalis</i> Mn. (Pyralidae) Lepidoptera)	<i>Psiloptera</i> spp. <i>Steraspis squamosa</i> Klug. (Buprestidae, Coleoptera) <i>Cryptocephalus</i> spp. (Chrysomelidae, Coleoptera) <i>Coniatus</i> spp. (Curculionidae, Coleoptera) <i>Opsius</i> spp. (Pseudococcidae, Homoptera) <i>Semiothisa aestimaria</i> (Hbn.) (Geometridae, Lepidoptera)

The family Tamaricaceae is small, and the genus *Tamarix* is unique in many physiological characteristics and does not include species of great economic importance to man. Therefore it is possible to choose the best combination of biological control agents from the large range available, and to achieve the desired degree of control, ranging from slight suppression to stand destruction.

**CALIFORNIA AS A SOURCE OF NATURAL ENEMIES FOR THE BIOLOGICAL CONTROL OF RAGWEEDS**—Richard D. Goeden, Division of Biological Control, Department of Entomology, University of California, Riverside, CA, U.S.A. Since 1967, the phytophagous arthropods and phytopathogens associated with ragweeds [*Ambrosia* (=Freanseria) spp.: Compositae] indigenous to southern California have been studied. Of 13 species of *Ambrosia* of California occurrence, two annual species, *A. artemisiifolia* L. and *A. trifida* L., are adventive, extremely rare, and pose no problem as hayfever plants in California, unlike the situation in eastern North America. Two other indigenous ragweeds, *A. ambrosiodes* (Cav.) Payne and *A. pumila* (Nutt.) Gray, are relict species that are of such limited incidence that they support no specialized arthropod fauna. However,

the remaining nine species of ragweeds of California occurrence have been found to host a diversity of phytophagous organisms, an appreciable component of which consists of highly specialized, apparently stenophagous species of phytophagous insects. As a result of these longterm studies undertaken at or near the supposed geographic center of origin of the genus *Ambrosia* in North America, the known number of species of ragweed insects has been substantially increased. These investigations are summarized to date relative to the prospects for the biological control of ragweeds with insects in North America and elsewhere.

**POISON IVY ARTHROPODS AND THEIR BIOLOGICAL CONTROL**—Dale H. Habeck, University of Florida, Gainesville, FL, U.S.A. More than 20 species of Lepidoptera representing 10 families have been found feeding on poison ivy *Rhus toxicodendron*. Most species are not specific enough for use in biological control. Other groups found feeding on poison ivy include Hymenoptera: Argidae; Coleoptera: Chrysomelidae; Homoptera: Cicadellidae, Coccidae, Pseudococcidae, and Aphididae; Orthoptera: Tettigoniidae; and Diptera: Cecidomyiidae.