

Shoreline Flora of the Blackwater River in Southampton and Isle of Wight Counties, Virginia.

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During his extensive botanical research in southeastern Virginia, Merritt Lyndon Fernald (1937, 1938, 1941, 1942, 1943) collected many plant specimens from exposed shorelines of the region's rivers, creeks, and large millponds. His collections along the Blackwater River included *Justicia ovata* (Walt.) Lindau, *Micranthemum umbrosum* (J.F. Gmel.) Blake, and *Mitreola petiolata* (J.F. Gmel.) Torr. & Gray, plant species now considered rare in Virginia (Ludwig, 1996). On 14 and 28 September 1993 and 12 September 1995, I collected and recorded vascular plant species along the Blackwater River shores to determine the status of the rare species. My work was conducted from Zuni to Franklin in Isle of Wight and Southampton Counties, a distance of ca. 30 km. With the assistance of Allen Belden and Dirk Stevenson, I canoed or walked most of this stretch, stopping often to inspect plants growing on open, temporarily exposed shores often referred to as draw-down shores or draw-downs. These shores include open, sandy and silty banks, peninsulas, bars and flats which are carpeted with low herbaceous plant species late in the growing season (Figure 1). Most of the plants are annuals such as *Eragrostis hypnoides* (Lam.) B.S.P and *Fimbristylis autumnalis* (L.) R.&S. which can quickly colonize the exposed substrate and set fruit. Less frequently, perennial herbs occur, though they are generally found on the upper portions of the shores. Seedlings of woody species such as *Betula nigra* L. and *Acer rubrum* L. also occur, but these apparently do not survive when water levels rise in the autumn. A complete list of herbaceous plant species collected or observed on the Blackwater River shores during this study is presented as an appendix. Nomenclature follows Kartesz (1994).

Five plant species considered rare in Virginia were found during the present study: *Hemicarpha micrantha*

(Vahl.) Pax., *Justicia ovata*, *Micranthemum umbrosum*, *Mitreola petiolata*, and *Oldenlandia boscii* (DC.) Chapman. Furthermore, the discovery of *Eupatorium compositifolium* Walt. is noteworthy. A discussion of these species follows. Voucher specimens with collection numbers and repositories are noted.

The most abundant of the rare species was *Justicia ovata* which thrived on open shores of the river and was also abundant in the densely shaded bottomland forests. I collected a specimen on 12 September 1995 approximately 1.1 km south of the State Route 603 bridge in Isle of Wight County (2596,VPI). All collections of this species within Virginia are limited to bottomlands of the Blackwater and Nottoway River systems.

Micranthemum umbrosum was also abundant along the Blackwater River, with several thousand plants found between the State Route 611 and the State Route 619 bridges. My specimen was collected on 28 September 1993 approximately 0.6 km northeast of the State Route 611 bridge in Southampton County (2216,VPI). This diminutive trailing annual inhabits the wettest portions of the draw-down zones and also grows immersed in shallow water. Fernald recorded this species from the State Route 611 bridge and two other southeastern Virginia stations (Fernald, 1937, 1942, 1943). Subsequently, the species has been recorded in Fairfax and Greensville counties (Harvill et al., 1992).

Though widely distributed along the surveyed length of the Blackwater River, *Hemicarpha micrantha* was far less common than the previously mentioned species. Approximately 25 plants were counted in 1993 and 40 to 50 were seen in 1995. I collected it on 14 September 1993, 0.1 km east of the State Route 619 bridge in Isle of Wight County (2206,GMUF,VPI). This tiny annual was

first collected in Southampton County, Virginia in 1936 at sites along the Nottoway River and in artificial ponds (Fernald, 1937). Since then, the only Virginia collections of this species have been from the Blackwater during this work, and from Fairfax County (Harvill et al., 1992).

Mitreola petiolata was also found at scattered locations along the entire surveyed reach of the river. My specimen was collected on 14 September 1993 approximately 0.5 km south of the State Route 603 bridge in Southampton County (2208,WILLI). Approximately 100 plants were found in 1993 and 1995. Fernald (1937, 1942) found it along the Blackwater River and in a small natural pond in Prince George County. Since these discoveries, the species has been collected from at least six other locations in southeast Virginia.

