



Tables for the North American regional synthesis on the State of the World Forest Genetic Resources:

Please note that we are using the definition of priority species that the FAO has provided in the Guidelines for preparing the Country reports document. They are species for which each country has identified that are either, economic, social or of cultural importance or the species is threatened or invasive (priority for removal). We have included all priority species for each country.

Table 1: Regional summary table of general information on forest and plant species in North America.

Countries	Total country area (1,000ha)	Natural forest area (1,000ha)	Planted forest area (1,000ha)	Total forest area (1,000ha)	% of country land area	Type forest(s)	Number of plant species	Number of priority forest species
Canada	998,467 ¹	NA ²	NA ²	397,262 ³	39.8%	Canadian Forest Ecosystem Classification System. Total of 10 forest types: Boreal, Great Lakes-St-Lawrence, Acadian, Carolinian, SubAlpine, Columbia, Montane, Coastal, Tundra, Grasslands. ⁴	<ul style="list-style-type: none"> • 5,111 known vascular plant species⁵ • 126 tree species⁴ 	64 species, varieties or hybrids ⁴
Mexico	197,255 ⁶	NA	NA	144,529 ⁷	73.3%	Miranda and Hernandez (1963)⁸ classification system of vegetation types: Total of 13 vegetation types –	<ul style="list-style-type: none"> • Between 20,000-50,000 vascular plant 	Total of 294 species; CONABIO recognizes 240 species (233 native, 7 exotics) for ecological

						Coniferous forest, Oak forest, Cloud forest, Cultivated forest, Evergreen forest, Semi-evergreen seasonal forest, Evergreen seasonal forest, Deciduous lowland forest, Hydrophilic vegetation, Other vegetation types, Desert scrub, Grassland, Induced vegetation ⁹	species (26,000 according to Mexican Institute of Ecology) ¹⁰ <ul style="list-style-type: none"> • 4,257 forest species⁷ 	restoration and reforestation, and considers 85 species to be of economic, ecologic and social importance. ⁷
United States	963,203 ¹¹	267,539 ¹²	36,483 ¹²	304,022 ¹¹	31.6%	<p>National Forest classification of federal lands in the United States (Forest Cover Types of the US and Canada, Society of American Foresters). Total of 27 forest types:</p> <p>Western Forests (11) (Douglas-fir, Hemlock-Sitka spruce, Ponderosa pine, Western white pine, Lodgepole pine, Larch, Fir-spruce, Redwood, Chaparral, Pinion-juniper, Western hardwoods);</p> <p>Eastern Forests (10) (White-red-jack pine, Spruce-fir, Longleaf-slash pine, Loblolly-shortleaf-pine, Oak-pine, Oak-hickory, Oak-gum-cypress, Elm-ash-cottonwood, Maple-beech-birch, Aspen-birch);</p> <p>Alaska Forests (3) (Spruce-birch, Fir-spruce, Hemlock-Sitka spruce);</p> <p>Puerto Rico Forests (1) (Evergreen broadleaf forest); Hawaii Forests (2) (Native forest, Mixed forest)¹¹</p>	<ul style="list-style-type: none"> • 19,518 forest associated vascular plant species¹³ • 865 forest tree species.¹⁴ 	Total of 122 species: 22 threatened or endangered species/conservation. ¹⁵ 101 species important for regeneration.

NA, data not available.

¹ Global Forest Resources Assessment 2010. Canadian report for the FAO. Data for natural forest area was determined by summing the totals for primary forest and naturally regenerated forest.

² Data should become available in the next Canadian Forest Resource Assessment Report to be submitted to the FAO.

³ The State of Canada's Forests-Annual Report 2012.

⁴ Report on the State of Canada's Forest Genetics Resources (April 2012)(p.11)

⁵ <http://www.wildspecies.ca/wildspecies2010/results-vascular.cfm?lang=e> (accessed June 2013)

⁶ Global Forest Resources Assessment 2010. Mexican report for the FAO.

⁷ Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) (Mexico 2012) (p.22)

⁸ Miranda F. and Hernández-X. E. 1963. Los tipos de vegetación en México y su clasificación. *Boletín de la Sociedad Botánica de México* **28**:29-179.

⁹ Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) (Mexico 2012) (p.2)

¹⁰ <http://www.vivanatura.org/Plants.html> (accessed June 2013)

¹¹ Global Forest Resources Assessment 2010-Country Report-United States of America.

¹² Country Report on the State of Forest Genetic Resources-United States of America (June 2012)-(p.11)

¹³ Country Report on the State of Forest Genetic Resources-United States of America (June 2012)(p.22).

¹⁴ Little, E.C. 1978. Checklist of US trees (native and naturalized). USDA Agriculture Handbook No. 541.

¹⁵ The number of species presented in this table is not the same as those identified in the Country Report on the State of Forest Genetic Resources-United States of America. This is due to Hawaiian species being included in the US country report but not in the tables for the regional report.

Table 2: List of priority species and their main use in North America.

Species	Plant type: Tree (T) Shrub (S) Cactus (C) ¹	Species natural range:			
		Canada (C) Mexico (M) United States of America (US) ¹	Canada ²	Mexico ³	United States ⁴
<i>Abies × shastensis</i>	T ⁵	US			X ^{EI}
<i>Abies amabilis</i>	T ⁵	C,US	X ^{En}		X ^{EI}
<i>Abies balsamea</i>	T ⁵	C,US	X ^{En,EI}		X ^{EI}
<i>Abies concolor</i>	T ⁵	US,M			X ^{En,EI}
<i>Abies fraseri</i>	T ^{5,6}	US			X ^{En,EI}
<i>Abies grandis</i>	T ⁵	C,US	X ^{En}		X ^{En,EI}

<i>Abies lasiocarpa</i>	T ⁵	C,US	X ^{En}		X ^{En,EI}
<i>Abies magnifica</i>	T ^{5,6}	US			X ^{EI}
<i>Abies procera</i>	T ⁵	US	X ^{En}		X ^{EI}
<i>Abies religiosa</i>	T ⁷	M		X ^{En,EI,S}	
<i>Acer macrophyllum</i>	T ⁵	C,US	X ^{En}		
<i>Acer rubrum</i>	T ⁵	C,US	X ^{En,EI}		X ^{En}
<i>Acer saccharum</i>	T ⁵	C,US	X ^{En,EI}		X ^{En}
<i>Alnus rubra</i>	T ⁵	C,US	X ^{En}		
<i>Avicennia germinans</i>	T,S ^{7,6}	M,US		X ^{En,EI,S}	
<i>Banara vanderbiltii</i>	T,S ⁶	US-Puerto Rico			X ^S
<i>Betula alleghaniensis</i>	T ⁵	C,US	X ^{En,EI}		X ^{EI}
<i>Betula neoalaskana</i>	T,S ⁶	C,US	X ^{En,EI}		
<i>Betula papyrifera</i>	T ⁵	C,US	X ^{En,EI}		
<i>Betula uber</i>	T ⁶	US			X ^S
<i>Brosimum alicastrum</i>	T ⁸	M		X ^{En,EI,S}	
<i>Bursera simaruba</i>	T,S ⁶	US		X ^{En,EI,S}	
<i>Buxus vahlii</i>	T,S ⁶	US-Puerto Rico			X ^S
<i>Callitropsis nootkatensis</i>	T ⁵	C,US	X ^{En}		
<i>Calocedrus decurrens</i>	T ^{6,8}	M,US			X ^{EI}
<i>Calyptanthes thomasiana</i>	T,S ⁶	US-Puerto Rico			X ^S
<i>Calyptronoma rivalis</i>	T ⁶	US-Puerto Rico			X ^S
<i>Carya cordiformis</i>	T ⁵	C,US	X ^{EI}		
<i>Carya illinoensis</i>	T ^{5,6}	M,US			X ^{EI}
<i>Carya laciniosa</i>	T ⁶	C,US			X ^{EI}
<i>Carya ovata</i>	T ⁵	C,US	X ^{EI}		X ^{EI}
<i>Castanea dentata</i>	T ⁶	C,US			X ^{EI}

