

## World Heritage Sites

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## GARAJONAY NATIONAL PARK SPAIN

*Laurel forest covers some 70% of this park, situated in the middle of the island of La Gomera in the Canary Islands archipelago. The presence of springs and numerous streams create lush vegetation resembling that of the Tertiary period, which, owing to climatic change, has largely disappeared from southern Europe.*

### COUNTRY

Spain

### NAME

Garajonay National Park

### NATURAL WORLD HERITAGE SERIAL SITE

1986: Inscribed on the World Heritage List under Natural Criteria vii and ix.

### STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

### IUCN MANAGEMENT CATEGORY

II National Park

### BIOGEOGRAPHICAL PROVINCE

Macaronesian Islands (2.40.13 )

### GEOGRAPHICAL LOCATION

In the centre of La Gomera Island (37,800ha), one of the islands in the Canary archipelago 400 km west of the northwest coast of Africa and 30 km west of Tenerife Island at 28°05' to 28°12'N and 17°10' to 17°18'W.

### DATES AND HISTORY OF ESTABLISHMENT

1812: The estates of the nobility were abolished by the Constitution; ownership and administration were transferred to the municipal governments and the forests came to be regarded as public property;

1879: Forests recorded as public property in the last Register of Public Property listing;

1981: La Gomera gazetted a National Park under Law 4/89.

### LAND TENURE

Municipal (six municipalities) in the Province of Santa Cruz. Managed by the *Instituto para la Conservación de la Naturaleza* (ICONA) now within the Ministry of the Environment.

### AREA

3,984 ha. The National Park comprises a forest which spreads into each of the island's municipalities. There is a buffer zone of 4,160 ha.

Vallehermoso	1,300 ha	Valle Gran Rey	350 ha
Hermigua	1,024 ha	San Sebastian	290 ha

Agulo

770 ha

Alajero

250 ha

## ALTITUDE

700m to 1,487m (Pico Garajonay)

## PHYSICAL FEATURES

Geologically, the Canary Islands were formed by an underlying plate moving slowly eastward over a hot spot in the Earth's crust, forming a succession of volcanic islands, of which La Gomera in the west is among the younger. It is roughly circular in shape and some 25 km in diameter. However, it is the only island in the group that has not experienced an eruption in recent times. Ash and lava fields have therefore been eroded away leaving a series of steep ravines (*barrancos*) carved by the winter rainfall. It consists of a range in the north centre of the island above an eroded plateau of gently sloping terrain the steep sloping escarpments of which comprise uneven steps as far as the Park boundaries. The landscape is characterized by volcanic dykes and pillar-like domes (*roques*), examples of which are Agando, Ojila, La Zarcilla and Las Lajas, all found in the southeast of the Park. The soils are mature red soils formed from the basalt. The many springs and permanent streams are maintained by the high level of condensation on the dense dominant cloud forest of *El Cedro* (MAEE, 1985; ICONA, n.d.).

## CLIMATE

Subtropical high pressure systems from the North Atlantic govern the climatic regime. Trade winds from the north and northeast veering to southwest sea winds (*alisios*) moistened and cooled by flowing over a cold ocean current, give rise to extensive mist and cloud cover, typically between 600 and 1,500m, especially on the northern mountain slopes. Annual rainfall is between 600mm and 800mm, falling mainly in autumn and winter. This is approximately doubled by condensation: 1440mm was measured by a recent study in the laurel forest (Garcia-Santos *et al.*, 2005). Relative humidity ranges from 75% to 90%, although occasional dry saharian winds can drastically reduce it. Annual temperatures vary between 13°C and 15°C (ICONA, n.d.). By contrast, the island's lowlands are arid.

