

## Status of the Rare Skipper (*Problema bulenta*) in Virginia

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The life history of the rare skipper (*Problema bulenta*) is poorly documented. It is associated with tidal marshes or upland habitats with abundant nectar sources in the vicinity of tidal marshes. Larvae are suspected to feed on giant cordgrass (*Spartina cynosuroides*), southern wild rice (*Zizaniopsis miliacea*), and wild rice (*Zizania aquatica*) (Opler & Krizek, 1984; Cromartie & Schweitzer, 1993; Glassberg, 1999). Recently, late instar larvae were found on *Phragmites australis* in New Jersey (D. F. Schweitzer, pers. comm.). Despite the widespread occurrence of apparently suitable habitat, the rare skipper tends to be highly localized and sporadic in distribution.

The rare skipper has been documented from seven states along the Atlantic coast: New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, and Georgia (Cromartie & Schweitzer, 1993; Opler, 1998). The rare skipper was formerly a candidate (Category 2) species for listing under the federal Endangered Species Act, until the U.S. Fish and Wildlife Service abolished that category in 1996. Currently, it receives no legal protection in any of the states in which it occurs, despite its rarity and patchy distribution.

The rare skipper has one brood from late-July to August in the northern portion of its range (Opler & Krizek, 1984). There are records from May and early June indicating it is double-brooded in the southern portion of its range (Opler & Krizek, 1984). In Virginia, Nicolay (1979) proposed that the rare skipper might be double-brooded, while Opler & Krizek (1984) suggested that it is single-brooded. All of the Virginia collections to date are from late-July and August; however, extensive survey efforts have not been conducted earlier in the year.

In Virginia, J. Bauer and B. Dixon first collected *P. bulenta* on 21 August 1967 (Covell & Straley, 1973). The location was reported as 2.0 miles (3.2 km) south of Lanexa, New Kent County. The area consists of

tidal marshes along the Chickahominy River near its confluence with Diascund Creek (Nicolay, 1979; Pague, 1991; Hobson, pers. obs.). R. Anderson, S. Nicolay, C. Covell, and G. Straley collected *P. bulenta* from the flowers of swamp milkweed (*Asclepias incarnata*) at this location in August 1970 (Covell & Straley, 1973). Anderson and Nicolay captured it again in August of 1971, but efforts by Anderson in mid-July 1971 were unsuccessful (Covell & Straley, 1973).

C. S. Hobson and S. M. Roble reverified this population on 23 August 1999, when they observed nine adults at two marshes upstream of the mouth of Diascund Creek. Eight of the individuals were seen nectaring on pickerelweed (*Pontederia cordata*) about 1-1.75 km upstream of the mouth of Diascund Creek in New Kent County. One individual was on swamp milkweed approximately 6 river km upstream of the mouth of Diascund Creek, Charles City County (new county record). A survey conducted at these sites on 31 August 1999 did not find any *P. bulenta*, however weather conditions were less than favorable.

Associated butterflies and skippers at these capture sites included broad-winged skipper (*Poanes viator*), orange sulphur (*Colias eurytheme*), palamedes swallowtail (*Papilio palamedes*), red admiral (*Vanessa atalanta*), fiery skipper (*Hylephila phyleus*), spicebush swallowtail (*Papilio troilus*), tiger swallowtail (*Papilio glaucus*), and monarch (*Danaus plexippus*).

Vegetation at the capture sites is characterized by dense stands of southern wild rice mixed with wild rice, pickerelweed, arrow arum (*Peltandra virginica*), and two species of mallows (*Hibiscus moscheutos*, *Kosteletzkya virginica*). Giant cordgrass was not observed in the vicinity of the captures, but was found in small patches within three miles downstream of Diascund Creek. Bald cypress (*Taxodium distichum*) is prevalent along the floodplain in the vicinity of the capture sites.

Additional surveys of other tidal marshes in Virginia in 1999 failed to document the presence of

*P. bulenta*. These included surveys along the Rappahannock, Mattaponi, and Pamunkey rivers. Extensive surveys of marshes along the Rappahannock River were also conducted in July and August of 2001 without success.

While conducting zoological surveys in 2001 for the National Park Service at Colonial National Historical Park – Jamestown Island, *P. bulenta* was observed by Chazal and others at one small, fringe marsh over the course of several weeks. The marsh is approximately 50 m long by 20 m wide and is approximately 0.8 mi (1.25 km) north of Travis Cemetery on Jamestown Island, in James City County, Virginia (new county record). The area within which *P. bulenta* was observed covers approximately 6.4 acres (2.6 ha). This is only the second known Virginia population of this species and is approximately 24 air km south of the previously known site on the Chickahominy River.

Emergent vegetation in this area includes giant cordgrass, arrow arum, narrow-leaved cattail (*Typha angustifolia*), and pickerelweed. Larger, surrounding marshes contain giant cordgrass, arrow-arum, wild rice, dotted smartweed (*Polygonum punctatum*), halberd-leaf tearthumb (*Polygonum arifolium*), Walter's barnyard grass (*Echinochloa walteri*), bull-tongue arrowhead (*Sagittaria lancifolia*), and other species. Several stems of swamp milkweed were observed along the edge of the marsh on the upland side.

On 19 July 2001, one *P. bulenta* was collected; however, it was not identified until about one month later and its precise capture location is uncertain. Based on surveys in the area after this finding, and the highly localized behavior of the species, the collection was almost certainly made in the same fringe marsh as the subsequent observations and collections. On 15 August, 8-9 individuals of *P. bulenta* were observed in the outer portions of the marsh. The highest population count occurred on 22 August when 139 individuals were observed near the Colonial Parkway. A majority (106) of those seen on this date were observed nectaring on 20-30 flower heads of swamp milkweed (Fig. 1). On 30 August, only ten *P. bulenta* were observed. It was also noted that the swamp milkweed flower heads were either spent, or appeared to have been browsed by white-tailed deer (*Odocoileus virginianus*). Rare skippers were last observed on 6 September when four individuals were seen. None were seen on 13 September.

The rare skippers were observed nectaring mainly on swamp milkweed and pickerelweed with two individuals observed nectaring on rattlesnake master (*Eryngium aquaticum*). Outside of Virginia, other reported nectar sources of *P. bulenta* include

buttonbush (*Cephalanthus occidentalis*), common milkweed (*Asclepias syriaca*), dogbane (*Apocynum cannabinum*), swamp rose mallow (*Hibiscus palustris*), and seashore mallow (*Kosteletzkya virginica*) (Krizek & Opler, 1986; Cromartie & Schweitzer, 1993). The latter authors listed numerous additional, infrequently visited plants.

Other lepidopterans observed in the same area of Jamestown Island included broad-winged skipper, sedge skipper (*Euphyes dion*), Delaware skipper (*Anatrytone logan*), silver-spotted skipper (*Epargyreus clarus*), and monarch.



Fig. 1. Adult rare skipper (*Problemata bulenta*) on swamp milkweed (*Asclepias incarnata*).

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