<i>Cedrela odorata</i>	T ^{7,6}	M		X ^{En,EI,S}	
<i>Ceiba pentandra</i>	T ⁸	M		X ^{En,EI}	
<i>Celtis occidentalis</i>	T,S ⁶	C,US	X ^{EI}		
<i>Cercocarpus traskiae</i>	T,S ⁶	US			X ^S
<i>Chamaecyparis lawsoniana</i>	T ⁶	US			X ^{EI}
<i>Chamaecyparis thyoides</i>	T ⁶	US			X ^{EI}
<i>Cordia dodecandra</i>	T,S ⁸	M		X ^{En,EI,S}	
<i>Cornutia obovata</i>	T,S ⁶	US-Puerto Rico			X ^S
<i>Crescentia portoricensis</i>	T,S ⁶	US-Puerto Rico			X ^S
<i>Cupressus abramsiana</i>	T ⁶	US			X ^S
<i>Cupressus goveniana</i>	T,S ⁶	US			X ^S
<i>Cupressus nootkatensis</i>	T ⁶	C,US			X ^S
<i>Diospyros virginiana</i>	T ⁶	US			X ^S
<i>Enterolobium cyclocarpum</i>	T ⁸	M		X ^{En,EI,S}	
<i>Fagus grandifolia</i>	T ⁶	C,M,US			X ^{EI}
<i>Fraxinus americana</i>	T ⁵	C,US	X ^{En,S}		X ^{EI}
<i>Fraxinus nigra</i>	T ⁵	C,US	X ^{En,EI}		X ^S
<i>Fraxinus pennsylvanica</i>	T ⁵	C,US	X ^{EI}		X ^{EI}
<i>Fraxinus profunda</i>	T ⁶	C,US			X ^S
<i>Fraxinus quadrangulata</i>	T ⁶	C,US			X ^S
<i>Fremontodendron mexicanum</i>	T,S ⁶	US			X ^S
<i>Gleditsia triacanthos</i>	T,S ⁶	C,US			X ^{EI}
<i>Gliricidia sepium</i>	T ⁸	M		X ^{En,EI,S}	
<i>Goetzea elegans</i>	T ⁶	US-Puerto Rico			X ^S
<i>Gymnocladus dioicus</i>	T ⁶	C,US			X ^{EI}
<i>Ilex americana (Ilex opaca)</i>	T,S ⁶	US			X ^{EI}

<i>Ilex cookie</i>	T,S ⁶	US-Puerto Rico			X ^S
<i>Ilex sintensisii</i>	T,S ⁶	US-Puerto Rico			X ^S
<i>Juglans cinerea</i>	T ⁵	C,US	X ^{EI}		X ^{EI}
<i>Juglans jamaicensis</i>	T ⁶	US-Puerto Rico			X ^S
<i>Juglans nigra</i>	T ⁶	C,US			X ^{En,EI}
<i>Larix laricina</i>	T ⁵	C,US	X ^{En,EI}		X ^{EI}
<i>Larix lyallii</i>	T ⁵	C,US	X ^{EI}		
<i>Larix occidentalis</i>	T ⁵	C,US	X ^{En,EI}		X ^{EI}
<i>Larix spp.</i>	T ⁵	NA	X ^{EI}		
<i>Leucaena leucocephala</i>	T,S ^{6,8}	M,US		X ^{En,EI,S}	
<i>Lindera melissifolia</i>	T,S ⁶	US			X ^S
<i>Liquidambar styraciflua</i>	T ^{5,6}	M,US			X ^{En,EI}
<i>Liriodendron tulipifera</i>	T ^{6,8}	C,US			X ^{En,EI}
<i>Manilkara zapota</i>	T ⁸	M		X ^{En,EI,S}	
<i>Ostrya virginiana</i>	T,S ^{6,8}	C,M,US	X ^{EI}		
<i>Picea abies</i>	T ⁶	C,US	X ^{En}		
<i>Picea breweriana</i>	T ⁶	US			X ^{EI}
<i>Picea engelmannii</i>	T ⁷	C,US	X ^{En}		X ^{En,EI}
<i>Picea glauca</i>	T ⁵	C,US	X ^{En,EI}		X ^{EI}
<i>Picea glauca x engelmannii</i>	T ⁵	C,US	X ^{En}		
<i>Picea mariana</i>	T ⁵	C,US	X ^{En,EI}		X ^{EI}
<i>Picea pungens</i>	T ⁶	C,US			X ^{EI}
<i>Picea rubens</i>	T ⁵	C,US	X ^{En}		
<i>Picea sitchensis</i>	T ⁵	C,US	X ^{En}		
<i>Pilosocereus robinii</i>	C ⁶	US			X ^S
<i>Pinus albicaulis</i>	T ⁵	C,US	X ^{EI}		X ^{EI}
<i>Pinus aristata</i>	T ⁶	US			X ^{EI}

<i>Pinus attenuata</i>	T ⁶	US			X ^{EI}
<i>Pinus ayacahuite</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus balfouriana</i>	T ⁶	US			X ^{EI}
<i>Pinus banksiana</i>	T ⁵	C,US	X ^{En,EI}		X ^{En,EI}
<i>Pinus cembroides</i>	T,S ⁹	M,US		X ^{En,EI,S}	
<i>Pinus chiapensis</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus contorta</i>	S,T ⁹	C,M,US	X ^{EI}		X ^{En}
<i>Pinus contorta var. latifolia</i>	T ⁹	C,US	X ^{En,EI}		X ^{EI}
<i>Pinus coulteri</i>	T ^{6,9}	M,US			X ^{EI}
<i>Pinus devoniana</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus douglasiana</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus durangensis</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus echinata</i>	T ⁶	US			X ^{EI}
<i>Pinus elliotii</i>	T ⁶	US			X ^{EI}
<i>Pinus engelmannii</i>	T ⁹	M,US		X ^{En,EI,S}	
<i>Pinus flexilis</i>	T ⁹	C,US	X ^{EI}		X ^{EI}
<i>Pinus greggii</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus jeffreyi</i>	T ^{6,9}	M,US			X ^{EI}
<i>Pinus lambertiana</i>	T ^{6,9}	M,US			X ^{EI}
<i>Pinus longaeva</i>	T ⁶	US			X ^{EI}
<i>Pinus maximinoi</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus montezumae</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus monticola</i>	T ⁹	C,US	X ^{En}		X ^{EI}
<i>Pinus oaxacana</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus oocarpa</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus palustris</i>	T ⁶	US			X ^{EI}
<i>Pinus patula</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus ponderosa</i>	T ⁹	C,M,US	X ^{En}		X ^{En}

