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Seed Propagation of *Chionanthus pygmaeus* (Pygmy Fringetree), a Rare Woody Species Native to Florida

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Chionanthus pygmaeus Small (pygmy fringetree) is an endemic and rare Florida species, which has an attractive, small habit giving it great potential for use in managed landscapes. Members of the genus *Chionanthus* are difficult to propagate via cuttings and possess complex seed dormancies that are not well understood. Both conservation of *C. pygmaeus* and its potential for commercial propagation for use in managed landscapes is dependent on a better understanding of its complex seed dormancy and enhancement of its propagation. This study was conducted to determine what factors are involved in overcoming seed dormancy and to assess what environmental factors might be influencing the ostensible reduction in the natural reproduction of *C. pygmaeus* in its native habitat. Evaluation of sexual propagation methods for *C. pygmaeus* will help to understand its biology, potential for conservation, and likelihood for commercial propagation. Various scarification treatments, which replicated conditions propagules are exposed to in the wild, were investigated to determine their effects on germination of 20-year-old seeds originally collected from the species' native range. Treatments included endocarp removal, sulfuric acid, boiling-water, and smoke-water treatments. Prior to treatment initiation, seed viability was estimated to be 12%. Treated seeds went through two cold- and two warm-stratification periods of 4 and 25 °C, respectively, in a dark growth chamber. After 180 days, no treatments induced early germination. Seeds were then tested for viability and found to have overall viability of 10.5%. Seed viability of seeds in the scarification treatments were 13.0% (boiling water), 9.4% (sulfuric acid), 22.4% (boiling water x sulfuric acid), 0.0% (endocarp removal), and 7.8% (control). Seed viability of seeds in the smoke-water treatments were 9.6% (control), 10.4% (50% dilution), 7.5% (25% dilution), and 14.6% (12.5% dilution). Seed viability for scarification x smoke water treatments ranged between 0.0-27.1%. Although there was only a slight reduction from the expected viability (12%) to the end-of-experiment viability (10.5%), it appears some of the treatments, particularly endocarp removal with a final viability of 0%, were associated with a reduction in seed viability. Certain treatments may be associated with maintenance of viability. It is apparent that seed dormancy of the species is highly complex, allowing 20-year-old seeds to retain some degree of viability while having no germination success.