

---

## WORLD HERITAGE NOMINATION - IUCN TECHNICAL EVALUATION

### THE LAURISILVA OF MADEIRA (PORTUGAL)

---

#### 1. DOCUMENTATION

- i) **IUCN/WCMC Data Sheet:** (10 references).
- ii) **Additional Literature Consulted:** United Nations List of National Parks and Protected Areas. 1985; Heywood. 1994. **Centres of Plant Diversity**. Vol. 1. IUCN/WWF; The European Committee for Conservation of Bryophytes. ed. 1995. **Red Data Book of European Bryophytes**; Thorsell, J. & T. Sigaty. 1997. **A global overview of forest protected areas on the World Heritage List**. IUCN; Santos, A. 1990. **Evergreen Forests in the Macaronesian region**. (Council of Europe); Synge, H. 1991. **Which Oceanic Islands merit World Heritage Status?** A short feasibility study for IUCN.
- iii) **Consultations:** 8 external reviewers, Government officials in Lisbon, Madeira and Canary Islands and members of IUCN-SSC Macaronesian Island Plants Specialist Group.
- iv) **Field Visit:** February 1999, Hugh Synge.

#### 2. SUMMARY OF NATURAL VALUES

The nominated site, The Laurisilva of Madeira (LM), consists of approximately 15,000ha within the 27,000ha Madeira Nature Reserve. The nominated site conserves primary laurel forest or "laurisilva", a vegetation type that is now confined to the Azores, Madeira and the Canary Islands. The laurisilva on Madeira is the largest area of laurel forest surviving (see comparisons, next section) and is in very good condition, with around 90% believed to be primary forest.

The laurel forest has great ecological value, playing an important role in maintaining the ecological balance of the island. It provides ecological services to the island by protecting the micro-climate and maintaining water supplies by collecting and retaining water.

The forest completely covers a series of very steep, V-shaped valleys leading from the plateau and east-west ridge in the centre of the island to the north coast. Ancient trees in the valley bottoms, waterfalls and cliffs provide the visitor with an experience not found elsewhere in Europe, and more reminiscent of an African montane forest than a part of Europe. At the higher altitudes, arborescent plants in normally herbaceous genera such as sow-thistle cling to steep cliffs, again reminiscent of the African mountains, and in the valley bottom giant ferns abound.

LM is notable for its biological diversity with:

- ♦ At least 66 vascular plant species endemic to Madeira occurring in the site;
- ♦ Of its large bryophyte flora, 13 liverwort species and 20 moss species are listed as rare or threatened on a European scale; and

- ◆ Endemic animals including a species of pigeon (The Madeiran Long-toed Pigeon, which eats the laurel fruits); a lizard species; two species of bats; and endemic subspecies of chaffinch and firecrest.

### 3. COMPARISON WITH OTHER AREAS

Fossil evidence shows that laurisilva once covered much of Southern Europe in the Tertiary era, 15-40 million years ago, and what is now seen in Madeira is the largest surviving relict of a virtually extinct flora of great interest. As climate change brought about its demise on continental Europe, the ocean- moderated climate of the island groups of the Azores, Madeira and Canary Islands maintained relicts of this previously widespread forest type.

While there are other areas of evergreen forest influenced by coastal fog, such as on the western seaboard of North America and temperate South America, all have completely different biota. The forest of LM is similar in structure, but not in species, to the montane forest of East Africa.

The relict laurisilva areas are in the Macaronesian Islands Biogeographic Province and, as stated by a reviewer, "The Macaronesian forests are unique in their phytogeographical history and in the relict and endemic species they contain." The main comparison is therefore with the other areas of laurel forest in the Azores and Canaries:

The laurel forest in the Azores (Portugal) is less rich in species than that of Madeira and the Canaries, and is reported to be rather degraded.

The Canary Islands (Spain) contain laurel forest on the central and western islands, with the most significant being on La Gomera, where the laurel forest is protected in the Garajonay National Park of 3,948ha of which 70% is laurel forest. This was inscribed on the World Heritage List in 1986. The evaluation report for Garajonay reports that that park contains over half of the Canarian laurel forest. The key comparison therefore is between the Madeiran laurisilva and Garajonay National Park. There are differences:

The laurisilva in LM is much larger: covering some 15,000ha as opposed to just c 3,000ha in the Garajonay site. The topography is different: the Madeiran forest is on steep V-sided valleys running from the central ridge and plateau to the north coast, from 1,400m to sea-level. Garajonay is an eroded volcanic plateau with a central crater and gently sloping escarpments, the park being at 600-1,492m. The Madeiran forest is in general more luxuriant than the Canarian forest, being taller, wetter and cooler. In the lower areas there are large ancient *Ocotea* trees of up to 40m high, a feature not present in the Canary Islands where the forest is much lower and more shrubby in nature.