<i>Pinus pseudostrobus</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus pungens</i>	T ⁶	US			X ^{EI}
<i>Pinus resinosa</i>	T ⁹	C,US	X ^{En,EI}		X ^{EI}
<i>Pinus rigida</i>	T ⁵	C,US	X ^{En,EI}		X ^{EI}
<i>Pinus sabiniana</i>	T ⁶	US			X ^{EI}
<i>Pinus serotina</i>	T ⁶	US			X ^{EI}
<i>Pinus strobiformis</i>	T ⁹	M,US			X ^{EI}
<i>Pinus strobus</i>	T ⁵	C,US	X ^{En,EI}		X ^{En,EI}
<i>Pinus sylvestris</i>	T ⁵	C,US	X ^{EI,S}		
<i>Pinus taeda</i>	T ^{5,6}	US			X ^{En}
<i>Pinus teocote</i>	T ⁹	M		X ^{En,EI,S}	
<i>Pinus virginiana</i>	T ⁶	C,US			X ^{EI}
<i>Platanus occidentalis</i>	T ^{5,6}	C,M,US			X ^{EI}
<i>Populus balsamifera</i>	T ⁵	C,US	X ^{En,EI}		
<i>Populus balsamifera x trichocarpa</i>	T ⁵	C,US	X ^{En}		X ^{EI}
<i>Populus deltoides</i>	T ⁵	C,US	X ^{En,EI}		
<i>Populus grandidentata</i>	T ⁵	C,US	X ^{En}		
<i>Populus native hybrids</i>	T ⁵	C,US	X ^{EI}		
<i>Populus non-native hybrids</i>	T ⁵	C,US	X ^{En}		
<i>Populus tremuloides</i>	T ⁵	C,US	X ^{En}		X ^{En}
<i>Prosopis juliflora</i>	S,T ⁸	M		X ^{En,EI,S}	
<i>Prunus angustifolia</i>	T ⁶	US			X ^{EI}
<i>Prunus serotina</i>	T ^{5,6}	C,M,US			X ^{En}
<i>Pseudotsuga menziesii</i>	T ⁵	C,M,US	X ^{En}	X ^{En,EI,S}	X ^{En}
<i>Pseudotsuga macrocarpa</i>	T ⁶	US			X ^{EI}
<i>Quercus bicolor</i>	T ⁵	C,US	X ^{EI}		X ^{EI}
<i>Quercus acutissima</i>	T ⁶	US			X ^{EI}
<i>Quercus alba</i>	T ⁵	C,US	X ^{EI}		X ^{En}

<i>Quercus falcata</i>	T ⁶	US			X ^{EI}
<i>Quercus falcata paegodifolia</i>	T ⁶	US			X ^{EI}
<i>Quercus garryana</i>	S,T ⁵	C,US	X ^{EI}		
<i>Quercus laurina</i>	T ⁸	M		X ^{EI,S}	
<i>Quercus lyrata</i>	T ⁶	US			X ^{EI}
<i>Quercus macrocarpa</i>	T ⁵	C,US	X ^{En,EI}		X ^{EI}
<i>Quercus macrophylla</i>	T ¹⁰	M		X ^{En,EI,S}	
<i>Quercus michauxii</i>	T ⁶	US			X ^{EI}
<i>Quercus muehlenbergii</i>	T ^{5,6}	C,M,US			X ^{EI}
<i>Quercus nigra</i>	T ⁶	US			X ^{EI}
<i>Quercus nuttalli</i>	T ⁶	US			X ^{EI}
<i>Quercus pagoda</i>	T ⁶	US			X ^{EI}
<i>Quercus phellos</i>	T ⁶	US			X ^{EI}
<i>Quercus prinus</i>	T ^{5,6}	C,US			X ^{En,EI}
<i>Quercus rubra</i>	T ⁵	C,US	X ^{En,EI,S}		X ^{En}
<i>Quercus rugosa</i>	T ⁸	M,US		X ^{En,EI,S}	
<i>Quercus shumardii</i>	T ⁶	C,US			X ^{EI}
<i>Quercus stellata</i>	T ⁶	US			X ^{EI}
<i>Quercus texana</i>	T ⁶	US			X ^{EI}
<i>Quercus velutina</i>	T ⁶	C,US			X ^{en}
<i>Quercus virginiana</i>	T ⁵	M,US		X ^{En,EI,S}	
<i>Rhizophora mangle</i>	T ^{7,8}	M,US		X ^{En,EI,S}	
<i>Robinia pseudoacacia</i>	T ⁶	C,US			X ^{EI}
<i>Salix spp.</i>	T,S ⁵	NA	X ^{EI}		
<i>Sequoiadendron giganteum</i>	T ⁶	US			X ^{EI}
<i>Simarouba glauca</i>	T ⁸	M,US		X ^{En,EI,S}	
<i>Solanum drymophilum</i>	T,S ⁶	US-Puerto Rico			X ^S
<i>Stahlia monosperma</i>	T ⁶	US-Puerto Rico			X ^S

<i>Swietenia macrophylla</i>	T ^{7,8}	M		X ^{En,EI}	
<i>Tabebuia donnell-smithii</i>	T ⁸	M		X ^{En,EI}	
<i>Tabebuia rosea</i>	T ⁸	M		X ^{En,EI,S}	
<i>Taxodium distichum</i>	T ⁶	US			X ^{EI}
<i>Thuja occidentalis</i>	T ⁵	C,US	X ^{En,EI}		X ^{EI}
<i>Thuja plicata</i>	T ⁵	C,US	X ^{En}		
<i>Tilia americana</i>	T ⁵	C,US	X ^{EI}		
<i>Torreya taxifolia</i>	T ⁶	US			X ^S
<i>Tsuga canadensis</i>	T ⁵	C,US	X ^{En}		X ^{En}
<i>Tsuga caroliniana</i>	T ⁶	US			X ^{EI}
<i>Tsuga heterophylla</i>	T ⁵	C,US	X ^{En}		X ^{En}
<i>Tsuga mertensiana</i>	T ⁶	C,US			X ^{EI}
<i>Ulmus americana</i>	T ⁵	C,US	X ^{EI}		X ^{EI}
<i>Ulmus rubra</i>	T ⁵	C,US	X ^{EI}		
<i>Zanthoxylum thomsonianum</i>	T,S ⁶	US-Puerto Rico			X ^S

Countries identified priority species in their respective country reports. An X denotes that this species was a priority for a country and the superscripts En (Economical), EI (Ecological), S (Social) pertain to the type of activity identified in the country reports. A blank cell indicates that this species was not identified as a priority for a country. For species native to the continental US, US abbreviation is used and for species native to Puerto Rico, US-Puerto Rico abbreviation is used.

NA, Data not available at the genus level.

¹ Note: The references that are part of the column “Plant type” were used to determine information entered into the “Plant type” as well as the “Species natural range” columns.

² Report on the State of Canada’s Forest Genetics Resources (April 2012)-Table 1.6 (p.34-36); Commercial purposes from Table 1.6 were entered as Economical (En), Ecological included Carbon sequestration, Ecosystem preservation and Species conservation (EI) and Social (S) included Urban Forestry and Historical value.

³ Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) (Mexico 2012)- Table 1.7,1.8 (p.10-11)

⁴ Country Report on the state of Forest Genetic Resources- United States of America (June 2012)

⁵ http://www.na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.htm searches were done using species name (accessed June 2013)

⁶ <http://plants.usda.gov/java/> searches were done using species name (accessed June 2013)

⁷ <http://www.iucnredlist.org/search> searches were done using species name (accessed June 2013)

⁸ http://en.wikipedia.org/wiki/Main_Page searches were done using species name (accessed June 2013)

⁹ The Gymnosperm database: <http://www.conifers.org/index.php> (accessed August 2013)

¹⁰ Elsevier's Dictionary of Trees: Volume 1: North America, Volume 1 (accessed June 2013)

Table 3: North American priority species subject to selection, evaluation and improvement activities

Priority species	Breeding and domestication					Quality of seed supplied for reforestation			Countries involved in this research work
	Species provenance tests	Species progeny tests	Reproductive biology - Seed Classification: Orthodox (O), possibly Orthodox (O?), Recalcitrant (R), possibly Recalcitrant(R?), Intermediate (I), possibly Intermediate (I?)	Molecular analysis: DNA based (D) Non-DNA based (N) or X (done but no specifics)	Propagation (vegetative & sexual)	Identified seed sources ¹	Selected seed stands ²	Seed orchard	
<i>Abies amabilis</i>	X ³		O ⁴						Canada ³
<i>Abies balsamea</i>	X ^{3,5}	X ⁵	O ⁴		V ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7}
<i>Abies concolor</i>		X ⁵	O ⁸					X ⁵	US ⁵
<i>Abies fraseri</i>		X ⁵	O ⁸					X ⁵	US ⁵

<i>Abies grandis</i>	X ³		O ⁴						Canada ³
<i>Abies lasiocarpa</i>	X ^{3,5}		O ⁴						US ⁵ Canada ³
<i>Abies procera</i>	X ³		O ⁹						Canada ³
<i>Abies religiosa</i>			O ⁹	X ¹⁰					Mexico ¹⁰
<i>Acacia koa</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Acer macrophyllum</i>	X ³	X ¹¹	O ⁹						Canada ^{3,11}
<i>Acer rubrum</i>			R-I-O ⁹						
<i>Acer saccharum</i>	X ⁵		R ⁹	N ¹²				X ⁵	US ⁵ Canada ¹²
<i>Alnus rubra</i>	X ³	X ¹¹	O ⁸	N ¹²	V ⁶			X ⁷	Canada ^{3,6,7,11,12}
<i>Avicennia germinans</i>			R? ⁹						
<i>Betula alleghaniensis</i>	X ^{3,5}		O ⁹						US ⁵ Canada ³
<i>Betula neoalaskana</i>			O ⁹						
<i>Betula papyrifera</i>	X ⁵		O ⁹						US ⁵
<i>Brosimum alicastrum</i>			NA						
<i>Bursera simaruba</i>			NA						
<i>Callitropsis nootkatensis</i>	X ³	X ¹¹	O ⁹					X ⁷	Canada ^{3,7,11}
<i>Carya cordiformis</i>			O ⁹						

<i>Carya illinoensis</i>			O ⁹					X ⁵	US ⁵
<i>Carya ovata</i>		X ⁵	O ⁹						US ⁵
<i>Castanea dentata</i>		X ⁵	R ⁹	D ⁵	V ⁵			X ⁵	US ⁵
<i>Cedrela odorata</i>			R ⁹	X ¹⁰	V ¹³			X ¹⁴	Mexico ^{10,13,14}
<i>Ceiba pentandra</i>			O? ⁹						
<i>Celtis occidentalis</i>			O ⁴						
<i>Chamaecyparis lawsoniana</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Chamaecyparis thyoides</i>		X ⁵	O ⁹						US ⁵
<i>Cordia dodecandra</i>			NA						
<i>Diospyros virginiana</i>		X ⁵	U ⁹			X ⁵			US ⁵
<i>Enterolobium cyclocarpum</i>			O ⁹						
<i>Fagus grandifolia</i>		X ⁵	O? ⁹					X ⁵	
<i>Fraxinus americana</i>	X ^{3,5}	X ^{5,11}	O ⁴		V/S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11}
<i>Fraxinus nigra</i>			O ⁴						
<i>Fraxinus pennsylvanica</i>	X ³	X ⁵	O ⁴					X ⁵	US ⁵ Canada ³
<i>Gliricidia sepium</i>			O ⁹						

<i>Juglans cinerea</i>		X ^{5,11}	O ^{4?}	D ¹² , N ¹²				X ⁵	US ⁵ Canada ^{11,12}
<i>Juglans nigra</i>		X ⁵	R ⁴			X ⁵		X ⁵	US ⁵
<i>Larix decidua</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Larix kaempferi</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Larix laricina</i>	X ^{3,5}	X ^{5,11}	O ⁴	N ¹²	V/S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11,12}
<i>Larix lyallii</i>			O ⁴						
<i>Larix occidentalis</i>	X ^{3,5}	X ^{5,11}	O ⁴	D ¹² , N ¹²	V ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11,12}
<i>Larix spp.</i>	X ³		O ⁹						Canada ³
<i>Leucaena leucocephala</i>			NA						
<i>Liquidambar styraciflua</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Liriodendron tulipifera</i>		X ⁵	O? ⁴					X ⁵	US ⁵
<i>Manilkara zapota</i>			NA						
<i>Ostrya virginiana</i>			O ⁹						
<i>Picea abies</i>	X ³	X ^{5,11}	O ⁹		V/S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11}
<i>Picea engelmannii</i>	X ⁵		O ⁴	N ⁵					US ⁵
<i>Picea glauca</i>	X ^{3,5}	X ^{5,11}	O ⁴	D ¹² , N ¹²	V/S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11,12}
<i>Picea glauca x engelmannii</i>	X ³	X ¹¹	O ⁹		V ⁶			X ⁷	Canada ^{3,6,7,11}

<i>Picea mariana</i>	X ^{3,5}	X ^{5,11}	O ⁴	D ¹²	V/S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11,12}
<i>Picea rubens</i>	X ^{3,5}	X ¹¹	O ⁴	N ¹²	V ⁶			X ⁷	US ⁵ Canada ^{3,6,7,11,12}
<i>Picea sitchensis</i>	X ^{3,5}	X ¹¹	O ⁴	D ¹² ,N ¹²	V ⁶			X ⁷	US ⁵ Canada ^{3,6,7,11,12}
<i>Pinus albicaulis</i>	X ⁵	X ⁵	O ⁴	N ¹²				X ⁵	US ⁵ Canada ¹²
<i>Pinus ayacahuite</i>				X ¹⁰					Mexico ¹⁰
<i>Pinus banksiana</i>	X ^{3,5}	X ^{5,11}	O ⁹	D ¹² ,N ¹²	V/S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11,12}
<i>Pinus cembroides</i>			O ⁹						
<i>Pinus chiapensis</i>			O ⁹						
<i>Pinus contorta</i>	X ⁵	X ⁵	O ⁴					X ⁵	US ⁵
<i>Pinus contorta</i> var. <i>latifolia</i>	X ³	X ¹¹	O ⁴	D ¹² ,N ¹²	V/S ⁶			X ⁷	Canada ^{3,6,7,11,12}
<i>Pinus devoniana</i>			O ⁹						
<i>Pinus douglasiana</i>			O ⁹		S ¹³			X ¹⁴	Mexico ^{13,14}
<i>Pinus durangensis</i>			O ⁹						
<i>Pinus echinata</i>		X ⁵	O ⁹					X ⁵	US ⁵

