BOOK REVIEWS

IN SITU GENETIC CONSERVATION OF MONTEREY PINE (*PINUS RADIATA* D. DON): INFORMATION AND RECOMMENDATIONS

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The Americans use the name Monterey pine for the tree most others know as radiata pine.

There are now over 4 million ha of radiata pine plantations. Most are in the Southern Hemisphere — New Zealand and Chile each have over 1.5 million, Australia 750 000, South Africa 70 000, and Argentina 15 000. In the Northern Hemisphere, Spain dominates with over 235 000 ha and there are small areas in Turkey 2800, Ireland 300, and Great Britain 270. The present area of plantations globally is estimated (by Carle *et al.* 2002) at over 185 million ha with a current annual rate of new planting of 4.5 million ha.

Radiata pine is more important than is implied by occupying only 2% of the area of the global plantation resource. In those regions with a suitable climate, radiata pine is productive and an ideal plantation tree species. Radiata pine plantations provide most of the New Zealand and Chile wood supply and are significant contributors to their GDP.

The 4 million ha global plantation resource contrasts with about 6000 ha of the native radiata pine stands — nearly a thousand-fold increase in the area of the species.

Although radiata pine is an important Christmas tree species and is used for landscaping in California, it is not a significant plantation tree species in the regions in which it is native (Coastal California and two islands off the North-western coast of Mexico). Some of the native stands in California are desirable residential and recreational areas.

Because of the global importance of radiata pine, the preservation of the original native stands is most important for the ongoing genetic improvement of the species. The major growers of radiata pine will be heartened by this comprehensive and well-written publication by Dr Deborah Rogers of the University of California. The publication presents an excellent case for the conservation of the existing populations and recommends how this might be done.

Fossil evidence demonstrates that historically radiata pine occupied a range that extends beyond its current distribution. Climate, sea level, and other changes have now restricted radiata pine to five isolated locations. Each provenance has different phenotypic characteristics (growth rates, tree form, wood density, susceptibility to climatic influences, nutrient

deficiency, disease, or insect attack, etc.). As all provenances interbreed, the potential for continuing genetic improvement is considerable.

The five locations where radiata pine is native are:
(N.B.: Area estimates are difficult as stand boundaries are not always obvious because of the invasion of other tree species, clearings for residential buildings, etc.)

On coastal California —

Año Nuevo (37° N). The most northern provenance (and almost certainly the original source of most of the world's radiata pine plantations). Only 12 ha are protected of the total 400 to 600 ha (ca 1.2 million trees) that are mostly in private ownership.

Monterey (36.5° N). The largest radiata pine resource of between 3000 and 6000 ha (ca 3 million trees), of which about 850 ha have protection status.

Cambria (35.5° N). In total 900 to 1200 ha (ca 1.3 million trees), of which probably 430 ha have protection status.

Mexican Islands (off the coast of Baja California)

Guadalupe Island (29° N). The total radiata pine resource is currently 220 trees (down from 400 in 1964). All surviving trees are old and, because of a high goat population, there are virtually no seedlings. Although under the control of the Mexican Ministry of the Interior, goat control is difficult because there are over 250 other Mexican islands with the same problem and similar plant protection needs.

Cedros Island (28° N). The 130 ha (ca 80 000 trees) have no official protection but the island is also under the control of the Mexican Ministry of the Interior. There is abundant regeneration.

The publication has recommendations for *in situ* genetic conservation of all five radiata pine populations. While eventually the global forest products industry will benefit, the initial winners will be the radiata pine plantation owners.

The conservation proposals deserve our full support.

REFERENCE

CARLE, J.; VUORINEN, P; DEL LUNGO, A. 2002: Status and trends in global plantation development. *Forest Products Journal 52(7/8)*: 12–23.

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