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Common Name: KRAL'S WATER-PLANTAIN

Scientific Name: *Sagittaria secundifolia* Kral

Other Commonly Used Names: Little River water-plantain

Previously Used Scientific Names: none

Family: Alismataceae (water-plantain)

Rarity Ranks: G1/S1

State Legal Status: Threatened

Federal Legal Status: Threatened

Federal Wetland Status: OBL

Description: Aquatic perennial **herb** with slender, green, underwater **stems** up to 4 inches (10 cm) long, lodged in cracks of rocks, with leaf bases overlapping in a row along one side. **Leaves** of plants in swift-flowing or shallow water $\frac{3}{4}$ - 4 inches (2 - 10 cm) long and less than $\frac{1}{4}$ inch (2 - 5 mm) wide, erect, flat, and curved. **Leaves** of plants in deep or quiet water 2 - 12 inches (5 - 30 cm) long, very narrow, round in cross-section except for flat, angular tip. **Flower stalk** 4 - 20 inches (10 - 50 cm) tall, leafless, with 2 - 5 whorls of branches; usually held erect above water, at

least at the tip. **Male flowers** on upper branches, with 3 white petals; **female flowers** on lower branches, with no petals. **Fruit** in tight, round clusters on erect or spreading stalks; fruit flat with a spur-like beak, a scalloped or toothed wing, and a ridged and bumpy surface.

Similar Species: Grass-leaved water-plantain (*Sagittaria graminea*) leaves are larger and broader and it has up to 12 whorls of flowering branches; the fruit is winged but the wing is not scalloped or toothed.

Related Rare Species: Ovate-leaved arrowhead (*Sagittaria platyphylla*, Special Concern) is a large plant with broad, oval leaves up to 6½ inches (16.4 cm) long and leaf stalks to 28 inches (70.5 cm) long; it occurs in ponds, ditches, swamps, and marshes in Chatham and Liberty counties.

Habitat: Narrow, unpolluted streams over sandstone; cracks in sandstone riverbeds, exposed rocky shoals, and among boulders in quiet stream pools. Often with other aquatic species such as pondweed, milfoil, and riverweed.

Life History: Although capable of sexual reproduction, Kral's water-plantain spreads primarily by growth of its underwater stems (rhizomes). Female and male flowers occur separately on the same plant, with male flowers held on upper branches, female on lower. Plants flower only in full sun and where low water levels permit growth of above-water leaves. Bees are likely pollinators but little is known about Kral's water-plantain reproduction.

Survey Recommendations: Plants flower infrequently, but may be identified by leaves and underwater stem throughout the growing season in wet years; plants may become dormant during droughts. Flowers May–August, fruits July–September.

Range: Little River drainage (northwest Georgia, northeast Alabama), Town Creek (northeast Alabama), Sipsey Fork of the Black Warrior River (northwest Alabama), and Hatchet Creek (central Alabama).

Threats: Pollution and siltation of streams and rivers by agricultural runoff, mining, and development. Damming of streams. Off-road vehicle use in streams.

Georgia Conservation Status: One population, in private ownership, is known.

Conservation and Management Recommendations: Protect water quality. Prevent siltation of riverbeds from agriculture, mining, and development activities. Avoid damming or otherwise altering stream flow. Prevent off-road-vehicle access.

Selected References:

Chafin, L.G. 2007. Field guide to the rare plants of Georgia. State Botanical Garden of Georgia and University of Georgia Press, Athens.

FNA. 2000. Flora of North America, Vol. 22, Magnoliophyta: Alismatidae, Arecidae, Commelinidae (in part), and Zingiberidae. Oxford University Press, New York.

Kral, R. 1982. A new phylloidal-leaved *Sagittaria* (Alismataceae) from Alabama. *Brittonia* 34:12-17.

Kral, R. 1983. A report on some rare, threatened, or endangered forest-related vascular plants of the South. Technical Publication R8-TP2. United States Forest Service, Atlanta.

