



CHILE

The facts about the araucaria forests

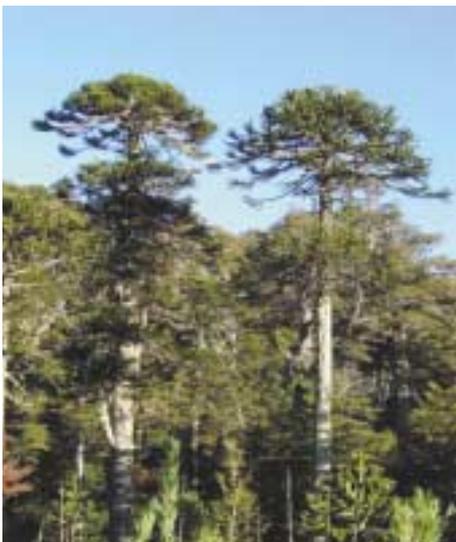
by Cristian Echeverría and Gonzalo Medel
University of Valdivia

Araucaria araucana or the monkey puzzle tree, as it is generally known, is an endemic evergreen conifer species which grows in temperate rainforests of south central Chile and adjacent areas in Argentina, under an amazing landscape covered by large areas of temperate rainforests with a high percentage of endemism. *Araucaria araucana* can reach up to 2 metres in diameter and 50 metres in height, and may live for over 1,000 years. The species grows in mixed forests with deciduous or evergreen species (depending on the location) or in pure stands. *Araucaria araucana* is one of eighteen species of araucaria found worldwide but for the purposes of this article I will refer to the tree as simply araucaria.

Distribution of Chilean araucaria is clearly divided in two areas: the Andes Range and the Coastal Range (Nahuelbuta mountain). 97% of araucaria forests are concentrated in the Andes Range, where the species can be found from around 900 to 1,700 metres. In the Coastal Range, the species covers about 7,000 hectares in two relatively small zones: in the north between 37°40' and 37°50' degrees, with a maximum elevation of 1,400 metres, and in the south at 38°40', with an elevation of approximately 600 metres.

Historical, ecological, social and scientific importance of *A. Araucana*

Araucaria has played an important role in the historical and social aspects, and the culture of indigenous people from Chile and Argentina. Between November and December, female flowers start growing as spherical green cones formed by numerous coriaceous scales. Each cone



releases between 120 to 200 seeds, called piñones, which are 4 to 5cm long and 1.5cm wide. These seeds are edible and form an important part of the Pehuenche indigenous people's diet (Pehuenche means "people of Pehuén", the local name for *A. araucana*), consuming it raw, boiled or ground to make flour, among other uses. Seeds have a high carbohydrate content and the collection, storage, trade and preparation of meals is an important part of the traditional lives of the Pehuenche people. If the annual seed production decreases, Pehuenche's quality of life can deteriorate dramatically. In the past, monkey puzzle wood was widely used due to its high mechanical resistance and moderate resistance to fungal decay. The wood was used for beams in buildings, bridges, piers, roofs, furniture, boat structures, veneers and plywood.

Araucaria forms characteristic forests, which are recognised and appreciated for their uniqueness and natural beauty, providing important tourism and recreational opportunities for all the society. The tree has become the emblem of a number of national parks and provinces in both Chile and Argentina. Due to its high ornamental value, it is cultivated in gardens of Europe and America and this gives the misguided impression that the tree is more common than it really is.

Araucaria is also used in dendrochronology to reconstruct climatic conditions by measuring the growth rings which may go back hundreds of years.

Conservation Status

In Chile, araucaria is actually listed in Appendix I of CITES, forbidding its international trade and listed as vulnerable species by the IUCN. The legal declaration of the araucaria as a Natural Monument in Chile means that its logging is forbidden. The Natural Monument status was revoked in 1987, but it was reinstated in 1990 due to pressure from conservationists and indigenous people. At present, the species is highly

threatened by human actions such as forest fires. During 2001-2002 thousands of hectares of araucaria forests were dramatically burnt in southern Chile. More than 8,300 hectares of native forest was burnt in the Malleco National Reserve, destroying 71% of the forests, and in Conguillio National Park 1,600 hectares of pure araucaria forests were burnt. Fire also affected 56% of the araucaria forests of Tolhuaca National Park. These fires converted these beautiful forests into a desolate landscape, which will take decades to recover, if at all.

At present, most of the araucaria forests are well-protected in the Andes Ranges through national parks and reserves. Conversely, on the Coast most of the araucaria forests are owned by private land owners, without an appropriate protection system. Burning, grazing and conversion to *Pinus radiata* plantations have disturbed important areas in the Coastal Range, and these remain ongoing threats. In the southern limit of the Coastal range, there is a singular place of approximately 53 hectares, called Villa Las Araucarias, where an isolated population of araucaria is still growing and exposed to a high degree of alteration. Recent research has shown that this araucaria population possesses genetic differences from those populations located in the northern part of the Coastal Range and those in the Andes range. Therefore, the conservation of this unique population is of great importance. Due to this discovery, since 1997 several projects on conservation and restoration have been carried out in Villa Las Araucarias, by the Universidad Católica de Temuco and the Universidad Austral de Chile. These institutions have developed joint conservation initiatives to recover the structure and habitat of the araucaria.

Some institutions and landowners are still campaigning for the abolition of the current legal status of araucaria. If this happens, the species will be even more threatened, that is why these conservation initiatives are so crucial.