Oldenlandia boscii, was the rarest and most local species along the Blackwater River. I collected it on 14 September 1993 approximately 0.4 km south of the State Route 603 bridge in Isle of Wight County (2209,WILLI). Approximately 20 plants were seen in this area. The only previous records for this prostrate annual species in Virginia were provided by Fernald (1937, 1938, 1941, 1943) from stations along the Nottoway River, Three Creek (a tributary of the Nottoway River), and shores of artificial ponds in southeast Virginia.

Eupatorium compositifolium was cited as a waif or taxon of doubtful establishment in Virginia by Harvill et al. (1992) based on its single collection from Newport News City. The species is well established and appears to be native on exposed silt and sand of the open shores and bottomlands of the Blackwater River. I collected the species on 14 September 1993, 0.1 km north of the State Route 619 bridge in Isle of Wight County (2207,VPI) and on 28 September 1993, approximately 1.4 km upstream of the State Route 611 bridge in Southampton County (2215,VPI). In 1993, I estimated that there were more than 1000 plants along a two km stretch of river in the vicinity of the State Route 611 bridge. Despite the large number of plants, only five plants had set fruit. Apparently, few individuals of this perennial species can germinate during low water of the late summer months and successfully reach fruiting stage before frost or rising water of autumn.

All rare plants encountered by Fernald were recollected during this study. In addition, three other rare or noteworthy species were encountered. Because Fernald only briefly worked along the Blackwater River, it is

difficult to further compare his collections with those in this study. It does appear, however, that shorelines of the Blackwater River provide a viable habitat for a number of plants absent or rare elsewhere in Virginia.

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Appendix. Herbaceous vascular plant species collected or observed on shorelines of the Blackwater River

Bidens frondosa L.
Boehmeria cylindrica (L.) Sw.
Commelina diffusa Burm. f.
Cyperus erythrorhizos Muhl.
Cyperus polystachyos Rottb.
Datura stramonium L.
Diodia virginiana L.
Digitaria sanguinalis (L.) Scop.
Echinochloa muricata (Beauv.) Fern.
Echinodorus cordifolius (L.) Griseb.
Eleocharis obtusa (Willd.) J.A. Schultes
Eragrostis hypnoides (Lam.) B.S.P
Erechtites hieracifolia (L.) Raf. ex DC.
Eupatorium compositifolium Walt.
Fimbristylis autumnalis (L.) R.&S
Heliotropium indicum L.
Hemicarpha micrantha (Vahl.) Pax.
Hydrocotyle verticillata Thunb. var. *verticillata*
Hypericum mutilum L./
Hypoxis leptocarpa Engelm.

Justicia ovata (Walt.) Lindau
Lindernia dubia (L.) Pennell var. *dubia*
Ludwigia decurrens Walt.
Ludwigia palustris (L.) Ell.
Micranthemum umbrosum (J.F. Gmel.) Blake
Mitreola petiolata J.F. Gmel.) Torr. & Gray
Mollugo verticillata L.
Nuphar lutea (L.) Sm. ssp. *advena* (Ait.) Kartesz & Ghandi
Oldenlandia boscii (DC.) Chapman
Panicum dichotomiflorum Michx.
Panicum rigidulum Bosc ex Nees var. *elongatum* (Pursh)
 LeLong
Panicum verrucosum Muhl.
Paspalum fluitans (Ell.) Kunth
Pluchea camphorata (L.) DC.
Polygonum hydropiperoides Michx.
Polygonum pennsylvanicum L.
Rhynchospora corniculata (Lam.) Gray
Rotala ramosior (L.) Koehne
Sabatia calycina (Lam.) Heller
Scirpus cyperinus (L.) Kunth
Triadenum walteri (J.G. Gmel.) Gleason



Figure 1. Exposed shoreline on Blackwater River 12 September 1995 near County Route 619 bridge, Southampton County, Virginia. *Panicum* spp dominate higher portions of the open flat. Note water's edge at right and stranded *Nuphar lutea* ssp *advena*. Bottomland forest with *Taxodium distichum*, *Nyssa aquatica*, and *Betula nigra* is behind open shoreline. Zoologist Dirk Stevenson is pictured.