

Manual for the Propagation of Pacific Northwest Native Plants

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Native plants have been increasingly recognized as a crucial component of forest management. They provide many benefits to the forest ecosystem such as erosion and flood control, wildlife forage and habitat, species diversity, soil stabilization, aesthetic enhancement, riparian restoration, revegetation of road cuts, and improvement of recreational areas.

For successful native plant propagation, several components must be understood. When collecting seed, the plant must be properly identified and seed harvest must occur at the appropriate time for optimal seed vitality. The time of harvest can vary over the geographical range for a single species. Some species only produce an adequate seed crop every few years while others have prolific seed production every year. The method of seed collection can vary greatly among species based on plant form and seed size.

Unlike conifer seeds, extraction and storage of native plant seed can be a complicated task. Once collected, the variety of fruits require differing equipment and techniques for extraction. Furthermore, seed longevity varies greatly among species. Some can be stored for years while others need to be germinated immediately. The success of germination depends on each species' pre-treatment and stratification requirements to overcome physical barriers (i.e. seedcoat) or physiological barriers (i.e. dormancy) - media, moisture, temperature, scarification, chemicals, duration, light, and nutrients.

Vegetative propagation of native plants can also pose some interesting challenges. Plants can be produced by cuttings, division, layering, rhizomes, tissue culture, and grafting. Rooting cuttings is one of the most common techniques in plant propagation but must be approached on a species by species basis. Some species root more successfully using branch tips while others root well with stem, leaf, or root cuttings. In addition, many species root more readily when treated with a root growth hormone.

The proper culturing of native plants, whether propagated by seed or vegetatively and whether grown in containers or barerooted, is another essential step to ensuring a vigorous plant crop. A certain level of heat and humidity is often required during germination of seed or rooting of cuttings. In addition, a careful fertilization and irrigation regime must be followed for good plant development and proper phenology.

Obviously, native plant propagation requires some experimentation and innovation. With so many species-specific propagation requirements and very little specific information available in the literature, native plant growers must refine their techniques based on trial and error and

their available equipment, supplies, and facilities. Furthermore, the final product must be based on the ultimate use of the plant. For example, very large root systems may be desirable for planting in sand banks while a tall shoot may be needed to compete with surrounding vegetation in a riparian environment. In other cases, a small seedling may be sufficient to meet outplanting goals or more than one seedling size may be prescribed to create an instant age class. To achieve the desired plant specifications, a plant grower must allow for the necessary nursery space and growing period.

Unfortunately, there does not exist a comprehensive manual on propagation of Pacific Northwest native plants. Until recently, most articles about native species have presented findings on how to control or eradicate them. The increasing awareness of their beneficial role in promoting a healthy, stable ecosystem has necessitated a more detailed and extensive information base for their propagation. A thorough search of forestry and agricultural journals as well as gardening and horticultural handbooks does yield some useful propagation information. But such an exhaustive literature search is not practical or convenient for many who wish to grow native plants. Furthermore, some of the best existing information is in the minds of those who have learned through direct experience. Many of these individuals have not had the time nor funding nor inclination to publish their propagation methodology or have only published on a very limited basis (e.g. within a single National Forest).

The purpose of this three-part manual is to present a compilation of information from literature sources and personal contacts and make it widely available. For each species contained in the manual there is a scientific description of the plant, its habitat and geographic range, and information on how to propagate it. Volume one contains fifty species, volume two contains forty species and a glossary, and volume three will contain sixty-five species and an overview of different propagation techniques. To order a copy, please contact the Forestry Publication Office, Oregon State University, Forest Research Laboratory 227, Corvallis, OR 97331.

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