

Priority Species and Areas for the Conservation of Butterflies in Portugal (Lep. Papilionoidea & Hesperioidea)

Ernestino Maravalhas¹ & Patrícia Garcia Pereira²

¹ - maraval@esoterica.pt ² - vjoana@teleweb.pt

Introduction The study of the conservation status of Portuguese Lepidoptera, including the *Rhopalocera*, has only been started very recently and there are no published papers on this subject yet. In 1998, one of the authors (Maravalhas) established provisional conservation status for all the species of *Rhopalocera* known to occur in the country, based in personal observations and bibliographical data.

Materials and Methods On account of the important information gap observed, the authors intensified research in key-areas, mostly in the northern part of the territory, and monitored the abundance of species. Areas that had never been prospected were studied and care was taken so that the maximum geographical area was investigated. The cartography performed focused on the chosen key-areas, on particularly interesting localities and also on easily accessible sites, as the available resources are insufficient to cover the whole area. These studies were completed by those recently done by British colleagues, mainly in the Algarve, allowing a wider view for the species involved.

Lepidoptera conservation in Portugal From the mentioned monitoring we consider that 32 of the 130 species that occur in the country are seriously endangered, because of the small number of known colonies and their distribution.

Only one (*Euphydryas aurinia*) of the 60 endangered Portuguese butterfly species is protected by law (Natura 2000 legislation). Although endangered on an European scale, this species is still widely distributed and fairly abundant in Portugal. Its abundance can even be considered high, when compared to that of *Maculinea alcon*, a species presently known from less than 10 localities in Portugal, several of which are considered extinct. The scarcity of studies has been an impediment to the creation of specific legislation, adequate to the present situation, a fact that represents a major difficulty to the efficient conservation of the species and their habitats.

Priority Areas The process of evaluation of areas for conservation purposes has been described by Araújo (1998). For the protection of Portuguese Lepidoptera, it is necessary that specific legislation is prepared, covering the gaps that presently exist. An important aspect is the fact that the Natura 2000 Network protects species and habitats that are absent from Portugal (e. g., *Erebia christi*, a species confined to alpine prairies), while leaving unprotected species and habitats possibly threatened in the country. It is, therefore, necessary to protect species that are rare or localized in Portugal, even if they are common in Europe and, to identify these species as well as the priority areas, a cartography should be made for all species and key-species should be monitored. The areas defined by the Natura 2000 Network can be considered appropriate for the conservation of 90% of the species of *Rhopalocera* occurring in Portugal. Despite this fact, many populations stand outside the sites of the Network, a situation that requires the definition of new areas and the creation of special conservation status for several species. According to available data, the area with the highest *Rhopalocera* diversity in Portugal is the Montesinho/Nogueira area, in the north-east of the country. Although this area is included in the Natura 2000 Network, that fact does not prevent disturbance, such as construction in Nogueira and the annual occurrence of forest fires in Montesinho, an area which constitutes the only known habitat in the country for species such as *Heodes virgaureae*, *Brenthis daphne* and *B. ino*. For other areas, such as the Algarve, the distribution maps presented below can be consulted. Integrating this information with the Natura 2000 Network national map (Fig. 2) and what has already been stated, one can easily conclude that many populations of several rare and localized species are presently unprotected.

Conclusions Despite the high diversity that the number of species native to Portugal (aprox. 130) represents, the available knowledge concerning the distribution and population dynamics of the species of *Rhopalocera* that occur in the country is insufficient. Studies recently carried out demonstrated a remarkable decline in nearly half of the species present, with almost a quarter of the total in risk of extinction. This situation is identical to that observed in Europe and corroborates the need for the implementation of legislation adequate to the conservation of species, since less than 1% of them is currently protected. As has already been stated, it is necessary to implement an action plan for the study of the *Rhopalocera* and their habitats, in order to guarantee their survival in the long term.

Acknowledgements: E. Garcia-Barros, Adrian Gardiner, M. F. V. Corley, J. M. Grosso-Silva, A. Múrias dos Santos (computing) & Gary Roberts.

