



laurissilva da Madeira - Measures for the Management and Conservation of the Laurissilva Forest of Madeira (code 45.62\*)

LIFE97 NAT/P/004082



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#### Project description:

##### Background

Ranging from an altitude of 300 to 1300 m, the laurel forest grows in parts of the island where relative humidity and rainfall are highest (usually over 85% and 1700 mm/year, respectively). Its high plant diversity includes several endemic species and its fauna is also of great importance to its ecological balance and conservation, in particular invertebrates and birds like the long-toed pigeon (*Columba trocaz*), also an endemic species. The introduction of exotic plant or animal species in insular environments is a classic conservation problem as it often causes situations of ecological imbalance which can lead to the wiping out of indigenous species. One example of this in the laurel forest is *Hedichium gardnerianum*, an invading plant which is rapidly colonising the lower forest edges. Another is the large population of rats which lives on food resources from the forest (plants, shoots, berries and seeds) but also preys heavily on birds, who are the main vehicle for spreading seeds, and in so doing threaten the natural regeneration of the forest.

##### Objectives

The aim of this project was to help recover and preserve some areas of laurel forest by eradicating the main invading species that occur within it and along its edges, and also by identifying and studying the impact of rats on the forest and

on its natural means of regeneration, in particular on the long-toed pigeon. Some groups of non-invading exotic trees growing in the forest were also removed. Wherever measures are taken to control introduced species, environmental education is essential. The project therefore included a number of talks and lectures and the publication of a brochure and a book on the laurel forest. In this way, the project also aimed to raise public awareness towards the problem of species introduction into islands.

## Results

The project ended with a partial achievement of its specific objectives. A control of the most invasive of the exotics, *Hedychium gardnerianum*, was achieved inside the laurel forest and key areas outside of it. However, total eradication was not achieved, nor was the whole set of exotics tackled. Even so, the project eliminated the plant from an area larger than it initially occupied, since between the date of the proposal and the beginning of the project the situation had already evolved into an explosive development and the area covered had increased more than 50%. Because this threat was considered priority, the work focused on it and that regarding the other exotics resumed to monitoring. Eradication was not achieved, but the situation is now under control, although requiring additional work after the end of the project, which is being assured through national funds: 3 jobs were created as a consequence of Life and a permanent exotics fighting team is now on work helped by the army. Farmers are also involved in a broader approach to the problem that joins the beneficiary and other regional departments.

Assessment of the damage caused by black rats suggested that the laurel forest rat population may represent a reservoir of animals from which individuals disperse to other habitats, such as the montane zone either when population densities are high in the forests or food sources become available elsewhere. The diet results were unusual as they showed a high proportion of insects, while studies elsewhere had suggested they prefer plants and seeds. This may have implications for the invertebrate biodiversity of the forest but may also reflect seasonal abundance, as rats are omnivores and opportunistic foragers. Results also suggested that the global predation rate on pigeon nests was around 27,5%, which was not considered worrying (a similar survey in the Canary islands found a rate around 50%). These data did not suggest the need to develop a rat control or eradication program.

The conservation benefits for the Natura 2000 site and species/habitats targeted were undoubtedly important. The project initiated an urgent action needed to avoid the deterioration of the Natura 2000 site "laurel forest of Madeira", the best conserved sample of this priority habitat that survived until the present.

A broad approach to controlling the exotic species was adopted. Three of the workers were integrated in the Park's staff and are now part of an "exotics prevention team". An agreement with the army was established, and twice a week they assign a group of 10 soldiers to help with the fieldwork. The beneficiary encouraged farmers that own land plots nearer the sanitary belt to cultivate them, since this keeps the exotics away and reduces the threat of re-invasion of areas previously cleaned. In this deal, the Park makes a first removal of exotics and the farmers ensure a permanent prevention of exotics re-sprout by keeping

their plots cultivated and producing compost out of the chopped *H. gardnerianum*. This practice has also been encouraged among farmers, who started composting themselves after being supplied with compost by the beneficiary. There is no danger of encouraging the cultivation of the exotic for this purpose, for (unfortunately) there is too much of it available.

In principle, this project would not have had a major implication of the local socio-economic actors. However, the evolution of the threat, which became much worse than expected, led to an enlargement of the strategy and the implication of other sectors in the project. These were the army and the farmers, who went on collaborating in the exotics fight after the end of the project. Additionally, 3 jobs were created for rural workers that were integrated in the Madeira Natural Park staff to give permanent support to exotic species eradication works.

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Environmental issues addressed:

Themes

Biodiversity issues - Invasive species  
Habitats - Forests

Keywords

agricultural method, pest control, animal damage, forest ecosystem, natural park, employment, island, emergency plan, management contract

Target EU Legislation

- Nature protection and Biodiversity
- Directive 79/409 - Conservation of wild birds (02.04.1979)
- Directive 92/43 - Conservation of natural habitats and of wild fauna and flora- Habitats Directiv ...

Target species

Columba trocaz

Target Habitat types

- 9360 - "Macaronesian laurel forests (Laurus, Ocotea)"

Natura 2000 sites

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## Beneficiaries:

Coordinator	Parque Natural da Madeira
Type of organisation	Regional authority
Description	Parque Natural da Madeira is the regional authority responsible for nature conservation in Madeira.
Partners	None

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## Administrative data:

Project reference	LIFE97 NAT/P/004082
Duration	01-FEB-1998 to 31-JAN -2000
Total budget	323,033.99 €
EU contribution	193,820.40 €
Project location	Madeira(Portugal)

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## Read more:

Project web site	<a href="#">Internet page integrated in the beneficiary's web page</a>
Publication: Article-Paper	Title: Protecting the laurel forests of Madeira Author: Hugh Synge Year: 2000 Editor: Plant Talk, January 2000, pp:26-29
Publication: Technical report	Title: The influence of introduced Black Rats Rattus rattus on the propagation of Madeiran laurissilva forest Author: Sue King Year: 2000

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