

Genecology and population structure of minor tree species

submitted by Andreas Hamann

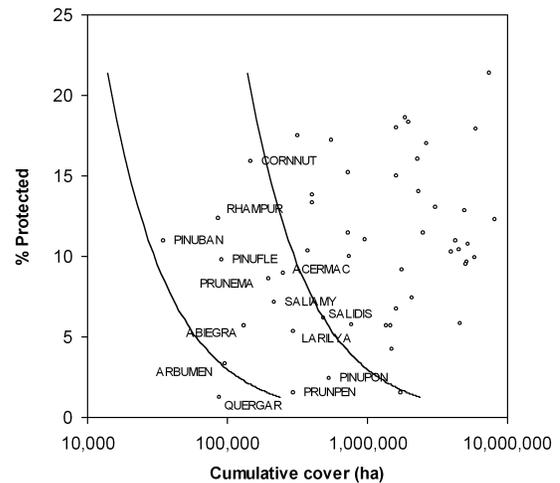
To determine if the current degree of *in situ* protection is adequate (see previous article), information on the amount and distribution of genetic variation is desirable. While our understanding of genetic structure of major conifer species is quite good, we know relatively little about other tree species. Studies of the genetic structure of some minor tree species will be useful for investigating the current degree of protection of genetic resources, for selection of insect or disease resistance in species that may be affected by introduced pests, and for developing seed transfer guidelines for restoration plantings.

Prioritizing tree species

Since not every species can be investigated, we have to focus our attention on trees that are representative of a larger group of species with similar distribution (e.g., widespread or narrow, and rare or common) and life history attributes (e.g., wind or insect pollinated, wind or animal dispersed seed, early or late successional), or for species that are likely to experience loss of genetic diversity due to reductions in population size.

We used several sources of information to prioritize minor tree species for further genetic research and conservation: (1) a literature review on species-specific issues such as pests, regeneration capacity, economical, ecological, and cultural values, (2) first results from the GIS survey for the extent of current *in situ* protection as shown in the figure below, and (3) a survey soliciting field observations of professionals who are working in the field for particular species. The results were then presented to an expert panel in a

workshop at UBC in March, 2002, to discuss possible projects, considering all the above information and projects that have already been initiated. It should be noted that while whitebark pine and Garry oak are high priority species, as indicated by the survey, they received fewer expert votes at the workshop than some other species in recognition of the research currently underway by the CFGC (see next article on whitebark pine) and the Garry Oak Task Force. Over the coming months we will be initiating projects on some of the species that were ranked high-priority, likely starting with *Arbutus*.



Current status of *in situ* protection. Cumulative cover is calculated as range (ha) x average cover (%). Curves indicate an equal area protected.

The top 10 ranking species for genetic research or conservation activities based on the votes from an expert panel. The number of survey replies regarding these species are also given.

Scientific name	Common name	Abbreviation	Expert votes	Survey replies
<i>Arbutus menziesii</i>	Arbutus	ARBUMEN	13	4
<i>Cornus nuttallii</i>	Pacific dogwood	CORNNUT	8	1
<i>Pinus flexilis</i>	limber pine	PINUFLE	7	1
<i>Salix scouleriana</i>	Scouler's willow	SALISCO	6	4
<i>Quercus garryana</i>	Garry oak	QUERGAR	4	10
<i>Crataegus douglasii</i>	Douglas hawthorn	CRATDOU	4	2
<i>Juniperus scopulorum</i>	Rocky Mountain juniper	JUNISCO	3	3
<i>Populus tremuloides</i>	trembling aspen	POPUTRE	2	4
<i>Malus fusca</i>	Pacific crab apple	MALUFUS	2	2
<i>Pinus albicaulis</i>	whitebark pine	PINUALB	1	12