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Scotch Broom, A New Host of Two Native Bugs in Virginia (Heteroptera: Alydidae)

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A new host relationship for two native heteropterans, the alydids *Alydus eurinus* (Say) and *Megalotomus quinquespinosus* (Say), was discovered during recent fieldwork in Virginia. Their association with an introduced shrub, Scotch broom (*Cytisus scoparius*; Fabaceae) is reported in this note.

The Host Plant

Scotch (or common) broom, indigenous to western Europe, is a wiry, much-branched deciduous shrub with green stems and bright yellow flowers (Everett, 1981). It has been introduced to the Pacific Northwest and to eastern North America as an ornamental and as a soil binder that retards erosion and stabilizes coastal sand

dunes (Bossard & Rejmanek, 1994). In Virginia, Scotch broom has been planted since the eighteenth century, having been recommended for hedges by Thomas Jefferson (Leighton, 1976). This woody legume has become a serious weed of western rangelands, and it also displaces native plants in the Sierra Nevada foothills, hindering reforestation and increasing the fire hazard among older trees. Several Old World insects that specialize on broom have been imported and released for the biological control of this plant in the West. Such attempts, however, have not reduced its densities (Frick, 1964; Bossard & Rejmanek, 1994).

Although not considered pestiferous in the East, Scotch broom sometimes escapes from cultivation. It has become naturalized from Nova Scotia to Virginia. In the

latter state it has been planted along highways, and it is locally common in the central and eastern counties (Pfeiffer, 1986; Gleason & Cronquist, 1991; Harvill et al., 1986).

The Bugs

Both true bugs are native species of the family Alydidae. Commonly termed broadheaded bugs, they range throughout most of North America: in Canada from Quebec and Ontario to British Columbia, and in the United States from Maine to Florida and west to California (Froeschner, 1988). Both *Alydus eurinus* and *Megalotomus quinquespinosus* occur statewide in Virginia (Hoffman, 1975).

These bugs belong to a mainly legume-feeding subfamily, the Alydinae. Nymphs sometimes feed on fallen seeds in the litter layer, but they more often occur on their host plants, where they feed on developing fruits and seeds. They are commonly found in weedy fields and along roadsides on clover (*Trifolium* spp.), sweet clover (*Melilotus* spp.) and other herbaceous legumes. These bugs have also been observed on flowers of New Jersey Tea (*Ceanothus americanus*; Rhamnaceae) and on vertebrate carrion (Blatchley, 1926; Yonke & Medler, 1968; Schaefer, 1972, 1980; Hoffman, 1975; Schaefer & Mitchell, 1983; Adler & Wheeler, 1984). *Alydus eurinus* feeds on soybean pods and is considered a potential pest of this crop (Wilkinson & Daugherty, 1967).

Virginia Observations

On July 4, 1995, I collected adults and mid- to late-instar nymphs of *A. eurinus* and *M. quinquespinosus* in landscape plantings of Scotch broom at five sites in Hampden-Sydney (Prince Edward Co.), including four on the campus of Hampden-Sydney College. About 15 adults of *A. eurinus* and five of *M. quinquespinosus* were observed with smaller numbers of nymphs of both species. Individuals were beaten mainly from plants bearing numerous seed pods. Nymphs of the more abundant alydid, *A. eurinus*, especially resembled the large black ants that were common on the same plants.

Other insects that had colonized this introduced shrub included both adventive and indigenous species. Old World species observed at Hampden-Sydney were the bruchid *Bruchidius ater* (Marshall) and the twobanded Japanese weevil *Callirhopalus bifasciatus* (Roelofs). Native species developing on Scotch broom included the planthoppers *Acanalonia conica* (Say), *Metcalfa pruinosa* (Say), and *Ormenoides venusta* (Melichar).

Voucher specimens of the alydids and bruchids have been deposited in the insect collections of Cornell University and the Pennsylvania Department of Agriculture.

DISCUSSION

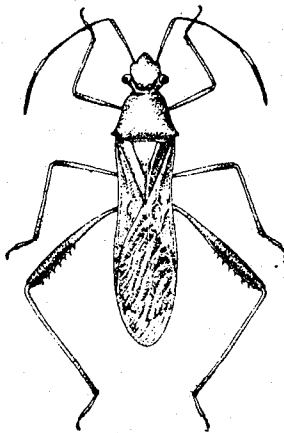
It is hardly surprising that these heteropterans have colonized Scotch broom, considering the diversity of legumes they are known to use for reproduction. It is not unusual for two or three alydid species to feed on the same host at a particular locality, or even on the same plant (Schaefer, 1980). The occurrence of *A. eurinus* and *M. quinquespinosus* on this woody shrub, however, contrasts with their typical association with herbaceous hosts. In addition, the habitat ~ landscape plantings ~ differs somewhat from that recorded in the literature.

Alydus eurinus and *Megalotomus quinquespinosus* have undergone a host shift ~ that is, they have added the nonindigenous shrub Scotch broom to their diet. In Virginia this plant has accumulated an insect fauna that includes adventive species such as the psyllid *Arytainilla spartiophila* (Foerster) (Pfeiffer, 1986) and native species such as the two alydids. "Host shifts" and colonization of introduced plants, especially crops such as cocoa and soybean, are well known and often involve similarities in secondary chemistry. For an introduction to the literature on this subject, the reader may consult Futuyma & Slatkin (1983) and Strong et al. (1984).

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Megalotomus quinquespinosus (Say)
(from Froeschner, 1988)