

# Management challenges of the hiking trails crossing Natura 2000 areas in the Azores (Portugal)

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Natura 2000 is a coherent net of areas created within the frame of two EU Directives (Birds Directive: 79/409/CEE revised by Directive 2009/147/EC; Habitats Directive: 92/43/CEE), where human activities and nature conservation are meant to be compatible in a sustainable manner. In the Azores, this net of Protected Areas (PAs) includes 27 Special Areas of Conservation (SACs) and 25 Special Protection Areas (SPAs), spread among 9 islands that compose the Azorean archipelago. These 9 islands differ greatly in terms of population density and tourist demand, so we chose two of them to characterize and evaluate the existing hiking trails crossing Natura 2000 areas of those islands, and also the potential to develop new ones. The islands chosen were, (1) São Miguel, the larger and most populated island, also experiencing the greatest tourist pressure; (2) Flores, one of the smallest and less populated island, experiencing a much less tourist pressure but with an increasing rate of new visits. These two islands also differ greatly in terms of their PAs percentage cover, being much greater in Flores Island.

Globally 8 trails were studied (Table 1), 5 in São Miguel and 3 in Flores. These trails were evaluated based on a *Decision Making Analysis* process, adapted from Eastman et al. (1995), according to fitness and quality aspects. Safety and vulnerability criteria were the two main aspects related to fitness whereas biodiversity, geodiversity, landscape and cultural / patrimony aspects, were assessed to characterize the quality of the trails. In the end, these were grouped in two types: a type factor, criteria adding or decreasing the value to a certain area; a type constraint, criteria limiting the selection of the areas. Thus, trails with a constraint behaviour due to fitness criteria were excluded, and those were: PRC2SMI, PRPBAP and PRLFC, all of them located in S. Miguel island.

Table 1

Hiking Trails	Acronyms	Distance (m)	Altitude (m)			Protected Area
			Minimal	Mean	Maximum	
<b>Island of São Miguel</b>						
Praia - Lagoa do Fogo	PRC2SMI*	6000	246	424	559	Lagoa do Fogo
Pico da Barrosa - Água de Pau	PRPBAP	6000	191	581	894	Lagoa do Fogo
Pico da Barrosa - Praia	PRPBRV	8000	246	481	900	Lagoa do Fogo
Lagoa do Fogo – Monte Escuro	PRLFME	6000	580	633	752	Lagoa do Fogo

Lagoa do Fogo - Circular	PRLFC	4000	580	587	702	Lagoa do Fogo
<b>Island of Flores</b>						
Ponta Delgada -Fajã Grande	PR1FLO	12000	120	271	374	Costa Nordeste
Poça do Bacalhau	PR3FLO	7000	54	527	629	Morro Alto
Cedros - Ponta Ruiva	PRCPR	3500	238	266	315	Costa Nordeste

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\* Trail homologated by the Azorean Regional Government

Other aspects such as, demand and profile of tourists visiting the areas (Queiroz et al., in press), impacts from tourist activities on the protected habitats (Queiroz et al., 2014a), and carrying capacity of the trails (Queiroz et al., 2014b), were also evaluated and are already published elsewhere. From the characterization and evaluation of the trails, we realize that the offer must be rethought given the constraints of some of the existing trails. The chosen trails, along with the already published data, can serve as a model to build a set of recommendations for a management proposal for the Azorean trails. These recommendations could concern the number of daily visitors allowed (given the carrying capacity calculated), the type of recreational activities that could take place in the area (given the sensitivity of the areas), or the possibility of charging a fee for conservation purposes (given the results from the enquiries made to the tourists). Since the Azorean archipelago is a diverse territory, it would be wise to build a management plan according to each of the 9 islands specificities, which could then be developed within the frame of each island's Natural Park (PNI). These PNIs have been created along the last few years, starting with the São Miguel PNI, created by the Regional Decree DLR n.º 19/2008/A, of 8 of July, and ending by the creation of the Flores PNI, by the Regional Decree DLR n.º 8/2011/A, of 23 of March.

## References

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