<i>Pinus elliottii</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Pinus engelmannii</i>			O ⁹						
<i>Pinus flexilis</i>	X ⁵		O ⁴						US ⁵
<i>Pinus greggii</i>			O ⁹	X ¹⁰	S ¹³			X ¹³	Mexico ^{10,13,14}
<i>Pinus lambertiana</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Pinus maximinoi</i>			O ⁹						
<i>Pinus montezumae</i>			O ⁹	X ¹⁰					Mexico ¹⁰
<i>Pinus monticola</i>	X ^{3,5}	X ^{5,11}	O ⁴	D ¹²	V/S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11,12}
<i>Pinus oaxacana</i>			O ⁴						
<i>Pinus oocarpa</i>			O ⁹	X ¹⁰	S ¹³			X ¹⁴	Mexico ^{10,13,14}
<i>Pinus palustris</i>	X ⁵	X ⁵	O ⁹					X ⁵	US ⁵
<i>Pinus patula</i>			O ⁹	X ¹⁰	V/S ¹³			X ¹⁴	Mexico ^{10,13,14}
<i>Pinus ponderosa</i>	X ^{3,5}	X ⁵	O ⁴		V/S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7}
<i>Pinus pseudostrobus</i>			O ⁹	X ¹⁰	V/S ¹³			X ¹⁴	Mexico ^{10,13,14}
<i>Pinus resinosa</i>	X ^{3,5}	X ⁵	O ⁴	D ¹² ,N ¹²	S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,12}
<i>Pinus rigida</i>	X ^{3,5}		O ⁴	N ¹²					US ⁵

									Canada ^{3,12}
<i>Pinus serotina</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Pinus strobus</i>	X ^{3,5}	X ^{5,11}	O ⁴	D ¹² ,N ¹²	V ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11,12}
<i>Pinus sylvestris</i>	X ³	X ⁵	O ⁹		S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7}
<i>Pinus taeda</i>	X ⁵	X ⁵	O ⁹	D ⁵				X ⁵	US ⁵
<i>Pinus teocote</i>			O ⁹						
<i>Pinus virginiana</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Platanus occidentalis</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Populus balsamifera</i>	X ^{3,5}	X ¹¹	O ⁴	D ¹² ,N ¹²	V ⁶				US ⁵ Canada ^{3,6,11,12}
<i>Populus balsamifera x trichocarpa</i>	X ³		O ⁹						Canada ³
<i>Populus deltoides</i>	X ⁵	X ^{5,11}	O ⁴	D ¹²				X ⁵	US ⁵ Canada ^{11,12}
<i>Populus grandidentata</i>	X ⁵		O ⁴						US ⁵
<i>Populus native hybrids</i>		X ⁵	O ⁹		V ⁶				US ⁵ Canada ⁶
<i>Populus non-native hybrids</i>			I – O ⁹		V ⁶				Canada ⁶
<i>Populus tremuloides</i>	X ^{3,5}	X ¹¹	I ⁹	D ¹² ,N ¹²	V ⁶				US ⁵ Canada ^{3,6,11,12}

<i>Prosopis juliflora</i>			O ⁹						
<i>Prunus angustifolia</i>		X ⁵	NA			X ⁵			US ⁵
<i>Prunus serotina</i>			O ⁹					X ⁵	US ⁵
<i>Pseudotsuga menziesii</i>	X ^{3,5}	X ^{5,11}	O ⁴	N ¹² , X ¹⁰	V/S ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11,12} Mexico ¹⁰
<i>Quercus accutissimo</i>		X ⁵	R ⁹					X ⁵	US ⁵
<i>Quercus alba</i>		X ⁵	R ⁴					X ⁵	US ⁵
<i>Quercus bicolor</i>		X ⁵	R ⁴					X ⁵	US ⁵
<i>Quercus falcata</i>		X ⁵	R ⁴			X ⁵			US ⁵
<i>Quercus garryana</i>			R ⁴	N ¹²					Canada ¹²
<i>Quercus laurina</i>			R ⁴						
<i>Quercus lyrata</i>		X ⁵	R ⁴						US ⁵
<i>Quercus macrocarpa</i>		X ⁵	R ⁴					X ⁵	US ⁵
<i>Quercus macrophylla</i>			R ⁴						
<i>Quercus michauxii</i>		X ⁵	R ⁴					X ⁵	US ⁵
<i>Quercus nigra</i>		X ⁵	R ⁴					X ⁵	US ⁵
<i>Quercus nuttalli</i>			R ⁴			X ⁵			US ⁵
<i>Quercus pagoda</i>		X ⁵	R ⁴					X ⁵	US ⁵

<i>Quercus phellos</i>			R ⁴					X ⁵	US ⁵
<i>Quercus prinus</i>		X ⁵	R ⁴						US ⁵
<i>Quercus rubra</i>	X ^{3,5}	X ^{5,11}	R ⁴		V ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11}
<i>Quercus rugosa</i>			R ⁹						
<i>Quercus shumardii</i>		X ⁵	R ⁴						US ⁵
<i>Quercus stellate</i>		X ⁵	R ⁴						US ⁵
<i>Quercus texana</i>		X ⁵	R ⁴					X ⁵	US ⁵
<i>Quercus velutina</i>		X ⁵	R ⁴						US ⁵
<i>Quercus virginiana</i>			R ⁹						
<i>Rhizophora mangle</i>			R? ⁹						
<i>Robinia pseudoacacia</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Salix</i> spp.			I-O ⁹						
<i>Simarouba glauca</i>			NA						
<i>Swietenia macrophylla</i>			I? ⁹						
<i>Tabebuia donnell-smithii</i>			NA						
<i>Tabebuia rosea</i>			O ⁹						
<i>Taxodium disticum</i>		X ⁵	O ⁹					X ⁵	US ⁵
<i>Taxodium disticum</i> var.		X ⁵	O ⁹						US ⁵

<i>ascendens</i>									
<i>Thuja occidentalis</i>	X ⁵	X ⁵	O ⁴		S ⁶			X ^{5,7}	US ⁵ Canada ^{6,7}
<i>Thuja plicata</i>	X ³	X ¹¹	O ⁴	D ¹² ,N ¹²	V ⁶			X ⁷	Canada ^{3,6,7,11,12}
<i>Tilia americana</i>			O ⁴						
<i>Tsuga canadensis</i>	X ^{3,5}	X ⁵	O ⁴						US ⁵ Canada ³
<i>Tsuga heterophylla</i>	X ³	X ^{5,11}	O ⁴		V ⁶			X ^{5,7}	US ⁵ Canada ^{3,6,7,11}
<i>Ulmus americana</i>		X ⁵	O ⁴					X ⁵	US ⁵
<i>Ulmus rubra</i>			O ⁴						

An empty cell means that there is no activity for this species.

NA, data not available.

¹ Seed collected from natural stands. Data available but not reported on in Canada.

² Seed collected from selected natural stands.

³ Report on the State of Canada's Forest Genetics Resources -Table 4.2 (p111-112)

⁴ Unpublished Canadian Forest Genetic Resources Information System (CAFGRIS) data

⁵ Country Report on the State of Forest Genetic Resources in the United States of America.

⁶ Report on the State of Canada's Forest Genetics Resources -Table 4.4 and table 4.5 (p.114-115); This column was filled based on the type of material used for breeding. If material deployed were seedlings, then "S" was inserted in column. If material deployed was from clones, then "V" was inserted. If species had both, seedlings and clones then "V/S" was inserted. Other species included (not part of Table 4.5) but part of Table 4.4 that were used for reforestation purposes were labeled as "V" since they were from clonal material.