## VEGETATION

The subtropical vegetation is a Gondwanan relict of the more humid climate which existed throughout the Mediterranean before the end of the Pleistocene about 10,000 years ago which has largely disappeared due to climatic change, being replaced by sclerophytic and xerophytic species. The forest has been preserved by the cool humid winds from which mists condense on the highlands, supplementing and supplemented by the island's numerous streams and springs. Its distribution is now limited to a few sites in Macaronesia (especially, in the Canaries, the islands of La Palma and El Hierro) and even here persists in a largely altered and highly reduced state (Banares & Barquin, 1984; Fernandez Lopez, 1991; ICONA, n.d.). The vegetation types are also influenced by geographical orientation and elevation. The essential feature is the *Laurisilva canaria* which occupies about 70% of the Park and is dominated by the fern and moss-floored forest of Canary laurel *Laurus azorica*, draped with lichen, the principal reason for the Park's World Heritage status.

Other, co-dominant native species found within this forest, some of which exceed 40m in height, include *viñatigo* *Persea indica*, *barbosano* *Apollonia barbujana*, *tilo* *Ocotea foetens* and *palo blanco* *Picconia excelsa*. The drier, lower and southern slopes are *fayal-brezal* heathland, densely bushy with low trees. This contains Canary Island arbutus *Arbutus canariensis*, Canary holly *Ilex canariensis*, *ademo* *Heberdenia excelsa* (VU), *Viburnum tinus*, strawberry tree *Visnea mocanera*, Canary Island juniper *Juniperus cedrus*, Canary Island elder *Sambucus palmensis*, Canary willow *Salix canariensis*, *Gesnouiinia arborea*, buckthorn *Rhamnus glandulosa* and *Maytenus canariensis* (Banares & Barquin, 1984; Fernandez Lopez, 1994). The Park's western boundary consists of an extensive heathland with bog myrtle *Myrica faya*, tree heather *Erica arborea*, white heather *Erica scoparia*, Madeira holly *Ilex perado* mosses and lichens. Rockrose *Cistus monspeliensis* and Tabaiba spurge *Euphorbia obtusifolia* also occur here. Some 450 floral species have been recorded, of which 81 are endemic to the archipelago, 34 are endemic to the island, and eight are restricted to the National Park.

## FAUNA

In common with many island ecosystems, the fauna is impoverished, but has a high degree of endemism. Mammals and herpetofauna are poorly represented. There are only four native species of bat, including the Madeira pipistrelle, *Pipistrellus maderensis* (EN), but introduced rats, rabbits, cats and dogs have become pests. Two lizards are found: the endemic La Gomera giant lizard *Gallotia*

*bravoana* (CR), a creature of the rocky scrub rather than the forest, and the Gomera lizard *Gallotia galloti gomerae*. The Gomera skink *Chalcides coeruleopunctatus* is a recently recognised species. Two species of bird, namely white-tailed laurel pigeon *Columba junoniae* (EN) and dark-tailed laurel pigeon *Columba bollii*, are endemic to the Canaries and on La Gomera are largely restricted to the National Park. In all, 27 bird species have been recorded. Almost 960 invertebrate species have been identified and of these, about 100 are endemic to the park (Anon., 1985; Lopez, 1994; ICONA, n.d.).

## **CONSERVATION VALUE**

The Park harbours one of the largest continuous areas of laurisilva forest, a habitat that has almost disappeared from southern Europe and North Africa. Almost half of the remaining forest in the Canary Islands is included in the Park. In spite of being biologically diverse, 25% of the flora and 50% of the fauna are endemic, and many species are considered to be nationally threatened. The Park lies within a Conservation International-designated Conservation Hotspot, a WWF Global 200 Eco-region, a WWF/IUCN Centre of Plant Diversity and a BirdLife-designated Endemic Bird Area.

## **CULTURAL HERITAGE**

The original islanders, the Guanche, may have been of Berber stock from north Africa who were still in the Stone Age when conquered by Europeans, and whose culture has disappeared. But they have preserved an unusual whistling language, the *silbo gomero*, for communicating over the deeply dissected forested mountain valleys. The island was taken by the Castilians in 1404, colonised by the Spanish during the 15th century and was Columbus' last port of call in 1492. It became an important intermediate port between Europe and America in the 16th century. (MAEE, 1985).

## **LOCAL HUMAN POPULATION**

There are no settlements within the Park, but approximately 16,000 people live on the island, and are dependant upon agriculture, fishing and tourist activities for their income. There are several settlements located at the Park's boundary including El Cedro, Meriga, Epina, Las Hayas, El Cercado, and Igualeto. Local people continue to use certain Park areas that are traditionally associated with annual fiestas or pilgrimages. Other traditional uses, such as fuel collection and cattle raising have been reduced (Lopez, 1994).

