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Book Review

The Ecology, Biogeography, and Speciation of the Butterflies of the Azores by Mark Payne

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The description of this book, provided on booksellers' websites, leads one to believe that this is going to be an exciting scientific revelation about Azorean butterflies; unfortunately, any reader is going to be very disappointed. At the beginning, there are two quotes from Darwin and one from Alfred Russell (sic) Wallace, followed by the author's adult life history. Some acknowledgements follow, including Matthew Rowlands (sic), who provided the majority of the butterfly photographs for this book and which were not taken in the Azores. There are then seven pages of verbose content, including a list of 34 photographic plates, of which numbers 15 – 34 are given incorrect page numbers. Eight pages of the geography and geology of the nine islands of the Azores Archipelago precede the 28 photographs of "Azorean Landscapes", which are taken from the internet.

The next six chapters (52 pages) deal with the geology, climate, flora, degradation of habitats, biodiversity, protected areas, and future protection of Azorean biodiversity. Most of this could be gleaned from a good travel guide. Following on from two chapters on entomological research, finally, on page 90, is the first mention of an Azorean butterfly. The following chapters deal with individual families of butterflies supposedly found on the Azores. The chapter on the Lycaenidae consists of a single species, *Lampides boeticus*. The text consists almost entirely of quotations from other researchers, finishing with a map of its Azorean distribution. A large amount of research is detailed which was conducted in India by Palem, et al. (sic) [1]; this was irrelevant, since the research was not carried out on *L. boeticus* at all.

The Nymphalidae follow, beginning with *Danaus plexippus* [2]. Much of this section is simply reiterating previous publications. *Danaus chrysippus* [2], for which there are no capture data for specimens in the archipelago, is included with photographs. Likewise, a two-page discussion on *Maniola jurtina* [2], never truly recorded in the Azores, seems to be superfluous; particularly in contrast to half a page on *Hypolimnas misippus* [3], of which a single specimen might well have been recorded there. A migration of birds and butterflies (including *H. misippus*) 200 miles from the Cape Verde Islands was reported by Williams [4], but he never reported a capture on an island, as suggested by the author. It was Bernardi [5] who was the first author to report the presence of this butterfly from the Azores. This was based on a specimen in the Paris Natural History Museum from São Miguel, taken in 1934.

The distribution given for *Vanessa cardui* [2] is incomplete; it was found and reported by the reviewer [6] from Corvo. This exclusion is somewhat odd, since the article is present in the references. The section on *Vanessa virginiensis* [7], on pages 137 – 138, is almost entirely a repetition of the article by Vieira [8], although the island names for some locations and accents on names are missing. It is noted that this species has not been reported from Graciosa Island, but it has been included in the list of butterflies for that island on page 272.

The chapter on the Pieridae begins with *Colias croceus* [9]; it consists of twelve pages of other researchers' work. It is noted that the author considered that the lemon-yellow *f. cremonae* [10] could be an advantageous evolutionary form; the fact that intra-form crosses of this double recessive mutant are not viable precludes this [11]. A brief explanation of the apparent presence of *Colias hyale* [2] on São Miguel follows. This completely erroneous record, based on an incorrect premise, has been dealt with separately by Russell [12]. Finally, we come to *Pieris brassicae* [2]; the author simply heads this "*Pieris brassicae brassicae*", no authority being given.

In the opening paragraph, the author stated as follows: "Some pseudo-scientific observers consider this to be a separate subspecies". He then places the following entomologists into this category: Rebel, Marsden, Wright, Leestmans, Meyer, Vieira, and Bivar de Sousa, among others, all of whom should quite rightly take exception to this comment.

This is followed by a couple of pages on "Doubtful species"; it is noted that the author considers it unlikely that the specimen of *P. mnemosyne* in the "Museu Carlos Machado in Ponta Delgarda" (sic) is Azorean in origin as its nearest colony is in the Spanish Pyrenees; however, he accepts that *C. hyale*, of which the nearest colony is likewise in the Spanish Pyrenees some 2000 km away, has "reached the Azores on many occasions".

The next 86 pages are spent reviewing the research into the *Hipparchia* species, seven pages of which concern *Hipparchia* species "elsewhere in Europe", which are irrelevant. None of the eleven researchers referred to in this section are referenced. The section ends with seven photographs of "*Hipparchia* habitat in the Azores"; no indication of the location or island is provided. The author quotes Russell, Jutzeler & Volpe [13] at considerable length, covering four and a half pages, a short quotation from which is as follows:

"...while the population on Flores could well have been depleted by 50 per cent in 2002 [enclosed comment by the author – 'how could the authors know this?'] due to the drought...".

The answer to the author's enclosed question is "because the reviewer has been to Flores on several occasions and witnessed it."

Some odd references appear following tables: firstly, after tables 38 and 39 on page 266, there is "Vieira (1998)", which is absent from the references. At the bottom of table 40, which incorrectly includes *C. hyale*, there are three references: the first is "Payne (2019)". There are twenty-eight "Payne (2019)" references in the list, no articles are listed, and this is the author's only book on the Azores. The second reference is "Borges, et al. (sic.) (2010)", of which there are four listed (the first two appear to be identical and the second two irrelevant); finally, the third reference is "Vieira [14]", which is not listed. Table 41 on page 270 has the text, "Source: Payne (2019), from various sources"; it is to the sources' benefit that they are not listed, since the table is a complete nonsense. At the end of this section, the butterfly species for each island are listed, in which Corvo is deficient in *V. cardui*, São Miguel erroneously includes *C. hyale,* and Graciosa incorrectly includes *V. virginiensis.*

Chapter 18 consists of 23 pages on *Vanessa vulcania*, plus a colour plate. A figure of 'Seamounts' is attributed to Van den Brock, et al. (sic.), 2008, which was not referenced. The following seventeen pages (281-297) contain a word-for-word repetition from the author's Cabo Verde book (Payne 2019: 234-250), in which the authority for the species was attributed, incorrectly, to "(Leestmans, 1978)" (sic). The placing of parentheses around the author and date of the species name appears to be randomly distributed in this book and thus bears no similarity to their correct scientific usage. The reviewer thinks that such a large section on a butterfly which does not exist, and probably never has, on the Azores is unwarranted. There are many references to the article by Gil-T & Obregon (sic) (2011 or 2012), neither is to be found in the references. The photographs of the pre-imaginal stages provided by Rose-Marie Haccour have also been repeated, without any acknowledgement.

The 'references and bibliography' section, which takes up 51 pages, is a nightmare. The vast majority of the entries are irrelevant, and those that are cited in the text are very often missing or placed elsewhere under another name. There are no accented letters anywhere – not even in the authors' names, let alone in the titles of their work. The abbreviations for journal titles very rarely follow the internationally recognised format. Even the page numbers of the author's books are incorrect: the Cabo Verde book [16] has 456 pages, not 375 as given in the references, and the present book is given as having 368 pages, whereas it has 370.

The problem with this book is that, although the book purports to be scientific, it is riddled with hundreds of errors. The author has simply copied, and in many cases disparaged other researchers' work, taken photographs from the internet, made many errors, and then called his book 'scientific'. The reviewer would not recommend this book to anyone. For a second opinion on this book, there is a further review by Tennent [17].

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