⁷ Report on the State of Canada's Forest Genetics Resources -Table 4.5 (p114-115)

⁸ The Woody Plant Seed Manual. United States Department of Agriculture, Forest Service. Agricultural Handbook 727. July 2008.

⁹ Compendium of Information on Seed Storage behaviour, Volume I and II, Hong, Linington and Ellis. 1998. Royal Botanical Gardens, Kew. Under the column *Reproductive Biology*, when there is more than one letter to denote seed storage behaviour this indicates that the species may exhibit seed storage variability. When the letter is followed by a question mark, this indicates uncertainly in the designated storage behaviour.

¹⁰ Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) -Table 1.2 (p.4-6)

¹¹ Report on the State of Canada’s Forest Genetics Resources - Table 4.3 (p112-113)

¹² Report on the State of Canada’s Forest Genetics Resources -Table 1.5 (p26-30)

¹³ Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) -Table 4.2/4.3 (p.66-67); This column was filled based on the type of material used for breeding. If material deployed was from sexual reproduction (Table 4.2, p.66), then “S” was inserted in column. If material deployed was from asexual reproduction (Table 4.3, p.67), then “V” was inserted. If species had both, then “V/S” was inserted. As mentioned in p.67, “these orchards are based in research and in their current conditions are still unable to intensively produce genetically improved seed for use in commercial forest plantations”.

¹⁴ Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) -Table 4.2/4.3 (p.66-67)

Table 4: Species with official risk designation requiring high priority^a at regional level

Species (official risk designation)	Plant type Tree (T) Shrub (S) Herbaceous (H) Cactus (C) ¹	Species natural range Canada (C) Mexico (M) United States (US) ^{1,2}	Country where species is identified with an official risk designation ^{3,4,5}	Exploration collection ^b		Evaluation ^b		Conservation ^b		Use and improvement ^b	
				a	b	c	d	e	f	g	h
<i>Acer negundo</i>	T ⁶	C,M,US	Mexico								
<i>Agave lechuguilla</i>	S ⁷	M,US	Mexico								
<i>Avicennia germinans</i>	T ⁸	US	Mexico								
<i>Banara vanderbiltii</i>	S ^{7,8}	US-Puerto Rico	US								
<i>Betula uber</i>	T ⁸	US	US								
<i>Betula lenta</i>	T ⁶	C,US	Canada	* ⁹	2 ⁹	1,2 ⁹		1 ⁹	2 ⁹	2 ⁹	
<i>Buxus vahlii</i>	S ^{8,10}	US-Puerto Rico	US								

<i>Calyptranthes thomasiana</i>	S,T ¹⁰	US-Puerto Rico	US								
<i>Calyptronoma rivalis</i>	S,T ⁸	US-Puerto Rico	US								
<i>Castanea dentate</i>	T ^{8,10}	C,US	Canada	1,2 ¹¹	* ¹¹	1 ¹¹	* ¹¹	2,3 ¹¹	* ¹¹	* ¹¹	1 ¹¹
<i>Cedrela odorata</i>	T ⁶	M,US-Puerto Rico	Mexico								
<i>Cercocarpus traskiae</i>	S ^{7,10}	US	US								
<i>Conocarpus erecta</i>	T ^{8,10}	US	Mexico								
<i>Cornus florida</i>	T ⁶	C,M,US	Canada	1 ¹²	3 ¹²	1 ¹²		1,2 ¹²	3 ¹²	3 ¹²	3 ¹²
<i>Cornutia obovata</i>	S,T ^{7,10}	US-Puerto Rico	US								
<i>Crescentia portoricensis</i>	S ⁸	US-Puerto Rico	US								
<i>Cupressus abramsiana</i>	T ^{7,8}	US	US								
<i>Cupressus goveniana</i>	S,T ^{7,10}	US	US								
<i>Cupressus guadalupensis</i>	T ^{7,10}	M,US	Mexico								
<i>Cupressus lusitanica</i>	T ¹³	M	Mexico								
<i>Dalbergia granadillo</i>	T ¹⁴	M	Mexico								
<i>Erythrina coralloides</i>	S,T ¹⁰	M,US	Mexico								
<i>Fagus grandifolia</i>	T ⁶	C,M,US	Mexico								
<i>Fraxinus quadrangulata</i>	T ⁸	C,US	Canada	2 ¹⁵		2 ¹⁵		1 ¹⁵			

<i>Fremontodendron mexicanum</i>	S ⁸	M,US	US									
<i>Goetzea elegans</i>	H ^{8,10}	US-Puerto Rico	US									
<i>Guaiacum coulteri</i>	H ^{7,10}	M	Mexico									
<i>Gymnocladus dioicus</i>	T ⁸	C,US	Canada	*16	*16	*16	*16	*16	*16			
<i>Ilex cookii</i>	S ^{8,10}	US-Puerto Rico	US									
<i>Ilex sintenisii</i>	S ^{8,10}	US-Puerto Rico	US									
<i>Juglans cinerea</i>	T ⁶	C, US	Canada	1, 2 ¹⁷	1, 2 ¹⁷	1, 2 ¹⁷	1, 2 ¹⁷	1, 2 ¹⁷	1, 2 ¹⁷	1, 2 ¹⁷	1, 2 ¹⁷	1, 2 ¹⁷
<i>Juglans jamaicensis</i>	T ⁸	US-Puerto Rico	US									
<i>Laguncularia racemosa</i>	T ^{8,10}	M, US	Mexico									
<i>Licania arborea</i>	S,T ^{7,10}	M	Mexico									
<i>Lindera melissifolia</i>	S ⁸	US	US									
<i>Magnolia acuminata</i>	T ⁶	C, US	Canada	1,2 ¹⁸		2 ¹⁸		2 ¹⁸				
<i>Morus rubra</i>	T ^{6,8}	C,US	Canada	1,2 ¹⁹		1 ¹⁹	*19	1 ¹⁹				
<i>Picea chihuahuana</i>	T ⁶	M, US	Mexico									
<i>Picea engelmannii</i>	T ¹⁰	C, M, US	Mexico									
<i>Picea martinezii</i>	T ¹⁰	M	Mexico									
<i>Pilosocereus robinii</i>	C ⁷	US,M	US									

<i>Pinus albicaulis</i>	T ⁶	C, US	Canada	*20	*20	*20	1 ²⁰	*20	1 ²⁰	1 ²⁰	1 ²⁰
<i>Pinus caribaea</i>	T ¹³	M	Mexico								
<i>Pinus jeffreyi</i>	T ⁶	M, US	Mexico								
<i>Pinus lambertiana</i>	T ⁶	M, US	Mexico								
<i>Pinus maximartinezii</i>	T ¹³	M	Mexico								
<i>Pinus nelsoni</i>	T ¹³	M	Mexico								
<i>Pinus pinceana</i>	T ¹³	M	Mexico								
<i>Pinus strobus</i>	T ⁶	C, M, US	Mexico								
<i>Podocarpus matudai</i>	T? ^{7,10}	M	Mexico								
<i>Pseudotsuga menziesii</i>	T ⁶	C, M, US	Mexico								
<i>Ptelea trifoliata</i>	S, T ^{7,8}	C, M, US	Canada	2 ²¹	*21	*21		2 ²¹			
<i>Quercus shumardii</i>	T ⁶	US	Canada	*22		*22		*22			
<i>Rhizophora mangle</i>	T ^{7,10}	M, US	Mexico								
<i>Solanum drymophilum</i>	S, T ¹⁰	US-Puerto Rico	US								
<i>Stahlia monosperma</i>	T ^{8,10}	US-Puerto Rico	US								
<i>Tabebuia chrysantha</i>	T ⁷	M	Mexico								
<i>Taxus globosa</i>	S ^{7,10}	M	Mexico								

