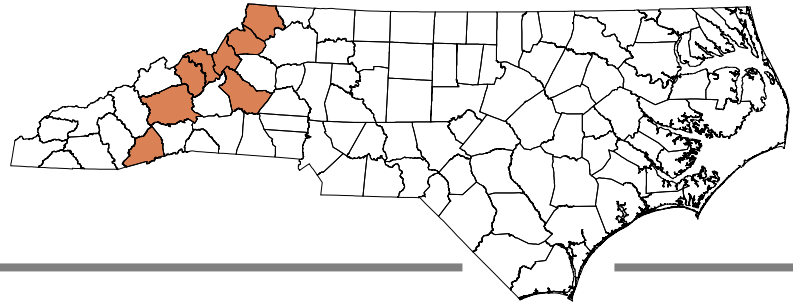


Spreading avens

Geum radiatum

(Appalachian avens, cliff avens)

Endangered (April 5, 1990)



Description: Spreading avens is a perennial herb of the rose family, 8-20 inches (20-50 cm) high, with dense spreading hairs. Most leaves grow from a rosette at the plant base, which arises from horizontal rhizomes. These leaves are large and kidney shaped, with uneven, toothed edges. Two to five smaller leaves grow from the plant stems. An indefinite cyme of 1-3 flowers grows at the end of each stem, with 5 lance-shaped sepals, and 5 bright yellow petals 0.5-0.8 inch (1.3-2 cm) long, with numerous stamens and pistils. Fruit is a small, dry, and hairy achene, with a 0.1-0.12 inch (2.5-3 mm) long body, and a 0.4 inch (1 cm) long beak.

Life History: Flowering occurs June-September. Fruiting occurs August-October. Little specific information about the autecology of this species is available. A species of relatively ancient origin, it has existed in the southern Appalachians since before the last Ice Age. Exists in small, isolated populations and grows in pioneer perennial herb communities. Reproduces sexually (seed) and asexually by rhizomes. Probably pollinated by insects drawn to the showy flowers.

Habitat: High-elevation cliffs, outcrops, grassy balds, and steep slopes in full sun. May prefer north-facing cliffs. Adjacent forests are mostly red spruce (*Picea rubrens*) and Fraser fir (*Abies fraseri*). Known substrate is shallow, acidic soil in cracks and crevices of igneous, metamorphic and metasedimentary rocks. Soils may be well drained but almost continuously wet. Soils at some sites are subject to

drying out in summer due to exposure to sun and shallow depths. Blue Ridge goldenrod, Heller's blazing star, and Roan Mountain bluet, all of which are federally listed species, may be found in association with spreading avens.

Distribution: Found in the mountains of North Carolina and eastern Tennessee, there are only 11 of 16 original sites left. Seven of these support less than 50 plants each, and 3 of those sites support less than 10 individuals. Reported in North Carolina in Ashe, Avery, Buncombe, Burke*, Mitchell, Transylvania, Watauga, and Yancey counties.

Threats: Loss of habitat because of residential and recreational development; trampling (and resulting soil compaction) by hikers, climbers, and sightseers; illegal collection; and natural succession. Natural disasters like rock slides, severe storms and drought, and desiccation of moist soils due to loss of the adjacent fir forest to the balsam wooly adelgid.

Management Recommendations: Education and cooperative management effort by public and private landowners. Protection of existing sites by erecting barriers around populations at heavily visited sites. Avoid new construction of recreational and residential facilities at sites. Research of life history and management requirements. Restoration to historic sites; search for additional populations.

* No record has been reported in this county in the past 20 years.

Sources: Early 1991; Hardin 1977; Radford et al. 1964; USFWS 1992a, 1993c.

