

Native Plant Network

THOMAS D LANDIS
AND R KASTEN DUMROESE

ABSTRACT

The demand for native plants continues to increase but published information on how to propagate natives is extremely limited. A wealth of propagation knowledge and experience exists in native plant nurseries but there is not an easy way to share it. The Native Plant Network on the Internet offers basic propagation information as well as a searchable database of plant production protocols. An easy-to-use data form allows growers to submit propagation information as well as update it as new information becomes available.

KEYWORDS: database, Internet, nursery, seedlings, native plants

NOMENCLATURE: ITIS (1998)

Forest and conservation nurseries are being asked to propagate an increasingly wide variety of native plants from ferns and forbs to shrubs and noncommercial trees. Learning how to propagate these new plants can be a formidable challenge. For example, native plant seeds come in a bewildering array of shapes and sizes that make them hard to collect, clean, and sow. Most seeds also have some type or degree of dormancy that means that they must be treated for up to a year or more before they will germinate.

The traditional method of research-generated knowledge being disseminated to end-users does not apply well to native plant production. Most new, practical, propagation techniques are being developed on-the-job by native plant nurseries rather than research facilities, but, unfortunately, this information is not being shared for several reasons. Obviously, private nurseries have an economic reason for not wanting to share their trade secrets. State and

federal government nurseries have been a traditional source of nursery technology but nursery workers just do not have the time to document what they know in writing. In addition, declining government budgets and fewer personnel makes sharing information a low priority.

Recognizing the need, the Restoration, Nurseries and Genetic Resources (RNGR) team of the USDA Forest Service came up with the idea of developing and sharing propagation protocols for native plants. A propagation protocol is a



comprehensive procedure on the process of growing a plant. A typical protocol starts with target seedling specifications and then contains specific information on how to collect seeds or cuttings; how to grow the plant in a nursery; how to harvest the plants, seeds, or cuttings; and how to out-plant them (Landis and others 1999). Ideally, protocols also include a crop production schedule, which gives a visual calendar of the propagation process. Production schedules are invaluable not only for nursery managers but give seedling customers a realistic picture of how long it will take to propagate a species.

The RNGR objective was to publish propagation protocols on the Internet using a standard format because Internet publishing has several advantages: 1) it is relatively inexpensive compared to trying to publish in hard copy; 2) it is quick; and 3) computer files are easy to access and update.

Working cooperatively with the Forest Research Nursery at the University of Idaho, the Native Plant Network was developed at URL: <http://nativeplants.for.uidaho.edu> (Figure 1.). Key parts of the network include some basic plant propagation information, a searchable database of entered protocols, and an interface for individuals to add their protocols to the database. Currently, most of the propagation protocols have been provided by the native plant nursery staff at Glacier National Park in Montana. A couple of years ago, we learned that they were producing over 250 species of native plants for restoration and reclamation. Like most nursery people, however, they just did not have time to publish any of this information. So, we secured Forest Service funding to support the writing of the protocols and uploading them on the Native Plant Network website.

SEARCHING THE DATABASE

The database can be searched by species scientific name or family names using either common or scientific



Figure 1 • The Native Plants Journal and Native Plant Network homepage. URL: <http://nativeplants.for.uidaho.edu>

names. It can also be searched by state or province or product type. Search results are organized by family name, scientific name, common name, location, propagation method, product type, and date the protocols were entered. The propagation method information is helpful because a species may be propagated by different means. For example, the database currently contains 3 protocols for quaking aspen (*Populus tremuloides* Michx. [Salicaceae]). At the Glacier Park Native Plant Nursery in Montana, this species is propagated by either seeds or root cuttings collected in the wild. Seed propagation is also the method used at the Colorado State Forest Service Nursery but the cultural techniques are significantly different. At the Los Luna Plant Materials Center in New Mexico, quaking aspen is propagated using root cuttings from stock plants held at the nursery. Thus, novice growers are given several options to choose from and can select the techniques that closest match their location and objectives.

ENTERING PROTOCOLS INTO THE DATABASE

We have tried to make data entry a relatively easy process. The first time anyone attempts to enter a protocol, they are asked to register. Registering allows propagators to add multiple

protocols without having to re-enter basic information like name, address, and contact information. This initial registration also allows multiple protocols to be linked to a company logo. And, if at a later date a protocol needs to be updated, it can be accessed by using the password provided during registration.

When entering a protocol, 3 fields are required: family scientific name, genus and species, and date. Other fields are provided to help organize protocol information. Help comments which can be turned on or off, provide some ideas for what to include in each field (Figure 3). We hope propagators add as much detail as possible – as a grower, keep asking yourself “what types of information would I like to know before attempting to grow a species for the first time?” Propagators can also construct a crop production schedule using fields provided on the interface (Figure 2). Once all fields are entered, the protocol can be previewed as it will look when retrieved from the database. If editing is required before submitting to the database, it can be done. Once the protocol is acceptable, it can be uploaded to a queue where it is scanned for appropriateness before being added to the database. We encourage you to submit a logo for your protocols – directions are on the web site.