<i>Torreya taxifolia</i>	T ⁶	US	US								
<i>Zanthoxylum thomsonianum</i>	S,T ⁸	US-Puerto Rico	US								
<i>Zinowiewia concinna</i>	T ²³	M	Mexico								

In this table, a 1, denotes a high priority species as indicated by each country; 2, country has identified the species as requiring prompt action and 3 denotes that action for the species is required but is less urgent than 1 and 2. The type of action being conducted by each country is: *a*, ecological and biological information (natural distribution, taxonomy, genecology, phenology); *b*, collection of genetic material (seeds, herbarium samples, ...) for assessment; *c*, *in situ* (specifically population study identified); *d*, *ex situ* (specifically provenance and progeny trials identified); *e*, *in situ* (general activities identified); *f*, *ex situ* (general activities identified); *g*, seed and other reproductive material supply collections and availability; *h*, selection and breeding activities. * denotes that activities have been done or are currently under way and that these activities no not fall within the guidelines identified above (e.g. a-h).

For Canadian species an empty cell means that there is no activity for this species.

For the US and Mexico, data is not presented and for species native to the continental US, US abbreviation is used and for species native to Puerto-Rico, US-Puerto-Rico abbreviation is used.

^a High Priority species are those that require official risk designation in each country at a federal or national level.

^b Data not presented for the US and Mexico.

¹ Note: The references that are part of the column “Plant type” were used to determine information entered into the “Plant type” as well as the “Species natural range” columns.

² Note: U-PuertoRico indicates that the species is only present in that State. If the species is present in the USA mainland, then U-Puerto-Rico is not used in the column even if the species could be present in that State.

³ Canadian tree species (11) are based on the Species at Risk Act (SARA) - Table 1.7 (p.38-39) in the Canadian report.

⁴ Mexico’s tree species include 29 (Annex 4, p.139) of the 117 mentioned (p.16) in the document: Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) (Mexico 2012)

⁵ US tree species (21) are based on Table 6 (p.19) without taking into account the species from Hawaii (36) in the document: Country Report on the state of Forest Genetic Resources- United States of America (June 2012)

⁶ http://www.na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.htm searches were done using species name (accessed June 2013)

⁷ http://en.wikipedia.org/wiki/Main_Page searches were done using species name (accessed June 2013)

⁸ <http://plants.usda.gov/java/> searches were done using species name (accessed June 2013)

⁹ Zoladeski, C. and K. Hayes. 2013. Recovery Strategy for the Cherry Birch (*Betula lenta*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 12 pp.

¹⁰ <http://www.iucnredlist.org/search> searches were done using species name (accessed June 2013)

- ¹¹ Boland, G.J., J. Ambrose, B. Husband, K.A. Elliott and M.S. Melzer. 2012. Recovery Strategy for the American Chestnut (*Castanea dentata*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 43 pp.
- ¹² Environment Canada. 2013. Recovery Strategy for the Eastern Flowering Dogwood (*Cornus florida*) in Canada [Proposed]. *Species at Risk Act Recovery Strategy Series*. Environment Canada, Ottawa. 16 pp. + Appendices.
- ¹³ The Gymnosperm database: <http://www.conifers.org/index.php> (accessed June 2013).
- ¹⁴ <http://www.bgci.org/worldwide/Dalbergia/>
- ¹⁵ http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=210
- ¹⁶ http://www.sararegistry.gc.ca/species/speciesDetails_e.cfm?sid=222 (accessed June 2013)
- ¹⁷ Environment Canada. 2010. Recovery Strategy for the Butternut (*Juglans cinerea*) in Canada [Proposed]. *Species at Risk Act Recovery Strategy Series*. Environment Canada, Ottawa vii + 24 pp.
- ¹⁸ Ambrose, J. and D. Kirk. 2006. Recovery Strategy for Cucumber Tree (*Magnolia acuminata* L.) in Canada. Prepared for the Ontario Ministry of Natural Resources by the Cucumber Tree Recovery Team, viii + 24pp. + addenda.
- ¹⁹ Parks Canada Agency. 2010. Recovery Strategy for the Red Mulberry (*Morus rubra*) in Canada [PROPOSED]. *Species at Risk Act Recovery Strategy Series*. Parks Canada Agency. Ottawa, Ontario. vii + 25 pp. + 3 Appendices.
- ²⁰ COSEWIC. 2010. COSEWIC assessment and status report on the Whitebark Pine *Pinus albicaulis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 44 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
- ²¹ Parks Canada Agency. 2011. Recovery Strategy for the Common Hoptree (*Ptelea trifoliata*) in Canada [Proposed]. *Species at Risk Act Recovery Strategy Series*. Parks Canada Agency. Ottawa. vi + 61 pp.
- ²² COSEWIC. 1999. COSEWIC assessment and update status report on the shumard oak *Quercus shumardii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 11 pp. (www.sararegistry.gc.ca/status/status_e.cfm)
- ²³ <http://sweetgum.nybg.org/vh/specimen.php?irn=207188>

Table 5: Examples of regional networks and collaboration between countries in North America¹

Name of networks	Priority area	Species	Institutions	Countries

Regional Networks				
The Food And Agriculture Organization's (FAO) North American Forestry Commission's Forest Genetic Resources Working Group ^{2,3,4}	<i>In situ</i> conservation <i>Ex situ</i> conservation Breeding and domestication Information sharing	General	FAO North American Forestry Commission	Canada, Mexico, US
International Model Forest Network (IMFN)	<i>In situ</i> conservation Information sharing	General	The IMFN is comprised of all member Model Forests around the world.	Canada, Mexico, US
Subregional Networks				
Boreal Ecosystem– Atmosphere Study (BOREAS) ²	Information sharing	General	Canadian federal department Natural Resources Canada and the U.S. National Aeronautics and Space Administration (NASA)	Canada, US
Boreal Ecosystem Research and Monitoring Sites (BERMS) ²	Information sharing	General	Joint federal government– university initiative	Canada, US
North American Plant Collections Consortium (NAPCC) ³	<i>Ex situ</i> conservation Breeding and domestication Information sharing	General	network of botanical gardens and arboreta	Canada, US, Mexico
Central American and Mexioc Coniferous Resources Cooperative (CAMCORE) ⁴	<i>In situ</i> conservation <i>Ex situ</i> conservation Breeding and domestication Information sharing	The program works internationally with four tree genera: Pines, Eucalypts, Gmelina and Teak, and with several threatened coniferous species native to the southern US ⁵ .	North Carolina State University, private forest industry, and government agencies around the world	US, Mexico and other international groups
The University of California Institute for	<i>In situ</i> conservation <i>Ex situ</i> conservation	<i>Pinus radiata</i> var. <i>binata</i> , <i>Cupressus guadalupensis</i>	University of California and various research institutions in	Mexico, US

Mexico and the United States (UC Mexus)⁴	Information sharing	and <i>Quercus tomentella</i> , endemic taxa from Guadalupe Island, and studies on genetic variation in pine from Baja California ⁴ .	Mexico	
COFAN-U de California⁴	<i>Ex situ</i> conservation Information sharing	Three Mexican species of <i>Picea</i> , all of which are in danger of extinction, and currently in <i>Pinus coulteri</i> ⁴ .	Placerville agreement University of California with UAAAN and COLPOS ⁴ .	Mexico, US

¹ Information presented in the table was acquired from the respective country reports and represents examples of activities.

