Summer-planting Bare Root *Buxus sinica* var. *insularis* 'Wintergreen' Shrubs on the University of Missouri Campus from a Missouri Gravel Bed©

Mary Ann Gowdy and Chris Starbuck
Department of Horticulture University of Missouri, Columbia, Missouri 65211 U.S.A.

Richard Munson
University of Missouri Botanic Garden/ Landscape Services, University of Missouri, Columbia, Missouri 65211 U.S.A.

INTRODUCTION

The Missouri Gravel Bed is a method, developed at the University of Missouri, that allows trees and shrubs to be planted any time during the summer with a survival rate greater than those expected for B&B and container-grown plants of comparable size. Over the past 15 years, at least 50 species of trees and shrubs have been successfully field planted in mid- to late summer from gravel beds in Missouri, Iowa, Kansas, Idaho, and Ohio. In 2001, a cooperative project was begun in which a gravel bed was constructed to hold bare-root shrubs for summer planting on the University of Missouri, Columbia (MU) Campus. Landscape Services constructed the bed and purchased the plants and MU students in Greenhouse Production and Home Horticulture classes placed the plants in the bed and managed the system until the end of spring semester. Student employees managed the bed over the summer. Plants were removed from the bed in August and planted by Landscape Services personnel.

METHODS

A 8 × 30 ft gravel bed 18 inches deep was constructed on a slight slope with timbers and filled with a mixture of ½-inch river rock and concrete sand (9 : 1, v/v). The rock was underlain with 20-mil PVC pond liner that drained into a 40-gal plastic trash can sunk into the ground as a sump. One hundred and sixty five bare-root, 9- to 12-inch 'Wintergreen' boxwood plants (*Buxus sinica* var. *insularis* 'Wintergreen'; syn. *B. microphylla* 'Wintergreen') were placed with their roots in the rock on 15 March 2001. The bed was hand watered as needed until 1 May and then equipped with drip irrigation lines 1 ft apart with 0.9-gph emitters spaced at 1 ft in the line. The irrigation lines were pressurized by a sump pump placed in the sump. The pump was activated for 3 min every 1 h during daylight hours by a mechanical time clock. A float valve maintained the water level in the sump from a water supply line. Starting 15 May, the bed was drenched once per week with Peters 20N-20P-20K soluble fertilizer at 250 ppm N. One hundred boxwoods were removed from the bed on 15 April 2001 and planted as a hedge near the administration building on the University of Missouri, Columbia campus. The remaining 65 plants remained in the bed until August 8, when they were planted as a continuation of the same hedge. All plants were mulched and drip irrigated as needed and were pruned twice during the 2002 growing season.

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-