LOCAL NAMES
English (Richmond river pine,moreton Bay pine,hoop pine,colonial pine); German (kolonialkiefer,Cunninghams Schmucktanne); Indonesian (pien,ningwik,alloa); Portuguese (yau); Thai (son naam)

BOTANIC DESCRIPTION
Araucaria cunninghamii is a large, unbuttressed, symmetrical tree, 50-70 m high; bole straight, cylindrical, self-pruning, clean to 30 m or more; mature trees 1.2-1.7 m in diameter; trunk internodes variable, 1-4 m; crown pyramidal to flat; branches in whorls of up to 6, more or less horizontal, with 2nd- to 5th-order branchlets; outer bark dark plum, red-brown or grey, rough, peeling off around circumference in stringy papery layers; middle bark reddish-brown; inner bark mottled white.

Juvenile leaves 23-27 x 20-25 mm, longer and flatter than adult, persist until trees are 10 years old; adult foliage crowded in overlapping whorls on ends of branches, persistent, without petioles, narrow to broadly triangular, slightly curved, 8-10 mm long, glabrous, dull green.

Monoecious; male strobili usually borne on lower and mid-crown branches, terminal, green, yellow at anthesis, red-brown later, elongated, about 90 x 10 mm.

Cone green, ovoid, 70-100 x 60-80 mm, covered with short spines, 9-10 mm long, deflexed; seed in the form of ovulate cone scales, more or less flat, woody, triangular, with 2 thin wings, indehiscent scale terminating in a sharp spine; reddish-brown.

The name ‘araucaria’ is derived from Arauco, a province of southern Chile.

BIOLOGY
Female flowering commences when it is about 12 years old while male flowering does not occur until it is 22-27 years. However in seed orchards of this species the age of production of male cones has been reduced to only 5 years and female cones from about 12 to 2-3 years using physiologically mature grafting material. The seed production is often unreliable and low; a time lapse of 8-10 years between good seed crops is common (Schmidt, 2000).

A. cunnighamii, 13 year old species trial plot, CATIE, Turrialba, Costa Rica. (David Boshier)

Juvenile foliage from stump shoots on mature trees at Gympie, Queensland, Australia (Anthony Simons)

Araucaria cunninghamii seedling (David Boshier)

ECOLOGY
A. cunninghamii occurs in isolated remnant pockets or in fairly dense stands on ridges. In some instances it is found on swampy terrain, often associated with A. hunsteinii, Castanopsis, Flindersia, Lithocarpus and Toona spp. It mainly occurs as scattered, predominant trees over an understorey of rainforest; only rarely does it form pure forests.

BIOPHYSICAL LIMITS
Altitude: 0-1000 m, Mean annual temperature: 15-25 deg. C, Mean annual rainfall: 1900-4800 mm

Soil type: Stands are found on loam, clay sand or peat soils derived from breccias, agglomerates, coralline or limestone formations, lacustrine deposits or old volcanic deposits.

DOCUMENTED SPECIES DISTRIBUTION

Native: Australia, Indonesia, Papua New Guinea
Exotic: Eritrea, Kenya, Nigeria, Solomon Islands, Uganda, Zimbabwe

The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS
Fibre: A. cunninghamii is directly or indirectly suitable for pulping through the use of wood residues.

Timber: A. cunninghamii produces a medium-quality softwood for use as general-purpose construction timber; better grades are suitable for internal finishes for buildings, furniture and cabinet making. It is also an excellent veneer species and is used as such.

SERVICES
Reclamation: A. cunnighamii is potentially capable of being an important plantation enrichment planting species in Africa and tropical America.

Ornamental: The tree is cultivated for ornamental purposes.

TREE MANAGEMENT
Rigorous weeding is necessary until the canopy closes, as Araucaria species suffer from grass competition, grow only slowly and often turn chlorotic. It is a self-pruning species. In Australia, the 1st thinning is done at 17 years, leaving 865 stems/ha, followed by the 2nd thinning at 22 years, the 3rd thinning at 27 years, and the final thinning at 50 years, leaving 198 stems/ha. The trees are normally clear felled at 60 years of age.

GERMPLASM MANAGEMENT
Seed storage behaviour is orthodox. Mature seeds collected at about 36% mc tolerate desiccation to about 7 % mc or even 2% mc without loss in viability. A germination rate of 43% has occurred after 8 years of hermetic air-dry storage at -15 deg. C. The viability of seeds that have been dried to moisture contents in equilibrium with ambient environment was maintained for 8 years at -9 deg. C to -15 deg. C. Similarly, 50% germination after 50 weeks of air-dry storage at -12 deg. C has been reported. If mature seeds are dried to 5% mc, long-term storage is possible in sealed containers at 3 deg. C. or lower. There are approximately 2400-4000 seeds/kg.

PESTS AND DISEASES
The larvae of Septromorpha rutella are known to infest A. cunninghamii seed. Weevils (Vanapa oberthueri) are associated with damage on trees following poor pruning or thinning. Other pests include the termite Coptotermes elisae and Amblypelta cocophaga, a leaf-footed bug.

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