Although the four dominant species of trees are the same in both LM and Garajonay, most of the rest of the flora is different. The Madeiran forest has numerous rare and endemic species, especially of bryophytes, ferns and flowering plants. It also has a very rich invertebrate fauna which is only just beginning to be uncovered.

The biological value of LM is recognised by its designation as a Special Area of Conservation (SAC) under the EU Habitats Directive, specifically for the conservation of a priority habitat type and 38 named threatened plants and animals. Few other sites in Europe have so many listed species. It is also one of the Centres of Plant Diversity identified in a global WWF/IUCN project and is given special emphasis as an area of high bryophyte diversity in the Red Data Book of European Bryophytes.

When the Spanish nomination of Garajonay National Park was evaluated by IUCN in 1986 it was seen as "the singularly most unique protected area in all of Spain for the international significance of its endemic flora... and as the only major remnant of a once common ecosystem." The 1985 United

Nations List of National Parks and Protected Areas confirmed this view in relation to Macaronesian forests. Garajonay was inscribed on the World Heritage List under two criteria as "an outstanding example of biological evolution of the laurel forest ecosystem" and as a site with "habitats of rare and endemic plant species..."

It is significant that the 1985 UN List did not record any protected areas on Madeira. This reflects that, in the 1970s, the Canarian laurel forest was well known and publicised but little information was available on the Madeiran forest. It was in the mid 1980s that the Madeiran laurel forest was deemed so important for plant conservation, that it was chosen as the site for one of the 20 or so field projects developed around the world in the IUCN/WWF Joint Plants Conservation Programme. Conservation activity for the LM dates from the 1990s, following among other things an IUCN study funded by the International Dendrology Society and a field visit by WWF in 1990.

An IUCN study in 1991 on which oceanic islands merit World Heritage status, it was noted that islands have in general been neglected in conservation yet contain floras of extreme importance and very high numbers of threatened species: one in three of all threatened plants occurs on islands.

When oceanic islands were ranked in terms of the number of endemic plant species, Madeira placed at number twenty. However, many of those ranked above it are very much larger, such as New Caledonia and Jamaica while others, such as Mauritius, have floras degraded by invasive introduced species. In fact, the Madeiran laurisilva is much the largest extent of laurel forest surviving in the world, with a unique suite of plants and animals. It would be hard to think of any plant-rich oceanic island of similar size as Madeira that has such a high proportion (close to 90%) of its natural forest intact.

#### **4. INTEGRITY**

The boundaries of the proposed World Heritage site include the primary laurisilva that remains on Madeira. There was an exhaustive field study of the laurisilva from 1992 to 1995. The members of the team that implemented the study now form the core staff of the Nature Park.

The site contains no habitation, no buildings (except the occasional tiny hut for those who maintain the levadas - see section 5.) and no cultivated land.

The LM is all primary forest except for the two easterly portions (roughly 10% of the whole), believed to have been cut some 40-50 years ago but which are now recovering well. The main forest is believed never to have been felled or cut and includes some massive old trees, believed to be over 800 years old, before the island was settled. Goats and sheep, which caused some damage in the past, have now been eliminated from the park, but stray animals are occasionally found there.

##### **4.1. Legislation**

LM is protected under a range of designations. It is one of the first accepted SACs under the Habitats Directive of the European Union. This directive has the force of law in EU Member States obliging Portugal to protect the area so that both "Madeiran laurel forest" and 38 species of rare and threatened plants and animals remain at, or are restored to, "favourable conservation status". Member States such as Portugal, may receive substantial grants from the EU LIFE fund to enable them to meet this obligation but if they fail the European Commission has the power to take them to the European Court of Justice. The site is also a Biogenetic Reserve of the Council of Europe.

Conservation functions are devolved to the Autonomous Regional Government of Madeira, which is elected by the island people. Under Madeiran law, the proposed WH site is gazetted partly as a Strict Reserve ("Reserva Integral") and partly as a Partial Reserve, about half in each. Strict Reserve corresponds with IUCN Category Ia, as no access is permitted except for conservation purposes.

Partial Reserve corresponds with IUCN Category II, since ecosystem protection is the main objective; visitor access is allowed and some very small cutting of the common tree heather in the higher zones is also permitted for local people, who use it to fence their terraces; this use is declining and appears to do no harm to the forest.

#### **4.2. Boundaries**

The whole site is enclosed within the Madeira Nature Park, which was established around 1990 as a large Category V site. However, the emphasis of management is almost entirely on the laurisilva, which is managed as Category I and II. Indeed, Park boundaries were drawn widely, including many areas of regrowth and introduced Eucalyptus on the southern slopes of the island. A redrawing of the boundaries of the Nature Park is under way to exclude much of this area from the Nature Park but this will have no negative effect on the site nominated. The authorities also plan to upgrade the protection for the Nature Park at the same time.

#### **4.3. Adjacent area**

No integrity problems are foreseen from areas surrounding the nominated site. Higher altitude areas are grassland and juniper managed for conservation and there appears no future threat from exotic species as pressure grows for any future plantation forestry to use native species. However, compatible management of these areas will be important for LM.

