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Riparian adapted plant species require a certain level of flooding not only as a mechanism for dispersal but also for the removal of competitors, opening the canopy to allow full sun exposure, and the creation of riverwash deposits for colonization. One such characteristic riparian species is *Spiraea virginiana* Britton. As a native shrub in the Rose family, this species is federally threatened and is in peril in every state it resides. To understand the components of species rarity, and to aid in the management and protection of *S. virginiana*, as well for similar species in riparian habitats, we explored how genetic diversity and reproductive biology might contribute to rarity. Microsatellite markers were designed and analyzed for samples collected from five populations throughout Tennessee. Results indicate that clonal reproduction is the predominant method of reproduction. There was no evidence of long distance dispersal, indicating that populations have been isolated for an extended period of time. This study demonstrates that riparian species are capable of sustaining populations through clonal growth, however, the resulting lack of genetic diversity leaves the evolutionary potential of the species in question.