Patrick, T.S., J.R. Allison, and G.A. Krakow. 1995. Protected plants of Georgia. Georgia Department of Natural Resources, Natural Heritage Program, Social Circle.

USFWS. 1990. Kral's water-plantain (*Sagittaria secundifolia*) – species account. U.S. Fish and Wildlife Service, Washington, D.C.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q2VT

USFWS. 1991. Kral's water-plantain (*Sagittaria secundifolia*) recovery plan. U.S. Fish and Wildlife Service, Jackson, Mississippi. <http://endangered.fws.gov>

Weakley, A.S. 2008. Flora of the Carolinas, Virginia, Georgia, northern Florida, and surrounding areas. University of North Carolina Herbarium, Chapel Hill.

<http://www.herbarium.unc.edu/flora.htm>

Whetstone, R.D., C.L. Lawler, L.H. Hopkins, A.L. Martin, and C.C. Dickson. 1987. Kral's water-plantain, *Sagittaria secundifolia* Kral (Alismataceae), new to Georgia. *Castanea* 52: 313.

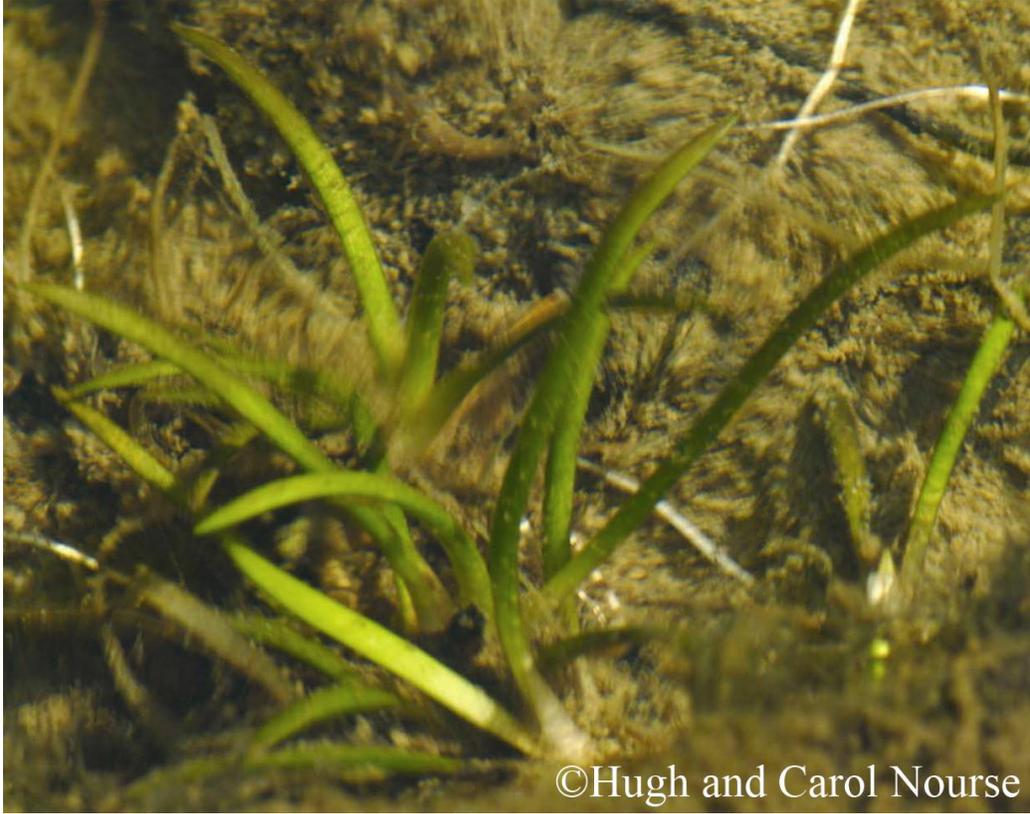
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Date Compiled or Updated:

L.Chafin, Aug. 2008: original account

D.Weiler, Feb. 2010: added pictures

Z. Abouhamdan, April 2016: updated link



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