## **VISITORS AND VISITOR FACILITIES**

Approximately 450,000 visitors enter the Park annually, though most only stay for the day. There is a visitor centre at Juego de Bolos just outside the Park boundary, with an auditorium, eco-museum, botanical garden, and handcraft factory. A limited number of trails have been constructed restricting tourist access to the more sensitive areas (ICONA, 1995). The island is accessible by ferry from Tenerife, and by air. The Park can be easily reached by road from the island's major towns and villages, and by air. There is ample accommodation in the island's towns.

## **SCIENTIFIC RESEARCH AND FACILITIES**

A genetic rescue program for plants at risk of extinction was initiated in 1984 (ICONA, 1985), and was followed in 1991 by a plan to revive some of these species. A research programme made a thorough inventory in those areas that have experienced some degradation, as well as studying the flora, fauna, hydrology and climate. The water regimen has recently been studied in detail. External research projects must first be approved by the Park's Board of Trustees (Lopez, 1994).

## **MANAGEMENT**

Conservation is covered by several laws and decrees, namely the Law and Regulations on Protected Nature Sites; Law and Regulations on Forest; Law and Regulations on Land; Law 4/89 on Nature Protection, and several Royal Decrees. The Park is within the administrative jurisdiction of ICONA, an independent body within the Ministry of Agriculture, Fisheries and Food at the time of nomination. Administration is carried out by a management board comprising representatives from local government, universities and ecologists, their duties being circumscribed in law. Historically, several measures have been taken to preserve Garajonay's ecosystem: a ban on grazing (1942) and tree felling (1964); prohibiting collection of dead leaves that protect soil; and protection of birds by Royal Decree No.3181 of 1980 (MAEE, 1985).

Management objectives, as identified in the management plan, enacted by Decree 1531 in 1986 by the Ministry of Agriculture, Fisheries and Food, include: restoration of degraded areas; conservation of

genetic resources; eradication of introduced species, especially pine and eucalyptus; fire prevention; interpretation and education; and recreation provisions. The Park has been zoned into a (biogenetic) Reserve zone (covering 2,035 ha and is split into three sectors) with restricted access; a Restricted Use zone (858 ha), allowing limited traditional access and use; a (service) Moderate Use zone (891ha), where the environment has suffered some degradation and is used for recreation and education; and a Special Use zone (110 ha) which consists of small and scattered areas mainly on the periphery, and is used for visitor facilities. An operative plan is available, detailing the specific objectives annually (ICONA, 1995).

## MANAGEMENT CONSTRAINTS

Following European colonisation, the forest cover changed dramatically. According to the 1879 entry in the Register of Public Property forest cover totalled 11,385 ha. Assuming these figures to be accurate, forest cover has been reduced by about 65% in just over 100 years, mainly by encroachment for agriculture and grazing, timber plantations and fire.

The southern and western sections of the Park continue to be threatened by deforestation, forest fires, and grazing. More than 500 ha of natural vegetation have been replaced by commercial plantations of exotic species such as Canary and Monterey pine. There are also small populations of feral cats, dogs and rats, and introduced species such as rabbits and parrots. A low level of local participation in the Park planning and management process exists (Lopez, 1994; ICONA, 1995).

## STAFF

In addition to the director, there is a park technician, four interpreters, six rangers, and two administrators (ICONA, 1995).

## BUDGET

The planned budget for 1995 was over 200,000,000 pesetas (approx.US\$1,700,000), to be divided as follows: planning and research (9%), visitor management (23%), conservation (40%), and others (28%). In addition, 35,000,000 pesetas (approx.US\$ 300,000) are available for the sustainable development of local communities (ICONA, 1995).

## LOCAL ADDRESSES

National Park Service. Parque Nacional Garajonay, Carretera General del Sur, No.6,38800 San Sebastian de la Gomera, Provincia de Santa Cruz de Tenerife.

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## **DATE**

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