

TERRESTRIAL
ARTHROPODS
OF MACARONESIA

BIODIVERSITY, ECOLOGY AND EVOLUTION

Title

Terrestrial Arthropods of Macaronesia - Biodiversity, Ecology and Evolution

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Preface

Long before the Canaries or Madeira became a tourist Mecca, these islands were an object of desire for early European naturalists. The writings of Alexander von Humboldt, extolling the outstanding natural history of the so-called Atlantic Islands, inspired the imagination of eminent researchers, who visited the volcanic archipelagos to explore and describe their peculiar productions, plants and animals unknown to Science at that time. Darwin himself was deeply disappointed when the Beagle anchored facing the harbor of Santa Cruz de Tenerife and was not allowed to disembark due to a local quarantine.

It is known that oceanic islands are special territories for evolution. The biota that arrives to such isolated places is a sample from that of the source areas; not all species have the same dispersal capacity and manage to find their way through. Once they settle, they tend to differentiate from their parents; they evolve. This process of speciation is often explosive on islands, and evolutive radiation has attracted much scientific attention since Darwin got the clues of evolution theory by studying the Galapagos finches. What a pity he did not land in the Canaries!

Many scientists look at islands as laboratories of evolution, as special places where ecosystems are simpler than on continents, where interactions are intense and easier to identify, where the hidden laws of nature should be easier to uncover. Island biology becomes a topic by itself, but almost all advances in this fascinating realm have been carried out by non-islanders.

In the late 80s, the new concept of biodiversity arrives on the scene. Diversity of life forms is seen from a new perspective, more anthropocentric, as a heritage of societies that is needed to support man's welfare, to be preserved, to be better known and understood. If fauna and flora was only a concern for brainy scientists, now biodiversity is a concern for the whole society. Conservation of biodiversity has become a major challenge of today's civilization. With decreasing biodiversity in our planet, our future as a viable species looks grey and greyer.

Just as with many other oceanic islands, the Azores, Madeira s.l., Selvagens, Canaries and Cape Verde, assembled under the geographic term of Macaronesia, support a dense human population. They have a singular biodiversity pregnant with endemisms, and they are ecologically extremely fragile; a combination that poses an additional conservation challenge.

And to support the conceptual framework of conservation, to focus properly our conservation efforts, we need science to register biodiversity in all its extent, and to explain how it works.

If in the past, the advances in knowledge of island biodiversity and ecology relied almost entirely on non-islanders, this situation has now changed. The book in your hands is a good proof of it: a book on islands, written mainly by islanders.

It originated in relation with a research project “*High endemism areas in the archipelago of Madeira –establishing priorities for the conservation of the endemic insect fauna*”, and is supported by the Portuguese Entomological Society and by the Portuguese Foundation for Science and Technology. The scope was promptly opened to include all Macaronesia and other types of habitats. Needless to say, arthropods do not count for all biodiversity but they are the champions of it. Publications on Macaronesian arthropods exist by the thousands and they are widely spread. Consequently, it is not easy to keep updated or to gather a comprehensive overview. One of the purposes of this meritorious compilation is to overcome these drawbacks.

Herein, we will learn about the status of species inventories of all archipelagoes; about the distribution patterns and how land-uses affect arthropods (particularly the endemic ones); about the impact of arthropod exotic species, a conservation “hot potato” on islands that is often relegated in favor of mammals or birds; and about special topics on island ecology with good examples: the role of parthenogenesis, explosive speciation, pollination and other insect-plant interactions.

The pathways of science are never-ending, and there is surprisingly still much to be discovered in Macaronesia, despite being so close to continental Europe. There are also many ecological aspects that deserve to be studied within island environments, for the sake of general theory or for on-the-ground conservation problems. The baton has been passed and we can expect to see more contributions that will be promoted by island scientific institutions, and hopefully supported by island authorities.

Science is universal, but the conservation challenge is ours. The arthropods are indeed the largest -but often overlooked- part of biodiversity. And we should not forget that conservation can only use the best knowledge available.

Antonio Machado