#### **4.4. Agriculture**

Below the laurel forest, in areas where the forest does not end in steep sea cliffs, are traditional agricultural terraces. The extent of these is shrinking as young people leave the villages to work in hotels on the south coast and laurel forest is starting to reclaim part of the area. One danger is of invasive species from these terraces but under a project funded by the EU LIFE-Nature Fund, a team is removing all tubers of the ornamental ginger from the terraces. This is a precautionary measure to prevent invasion of the laurisilva.

#### **4.5. Access**

The site is presently bisected by two roads running north south. One which cuts through Ribeiro Frio is an old route and serves a Forest Station with a botanic garden of endemic species. The other road to a large excluded area south of Sao Vicente is being replaced by a tunnel that will mean vehicles do not enter the proposed World Heritage site. Along the western part of the north coast, where the proposed site reaches the coast, the coast road forms the boundary of the site, mostly cut into precipitous cliffs. There are a few tracks through the forest used for access to the forest and to maintain the levadas (see section 5) but not for tourist access.

#### **4.6. Visitation**

Visitation does not seem high, despite the growth of tourism on Madeira, which now has 18,000 tourist beds, scheduled to rise to a ceiling of 24,000. Facilities for visitors to the laurel forest are few and clearly this is a subject to which management will need to give priority. With the sheer cliffs beside narrow levadas, great care will need to be taken both to protect the forest and to provide for visitor safety, as pressure for access mounts. World Heritage status may encourage more visitors but should also help safeguard the site against the temptation of building inappropriate facilities for visitors.

In conclusion, the proposed site is well protected and all threats, except visitor pressure, seem to be diminishing not increasing. The Nature Park administration has done a good job in building up the protection of the site in a short time, through a complex set of overlapping designations, national and

international, and by work on the ground. Thanks to the 1992-5 survey, they have a remarkable knowledge of the site on the ground. The challenge is now to consider more closely the issues of interpretation, which appears lacking, and visitor access.

The LM is considered to meet the conditions of integrity.

## **5. ADDITIONAL COMMENTS**

The settlers of Madeira constructed levadas, water channels through the forest that follow the contours clinging to the cliffs and steep-sided valleys. Typically 80-150 cm wide and constructed of stone or more latterly concrete, they carry water from the forest to hydropower stations and to the towns of the south, where they provide essential drinking water and irrigation supplies. To get through the central ridge, tunnels as long as 5km were constructed. Besides the levadas, including in the tunnels, are paths typically 1-2m wide, which allow access to the otherwise almost impenetrable forest. There is much interest in Madeira in nominating the levadas for cultural status on the World Heritage list, but they are not on the indicative list for Portugal. As far as nature conservation is concerned, they are a benefit, since they allow access to the forest on relatively flat paths and cover only an infinitesimal area of land. None has been built for 50 years, but the present ones are carefully maintained.

## **6. APPLICATION OF WORLD HERITAGE NATURAL CRITERIA**

The site is nominated under all four natural criteria.

### **Criterion (i): Earth's history and geological features**

IUCN does not consider that the geology of the nominated site meets criterion (i).

### **Criterion (ii): Ecological processes**

In parallel with the Garajonay National Park (Spain), LM is an outstanding relict of a previously widespread laurel forest type. LM is considered to fulfil criterion (ii).

### **Criterion (iii): Superlative natural phenomena, scenic beauty**

Although the site is attractive, in IUCN's assessment, it does not qualify under criterion (iii).

### **Criterion (iv): Biodiversity and threatened species**

The greatest natural value of the laurisilva is its biological diversity. Nearly all its plants and animals are unique to the laurel forest. The Madeiran laurisilva is not only larger but has differences biologically from laurel forest elsewhere. It therefore meets current Criterion (iv) as containing "the most important and significant natural habitats for in-situ conservation of biological diversity."

Along with the existing Garajonay site, LM would give excellent coverage of laurel forests on the World Heritage List. However, the fundamental similarities between the two sites located in the same Atlantic region suggest the logic of the relevant States Parties being encouraged to consider seeking inscription of the Laurel forest of Madeira along with the Garajonay National Park as an international World Heritage site representing the once widespread laurel forest ecosystem.

## **7. RECOMMENDATION**

At its twenty-third ordinary session, the Bureau recommend to the Committee that the Laurel Forest of Madeira be **inscribed** on the World Heritage List under natural criteria (ii) and (iv).

The Committee may wish to: (a) compliment the State Party on the protection afforded to the forest in a protected area less than 10 years old and the commitment shown by the Autonomous Regional Government; (b) encourage the State Party to enhance interpretation of the area and encourage compatible forestry practices outside the site; and (c) encourage discussion between the Portuguese and Spanish authorities on the possibility of jointly proposing Garajonay National Park World Heritage site and the Laurel Forest of Madeira as a single World Heritage site representing laurel forest.