

# Standardised sampling of lepidopterans (Lepidoptera) in Serra da Estrela (Portugal) - 2013 and 2014

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## Abstract

Mountain ecosystems are crucial for biodiversity conservation since they host high biodiversity. This study reports novel information on lepidopteran species diversity, distribution and abundance from Serra da Estrela Natural Park (Portugal). Seventy two lepidopteran species were sampled in this protected area, including the first findings of *Apatura ilia* (Denis & Schiffermüller, 1775) and *Vanessa virginiensis* (Drury, 1773). New populations of *Euphydryas aurinia* (Rottemburg, 1775), a protected species under the

Habitats Directive, was found in this Natural Park and novel distribution and ecological data was collected for most species, including several rare species [e.g., *Coenonympha glycerion iphioides* Staudinger, 1870, *Cyaniris semiargus* (Rottemburg, 1775)]. All data were collected using standardised sampling allowing its use as baseline for environmental changes long-term monitoring of Serra da Estrela mountain biodiversity.

**Keywords:** Samplingevent

## **Project details**

**Project title:** Standardised sampling of lepidopterans (Lepidoptera) in Serra da Estrela (Portugal) - 2013 and 2014

**Personnel:** Mário Boieiro, Sandra Antunes, Hugo Figueiredo, Albano Soares, Ana Lopes, Eva Monteiro, Patrícia Garcia-Pereira, Carla Rego, José Conde, Paulo A.V. Borges, Artur R. M. Serrano

**Funding:** The study was financed by Energias de Portugal (EDP) under the Fundo EDP para a Biodiversidade 2011

**Study area descriptions/descriptor:** The study took place in Serra da Estrela, the highest mountain in Continental Portugal (with 1997m). Serra da Estrela includes the western extreme of the Iberian Central System which is considered one of the main mountain systems in the Iberian Peninsula. Serra da Estrela is classified as Natural Park since 1976, is part of the Natura 2000 network, and its upper areas are included in the Ramsar Convention. All study sites are included in the Serra da Estrela Natural Park, encompassing a considerable elevation gradient and habitat diversity. The study area is characterized by Atlantic and Mediterranean climates and different biogeographic regions, being an important area for biodiversity conservation, particularly for montane species.

**Design description:** Sampling took place in three main habitat-types, namely mountain streams, mountain lakes and montane vegetation. We sampled the margins of three mountain streams (Fervença, Caniça and Loriga) at three elevation levels (approximately 500, 1000 and 1500m) and 18 mountain lakes (including both natural and artificial lakes), most of them located in the Central Plateau of Serra da Estrela. Lepidopterans were also sampled from 12 sites of representative montane vegetation of Serra da Estrela, including Juniperus- and Genista-dominated scrublands and Nardus-dominated grasslands. Overall, 39 sites were sampled during this study.

**Data published through GBIF:** [http://ipt.gbif.pt/ipt/resource?r=lepidoptera\\_estrela](http://ipt.gbif.pt/ipt/resource?r=lepidoptera_estrela)

## **Taxonomic coverage**

**General taxonomic coverage description:** Diurnal butterflies (Lepidoptera).

### **Taxonomic ranks**

Order: Lepidoptera

**Common names:** Butterflies

## Spatial coverage

**General spatial coverage:** The study was carried out in Serra da Estrela and its surroundings.

**Coordinates:** 39°47'60"N and 40°36'36"N Latitude; 8°20'38.4"W and 7°19'1.2"W Longitude

**Temporal coverage:** June 11, 2013 - September 14, 2014

## Methods

**Method step description:** Insect sampling followed the Pollard and Yates methodology (Pollard and Yates 1993): a 150m linear transect was set in each study site and adult insects of the target groups were recorded when observed at a distance of up to 5m ahead from the researcher and 2.5m for each side.

**Study extent description:** The study was carried out in Serra da Estrela Natural Park encompassing the elevation gradient and the variety of habitats of this protected area.

**Sampling description:** Lepidopterans were sampled using a standardised methodology to ensure the possibility of biodiversity data comparison between study sites and to set a reference for mountain biodiversity monitoring in Serra da Estrela Natural Park. Insect sampling followed the Pollard and Yates methodology (Pollard and Yates 1993): a 150m linear transect was set in each study site and adult insects of the target groups were recorded when observed at a distance of up to 5m ahead from the researcher and 2.5m for each side. The insects were captured with the help of a sweeping net only in case of need to confirm their species identity, being immediately released afterwards. Sampling was carried out between 10 a.m.-6 p.m. and under favourable climatic conditions (i.e., sampling was not performed under rainy, windy, cloudy and hot weather conditions). The data were collected during the seasonal peak of activity of adult lepidopterans in Serra da Estrela in two consecutive years (2013 and 2014).

**Quality control description:** Lepidopterans were identified by trained taxonomists (Albano Soares, Hugo Figueiredo and Sandra Antunes) during fieldwork.

## Datasets

### Dataset description

**Object name:** Darwin Core Archive Standardised sampling of lepidopterans (Lepidoptera) in Serra da Estrela (Portugal) - 2013 and 2014

**Character encoding:** UTF-8

**Format name:** Darwin Core Archive format

**Format version:** 1.0

**Distribution:** [http://ipt.gbif.pt/ipt/archive.do?r=lepidoptera\\_estrela](http://ipt.gbif.pt/ipt/archive.do?r=lepidoptera_estrela)

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**Language:** English

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**Hierarchy level:** Dataset