Common Name: LIMEROCK ARROW-WOOD

Scientific Name: *Viburnum bracteatum* Rehder

Other Commonly Used Names: none

Previously Used Scientific Names: *Viburnum dentatum* L. var. *bracteatum*

Family: Caprifoliaceae (honeysuckle) or Adoxaceae (moschatel)

Rarity Ranks: G1G2/S1

State Legal Status: Endangered

Federal Legal Status: none

Federal Wetland Status: none

Description: Shrub to 10 feet (3 meters) tall, forming colonies by root sprouts. **Twigs** hairy only in their first season. **Leaves** 2 - 4¾ inches (5 - 12 cm) long, broadly oval to nearly round, with rounded or heart-shaped bases, pointed tips, and margins with large, sharp teeth; opposite, deciduous; veins on the lower leaf surface are hairy. **Leaf stalks** about ¾ inch (2 cm) long, covered with short hairs, with 4 narrow, bract-like **stipules** at the junction of leaf stalk and stem. **Flower cluster** 1½ - 2⅜ inches (4 - 6 cm) across, on an erect, 2-inch (5 - 6 cm) stalk; flat-topped,

with 2 conspicuous bracts at the base. **Flowers** ⅜ inch (8 mm) across, with 5 white petals. **Fruit** about ⅜ inch (1 cm) long, oval, blue-black.

Similar Species: Southern arrow-wood (*Viburnum dentatum*) has toothed leaves but its leaf stalks are ⅜ - 1 inch (1 - 2.5 cm) long and usually lack stipules; twigs, lower leaf surfaces, and leaf stalks are hairy. Limerock arrow-wood is sometimes included in this highly variable species.

Related Rare Species: Downy arrow-wood (*Viburnum rafinesquianum* var. *rafinesquianum*, Special Concern) resembles limerock arrow-wood. It occurs in rocky woods and on bluffs over amphibolite, granite, and limestone in Bartow, DeKalb, and Floyd counties. It has very short or no leaf stalks, and the entire lower surface of the leaves is very hairy.

Habitat: Limestone bluffs above the Coosa River and on rocky slopes of the Cumberland Plateau.

Life History: Little is known about limerock arrow-wood's biology. A closely related species, common arrow-wood (*Viburnum dentatum*), is better known and probably shares many life history traits (some biologists consider limerock arrow-wood to be the same species as *V. dentatum*). Like limerock arrow-wood, common arrow-wood has showy flower clusters that attract a variety of pollinators, including bees, flies, butterflies, and beetles. *Viburnum* flowers offer little nectar and are most frequently visited by pollen-gathering insects such as bees; solitary bees are thought to be the most effective *Viburnum* pollinators. Common arrow-wood is self-incompatible and must be cross-pollinated in order to produce fruit. Fruits are produced by the third year and are dispersed primarily by birds. Limerock arrow-wood also reproduces vegetatively, by the spread of short rhizomes and by sprouts from the root crown. Many *Viburnum* species have extra-floral nectaries, small glands at the base of the leaf that produce a sugar-rich nectar. It is thought that extra-floral nectaries attract insects that may defend the plant from leaf-eating insects. Some biologists have speculated that the stipules at the base of some *Viburnum* leaves are highly modified nectaries.

Survey Recommendations: Surveys are best conducted during flowering (mid-April–mid-May) and fruiting (July–October).

Range: Fewer than 15 sites are known in Georgia, Alabama, and Tennessee. Several sites have been destroyed by mining.

Threats: Logging, mining, clearing. Plant poaching. Lack of sexual reproduction. The viburnum leaf beetle (*Pyrrhalta viburni*) is threatening other species of *Viburnum* in this group of closely related species and may eventually pose a hazard to limerock arrow-wood. The beetles are capable of defoliating a shrub by mid-summer. The beetle is so far confined to the northeastern U.S., but may become a threat as it moves southward.

Georgia Conservation Status: Three populations are known, all on conservation land. Plants rarely flower or set fruit.

Conservation and Management Recommendations: Avoid logging, quarrying, or other mechanical disturbances on limestone bluffs. Safeguard location information and prosecute plant poachers.

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