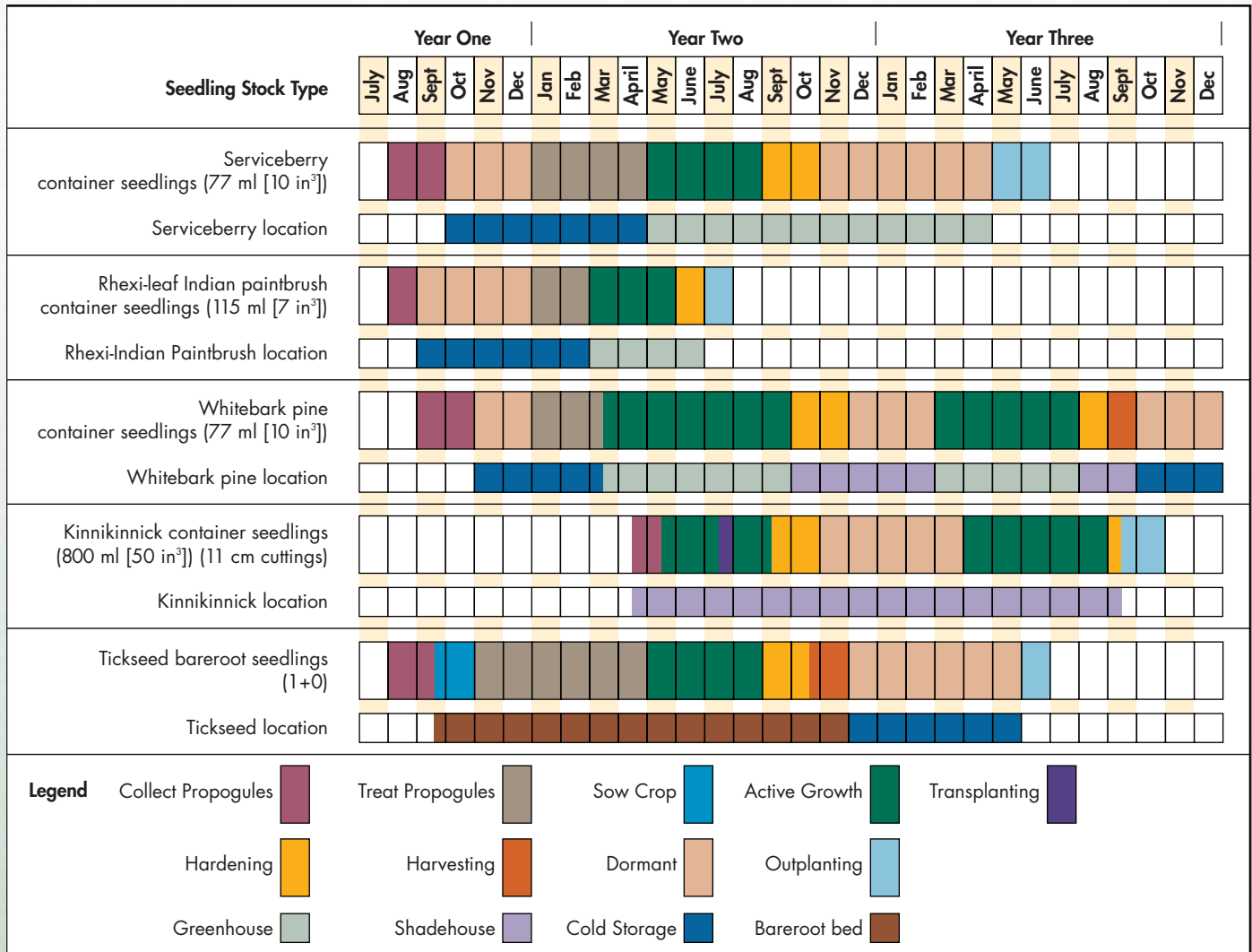


Figure 2 • A stylized version of crop production schedules for 5 different plants showing the time and facilities required to produce the crops (courtesy of Glacier National Park Native Plant Nursery, West Glacier, Montana; USDA Forest

Service Coeur d'Alene Nursery, Coeur d'Alene, Idaho; Illinois Department of Natural Resources Mason State Nursery, Topeka, Illinois). Species names: serviceberry (*Amelanchier alnifolia* Nutt. [Rosaceae]); rhexi-leaf Indian paintbrush

(*Castilleja rhexifolia* Rydb. [Scrophulariaceae]; whitebark pine (*Pinus albicaulis* Engelm. [Pinaceae]); kinnikinnick (*Arctostaphylos uva-ursi* (L.) Spreng. [Ericaceae]); stiff tickseed (*Coreopsis palmata* Nutt. [Asteraceae]).

SUMMARY

Propagation protocols are an easy, yet comprehensive, way to explain how to grow native plants. Protocols are useful not only to document nursery procedures but the standard format allows comparison of cultural procedures between nurseries. The Native Plant Network on the Internet allows easy access to protocols and contains a user-friendly format for submitting

new propagation information. We hope that this new and innovative means of documenting and sharing information will prove useful.

REFERENCE

[ITIS] Integrated Taxonomic Information System. 1998. Biological names. Version 4.0 [on-line database]. URL: <http://www.itis.usda.gov/plantproj/itis/itis-query.html> (accessed 11 May 2000).
Landis TD, Tinus RW, Barnett JP. 1998. The container tree nursery manual, volume 6, seedling propagation. Washington (DC): USDA Forest Service. Agriculture Handbook 674.

Author Information

Thomas D Landis
National Nursery Specialist
USDA Forest Service
JH Stone Nursery
2606 Old Stage Road
Central Point, OR 97502
tdlandis@fs.fed.us

R Kasten Dumroese
Research Scientist
Forest Research Nursery
University of Idaho
Moscow, ID 83844-1137
dumroese@uidaho.edu