² Report on the State of Canada's Forest Genetics Resources (April 2012)- Table 6.4 (p.140)

³ Country Report on the State of Forest Genetic Resources- United States of America (June 2012)-(p.49)

⁴ Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) (Mexico 2012)-(p.93-98)

⁵ <http://www.camcore.org/overview/>

Table 6: Needs for international collaboration on forest genetic resources.

Needs	Country Level of priority: High (H), Moderate (M), and Low (L) ¹	
	Canada ²	Mexico ³
Understanding the state of diversity	H	H
Enhancing <i>in situ</i> management and conservation	M	L
Enhancing <i>ex situ</i> management and conservation	M	H
Enhancing use of forest genetic resources	M	M

Enhancing research	M	H
Enhancing education and training	H	H
Enhancing legislation	M	M
Enhancing information management and early warning systems for forest genetic resources	H	M
Enhancing public awareness	M	M
Any other priorities for international programs	M	H

¹ Data not determined for the US.

² Report on the State of Canada's Forest Genetics Resources (April 2012)-Table 6.3 (p.139)

³ Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) (Mexico 2012)- Table 6.2 (p.100)

Table 7. Examples of needs for the improvement of policies and legislations related to forest genetic resources in North American countries.

Theme	Description
General	<ul style="list-style-type: none"> National program for forest genetic resources. ^{1,2} (Canada, Mexico) Increase cooperation among national authorities in respect to FGR². (Mexico)
Conservation	<ul style="list-style-type: none"> The protection of species is often addressed by different legislation. Consolidation of legislation may streamline activities¹. (Canada) Limited application and implementation of regulations on private lands make it challenging for establishing and maintaining <i>in situ</i> conservation areas on private lands¹. (Canada)
Tenure and use rights Supply and use of forest	<ul style="list-style-type: none"> Establish mechanisms to ensure that the facility that is contracted annually to supply government reforestation programs, produces in accordance with the provisions on collection, transportation and storage

reproductive material	<p>of forest reproductive material under forest law, so as to ensure the accuracy of the source thereof². (Mexico)</p> <ul style="list-style-type: none"> • With respect to the purchase of germplasm, give priority to forest producers who are governed by the existing legislation and have banks or storage centers, thus promoting the development of the forest germplasm market with genotypic and/or phenotypic selection². (Mexico) • Ratify the Nagoya protocol while generating laws and regulations under which the protocol can be implemented². (Mexico)
Intellectual property rights Public participation	<ul style="list-style-type: none"> • Development of ABS national policy that includes and involves Aboriginal groups and communities¹. (Canada)
International	<ul style="list-style-type: none"> • Collaboration to amalgamate and share knowledge and data across regions for the developing effective long-term strategies for conserving these resources and for either minimizing the impacts of the stressors or for developing scale-appropriate mitigation strategies¹ (Canada).

¹ Report on the State of Canada's Forest Genetics Resources

² Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4)

Table 8. Examples of Capacity-Building, training needs and priorities in conservation, management and use of forest genetic resources in North American countries.

Subjects	Issues	Countries
Genetic diversity assessment	<ul style="list-style-type: none"> • Research to develop methods for assessing interspecific and intraspecific variation and for monitoring this variation¹. • Information management concerning the status of species and distribution and trends in genetic diversity (including inter- and intraspecific variation) in a pan-Canadian context to assist decision making pertaining to the conservation and management of forest genetic resources¹. • Quantify the genetic diversity of species using molecular methods and morphological adaptability studies². • Determine number of populations of priority species and their level of isolation². 	Canada ¹ , Mexico ²
In situ conservation	<ul style="list-style-type: none"> • Understanding natural selection and adaptation mechanisms for the 	Canada ¹ , Mexico ² , US ³

	<p>development of genetic diversity requirements (e.g., minimum thresholds, composition, ranges, extent, and distribution) for managing and conserving forests at both the stand and landscape level¹.</p> <ul style="list-style-type: none"> • Determining preferred locations for establishing <i>in situ</i> conservation areas where they will contain sufficient populations and be buffered against projected climate change (general warming and increased drought risk) and damaging insects and diseases¹. • Consolidate the current Protected Natural Areas (PNA) and create others to increase representation of ecosystem types in the PNA². • In the restoration of disturbed areas, favour natural regeneration over artificial regeneration to ensure recovery of native species². • Maintain and improve ongoing training programmes for personnel assigned to PNA². • Significant restoration needs, especially following invasive species removals and wildfire³. 	
Ex situ conservation	<ul style="list-style-type: none"> • Prohibitive cost of developing long-term storage protocols for recalcitrant and orthodox tree seed species¹ • <i>Ex situ</i> resources may be used for assisted migration to mitigate changes from climate change¹ • GAP analyses to identify and optimize genetic sampling¹ • Conducting genetic studies and developing micropropagation and cryopreservation techniques for oak species native to the US³ that have official risk designations (e.g.) red listed. • Increase the delivery of training workshops for producers and technicians in each state, to induce the establishment and certification of production units and storage facilities in accordance with the proposed Mexican Standard of germplasm². • In the concept of support that the federal government grants in the form of subsidies, include support for the maintenance and management of <i>ex situ</i> and <i>in situ</i> production units, banks and germplasm storage centres². 	Canada ¹ , Mexico ² , US ³
Propagation	<ul style="list-style-type: none"> • Basic issues such as reproductive biology, phenology, asexual propagation methods, including protocols considering tissue culture for mass propagation and conservation of endangered species, or those with seed production problems². 	Mexico ²
Breeding	<ul style="list-style-type: none"> • Genetic improvement of forest species: genotype tests, selection and 	Mexico ²

	management of outstanding genotypes. Genetic engineering to incorporate desirable features ² .	
General research capacity	<ul style="list-style-type: none"> • The number of FGR specialist teaching staff should be increased, as well as the infrastructure of laboratories, greenhouses and equipment for research and the training of students². • Promote the exchange of experience and use of facilities, including educational institutions, to streamline available resources². • Expand research agenda for non-timber products and fitness of the species for restoration of disturbed land, landfills and mine waste deposits². 	Canada ¹ , Mexico ²
Academic curricula	<ul style="list-style-type: none"> • Programs need to reflect a shift from timber-oriented forestry to the “new forestry” described as sustainable forest management and resource management¹. • Teaching undergraduate and graduate students to ensure future human capacity for continued research in quantitative and molecular genetics¹. • Generate new curricula and strengthen existing ones, incorporating basic issues such as: basic knowledge of genetics, genetics, biotechnology and molecular biology among others². • Strengthen teacher training to a higher education level and continuously update knowledge in aspects of FGR². 	Canada ¹ , Mexico ²
Stakeholders, Policy	<ul style="list-style-type: none"> • National program for forest genetic resources with multi-stakeholder participation¹. • Improve current FGR legislation². • Increase cooperation among national authorities with respect to FGR³. • Create a National FGR system³. 	Canada ¹ , Mexico ²

¹ Report on the State of Canada’s Forest Genetics Resources (April 2012)

² Forest Genetics Resources Situation in Mexico-Final report on project TCP/MEX/3301/MEX (4) (Mexico 2012)

³ Country Report on the state of Forest Genetic Resources- United States of America (June 2012)

