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NEW HOST PLANTS FOR ADULT *SYSTEMA HUDSONIAS*  
(COLEOPTERA: CHRYSOMELIDAE) FROM  
SOUTHWESTERN VIRGINIA

Charles E. Williams<sup>1</sup>

ABSTRACT

Adults of the flea beetle, *Systema hudsonias*, were observed feeding on *Ambrosia trifida* and eight previously unrecorded host plants in southwestern Virginia. New host plant records for *S. hudsonias* include: *Arctium minus*, *Aster novae-angliae*, *Chrysanthemum maximum*, *Eupatorium fistulosum*, *Helianthus annuus*, *Rudbeckia hirta* (Asteraceae), *Mentha spicata* (Lamiaceae), and *Verbena urticifolia* (Verbenaceae).

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The nineteen species of *Systema* (Coleoptera: Chrysomelidae: Alticinae) known from North America (Wilcox 1975) feed on a spectrum of herbaceous and woody plants (Blatchley 1910, Balsbaugh and Hays 1972, Wilcox 1979). Some *Systema* species [e.g., *S. frontalis* (Fabricius), *S. blanda* (Melsheimer), and *S. elongata* (Fabricius)] are occasional pests of crops and ornamentals (Arnett 1985), but most are innocuous and little studied.

The biology and host plant relations of *S. hudsonias* (Forster) are poorly known. Adults have been associated with several plants including *Ambrosia trifida* (greater ragweed), *Sambucus* sp. (elder), *Solidago* sp. (goldenrod) and *Zea mays* (corn) (Blatchley 1910, Metcalf et al. 1962, Balsbaugh and Hays 1972, Wilcox 1979). Duckett (1920) also listed wild aster, canna, grape, garden beet, potato and pole beans as hosts for *S. hudsonias*. This species has been called the smartweed flea beetle (e.g., Metcalf et al. 1962), yet there appears to be no published record of *S. hudsonias* feeding on smartweeds (*Polygonum* spp.). *Systema frontalis*, a species that closely resembles *S. hudsonias* (Blatchley 1910), feeds extensively on *Polygonum* (Blatchley 1910, Herrick 1925); thus association of *S. hudsonias* with smartweed could be due in part to misidentification of *S. frontalis*.

During June and July of 1987, 1988, and 1989, I observed adult *S. hudsonias* feeding on several cultivated and wild host plants growing in the ornamental plantings and field margins of a small farm in Blacksburg, Montgomery County, Virginia. Beetles were generally first observed in early June and were common through mid-July in all three years. This pattern of limited seasonal abundance of adults agrees with other published observations for this species in the eastern United States (Kirk 1970, Balsbaugh and Hays 1972, Riley and Enns 1979), and suggests that *S. hudsonias*, like other *Systema* species, is apparently univoltine (Herrick 1925).

*Systema hudsonias* adults were observed feeding on plants of three families: the Asteraceae (composites), Lamiaceae (mints), and Verbenaceae (vervains). Beetles

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primarily fed on plants in the Asteraceae including *Ambrosia trifida*, *Arctium minus* (common burdock), *Aster nova-angliae* (New England aster), *Chrysanthemum maximum* (cultivated Shasta daisy), *Eupatorium fistulosum* (hollow Joe-pye weed), *Helianthus annuus* (cultivated sunflower), and *Rudbeckia hirta* (black-eyed Susan). *Mentha spicata* (spearmint) and *Verbena urticifolia* (white vervain) were the only non-asteraceous plants fed upon by *S. hudsonias*. Except for *A. trifida*, all of the above plants are previously unrecorded hosts of *S. hudsonias*. Host plant and insect voucher specimens are deposited in the Virginia Polytechnic Institute and State University herbarium and the Cornell University Insect Collection, respectively.

Feeding beetles generally caused minor damage to plants and, when observed in the field or confined to petri plates with host plant leaves, usually fed on the adaxial surface of leaves. Typical *S. hudsonias* feeding damage consisted of circular scrapes of the leaf surface ca. 1–2 mm in diameter and (or) linear scrapes up to 5 mm in length and 1 mm in width. Beetles were particularly abundant on *A. nova-angliae*, *M. spicata*, and *V. urticifolia*; these plants grew in close proximity along a stream margin and aggregations of ten or more beetles per plant were commonly observed. Numerous other *Aster* and *Solidago* species also occurred at the stream margin, but *S. hudsonias* was not observed feeding on any of them.

*Systema hudsonias* is apparently an oligophagous or polyphagous species in southwestern Virginia and in other portions of its wide range (e.g., Quebec to South Dakota and south to Florida and New Mexico [Wilcox 1975]). Plants in the Asteraceae appear to be important hosts for *S. hudsonias*, although the array of plants fed on by this insect may vary with the taxonomic composition of the plant community in which it occurs, and local feeding specializations.

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