

RESULTS AND CONCLUSIONS

Of the 165 'Wintergreen' boxwood shrubs planted bare root in April and Aug. 2001, 100% survived by the end of the 2002 growing season and shrubs planted on the two dates were approximately the same size. Horticulture students learned that there are alternative methods for handling nursery stock for landscape planting.

The results indicate that the Missouri Gravel Bed is a useful tool for extending the planting season for bare root plants, thus allowing landscapers to take advantage of the benefits of handling plants bare root.

Recovery, Propagation, and Evaluation of the Box Huckleberry (*Gaylussacia brachycera*)[®]

Margaret Pooler and Ruth Dix

USDA/ARS U.S. National Arboretum, Floral and Nursery Plants Research Unit, 3501 New York Ave., NE, Washington, DC 20002 U.S.A.

Rob Griesbach

Floral and Nursery Plants Research, U.S. National Arboretum, USDA, ARS, BARC-W, Beltsville, Maryland 20705-2350 U.S.A.

The box huckleberry (*Gaylussacia brachycera* [Michx] Gray) is a slow-growing, dwarf evergreen woody groundcover that is native to both the mountains and coastal plains of Pennsylvania, Virginia, Kentucky, Tennessee, West Virginia, Delaware, and Maryland (USDA, NRCS, 2002). It has glossy, dark green, fine-textured foliage, with new growth often red to maroon colored. The box huckleberry's global conservation status is listed as G3 (NatureServe Explorer, 2001), and the state listing for Delaware, Maryland, and Pennsylvania is S1 (critically imperiled). In Maryland, there is only one very small plant left of the known wild population. In Delaware, only three wild populations have been found. In the seven states in which it is native, there are less than 20 known populations of this species.

Propagation of plants from Maryland will safeguard this rare germplasm from extinction. Although the Center for Plant Conservation currently has no recovery plans for *G. brachycera*, a Memorandum of Understanding between the Maryland Department of Natural Resources and the U.S. National Arboretum was established in 1998 to conduct research on the recovery, propagation, and evaluation of *G. brachycera* in Maryland. Under this agreement, cuttings of two small *G. brachycera* in Maryland were taken in October, 1998. These cuttings have rooted and are currently growing in protected beds at the U.S. National Arboretum in Washington, D.C. We hope to provide propagules of these Maryland plants to the Maryland DNR to begin recovery efforts in the next 2 years.

Under permit, plants of box huckleberry have been collected from 14 native habitats in six states. All of these plants have been established in a protected site at the National Arboretum. We hope to use these plants to achieve the following objectives: (1) In cooperation with the Maryland DNR, enhance the recovery of box huckleberry in the wild by reintroducing the plant back into its native habitat in Maryland; (2) Determine molecular genetic distances among collected populations to guide decisions regarding conservation, preservation, and breeding; (3) Deter-

mine optimum propagation and production methods so that this species may be evaluated by commercial nurseries as a slow-growing, native, evergreen landscape plant; and (4) Perform controlled pollinations between accessions to create new genotypes.

Plants collected as cuttings (Maryland) or as layers have been established. Plants collected as layers in mid March from Virginia grew much faster and more vigorously than plants collected in August from West Virginia or in October from Kentucky. Although more data is needed to verify our hypothesis, we believe that late winter/early spring is the optimum time for collecting rooted runners, as the plants put out spring growth and are therefore easier to establish.

Successful propagation and establishment of at least eight accessions of *G. brachycera* for further evaluation and breeding have been achieved. Although initial establishment is slow, these plants grow vigorously from runners once they are established. The plants appear to be extremely intolerant of abrupt change, either in habitat or growing conditions, but generally show no symptoms of stress until they suddenly die.

Very little is known about the propagation of *G. brachycera*. Although Dirr (1983) suggests that late fall is the best time to take cuttings, we have found that cuttings will also root in the spring. Based on our experience, the best method for reliable production of box huckleberry may be through rooted layers, rather than cuttings. Future research in our lab will focus on determining optimum propagation and production procedures.

Our initial and ongoing assessment of molecular genetic distances among the accessions revealed surprisingly little variation between accessions in general. Although some differences were apparent, we found that we had to examine many AFLP primer combinations to find relatively few polymorphic markers. More work, possibly using other types of markers [e.g., the *ChsA* gene (Griesbach et al., 2000)], combined with geographic information, is necessary in order to establish genetic relationships and possibly assess evolutionary relationships among accessions.

LITERATURE CITED

- Dirr, M.A.** 1983. Manual of woody landscape plants. 3rd ed. Stipes Publishing Company, Champaign, Illinois.
- Griesbach, R.J., R.M. Beck, and J.R. Stehmann.** 2000. Molecular heterogeneity of the chalcone synthase intron in *Petunia*. HortScience 35:1347-1349.
- NatureServe Explorer.** (An online encyclopedia of life [web application]). 2001. Version 1.6. Arlington, VA, USA: NatureServe. Available: <<http://www.natureserve.org/explorer>>. (accessed 9 Sept. 2002).
- USDA, NRCS.** 2002. The PLANTS Database, Version 3.5 <<http://plants.usda.gov>>. National Plant Data Center, Baton Rouge, Louisiana 70874-4490 USA (accessed 9 Sept. 2002).