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Report methodology

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Developing a comprehensive description of the status of North American temperate forest tree species requires a variety of approaches. Unlike agricultural plants, forest tree species exist predominantly in natural settings, with varying states of inventory at the species level. In some areas of México, not even species composition is documented. Outside of plantation situations, natural regeneration is more common than artificial regeneration (Figure 6). Furthermore, genetic research on the amount and pattern of genetic variation in natural populations is patchy—resulting in only vague or incomplete descriptions of within-species genetic diversity. Moreover, the diverse array of land ownership for forest tree species, particularly in the United States and México, is a challenge to the provision of comprehensive, comparative data.

In view of this situation, the following approach was adopted as the most promising to document the status of North American forest genetic resources. First, questionnaires were prepared to solicit information on the status of temperate North American forest tree species—both within North America and in those countries where they are grown as exotic plantation species. For the countries where North American forest tree species are exotics, issues addressed were the level of information concerning geographic source of germplasm, amount of genetic diversity within reserves and plantations, investment in research, value of germplasm as breeding stock or wood source, transfer of germplasm internationally, and problems with and threats to these species. The questionnaire on exotic use of North American forest tree species was sent to forest geneticists or plantation managers in 13 countries where these species have a significant presence (Table 1, Appendix A). A comprehensive survey was beyond the scope of this undertaking, and normally there was only one respondent per country. Therefore, the landbase included in the response was not necessarily the entire landbase for each country in which North American temperate forest tree species are managed in plantations (Table 1). Furthermore, not every country in which North American temperate forest tree species are grown was surveyed. Undoubtedly, the results of our survey are an underestimate.

A questionnaire was also sent to several forest land managers and forest geneticists across the United States, Canada, and México to gain some information on the *in situ* status and plantation situation of North American forest tree species. Eleven responses were received from within the United States and one collaborative response from México (Appendix B). The information gained from the questionnaires provided case studies and general trends but is not a comprehen-

Figure 6. Prolific natural regeneration after timber harvest in an Arizona pine (*Pinus arizonica* Engelm.) forest near El Salto, Durango, México.

sive status report.

The second mechanism for gathering input for this report was to provide a forum for discussing conservation issues related to North American temperate forest tree species. A workshop was convened June 12–14, 1995 in Berkeley, California to help in interpreting the questionnaire responses, to provide informed opinions and approximations as proxies for missing information, and to discuss concerns, set priorities, and recommend actions appropriate to the conservation of genetic resources in North American temperate forest tree species. Workshop participants (Appendix C), represented countries of North America where these temperate forest genetic resources exist *in situ*, and countries where these species are important *ex situ* plantation resources.

What follows embraces, but is not limited to, both the responses from the questionnaires and the content of the workshop discussions. Detailed information on various topics is provided in boxes throughout the report. The information in boxes was extracted from questionnaire responses or solicited, often from workshop participants, to illustrate various uses of forest genetic resources, problems in their management, and specific efforts in conservation.

Table 1. Countries and areas within them represented in the questionnaire on the use of North American temperate forest tree species as exotic plantation species

Country	Land represented in questionnaire response
Argentina	All lands on which these species are managed
Australia[1]	All state-owned and private land (there is no federally owned forest land in Australia)
Brazil	All land with North American pines
Chile	All lands on which these species are managed
China	All lands on which these species are managed, both state-owned and collective land
France	All federally owned lands on which these species are managed
Germany	All lands on which these species are managed
Greece	All lands on which the major exotic species are managed (includes both state-owned and private land)
Hungary	All lands on which these species are managed
New Zealand	All lands on which these species are managed
South Africa	All forestry plantations in the country, both public and private ownership
Spain	All plantations with enough surface area to be identified in the Regional Forest Inventories (normally 2 ha)
United Kingdom	State-owned and private lands on which these species are managed in England, Scotland, and Wales

[1]In many of the subsequent tables, Queensland has been reported separately from the rest of Australia due to the availability of specific information for this area.