Status of Portuguese (Mainland) *Rhopalocera* (n=130)

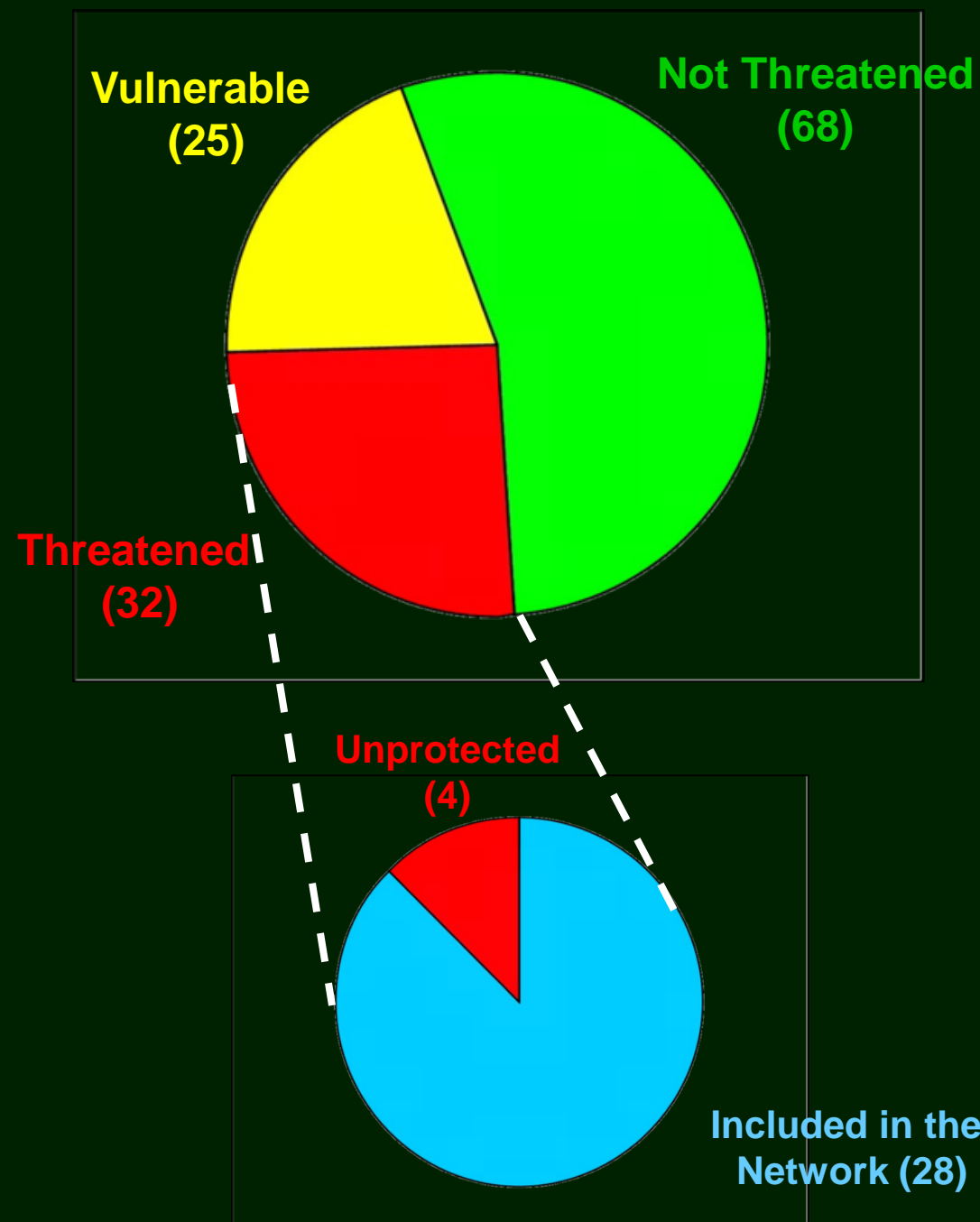


Fig. 1 - Level of Protection of Natura 2000 Network In Portugal (Mainland) - Threatened *Rhopalocera* (n=32)

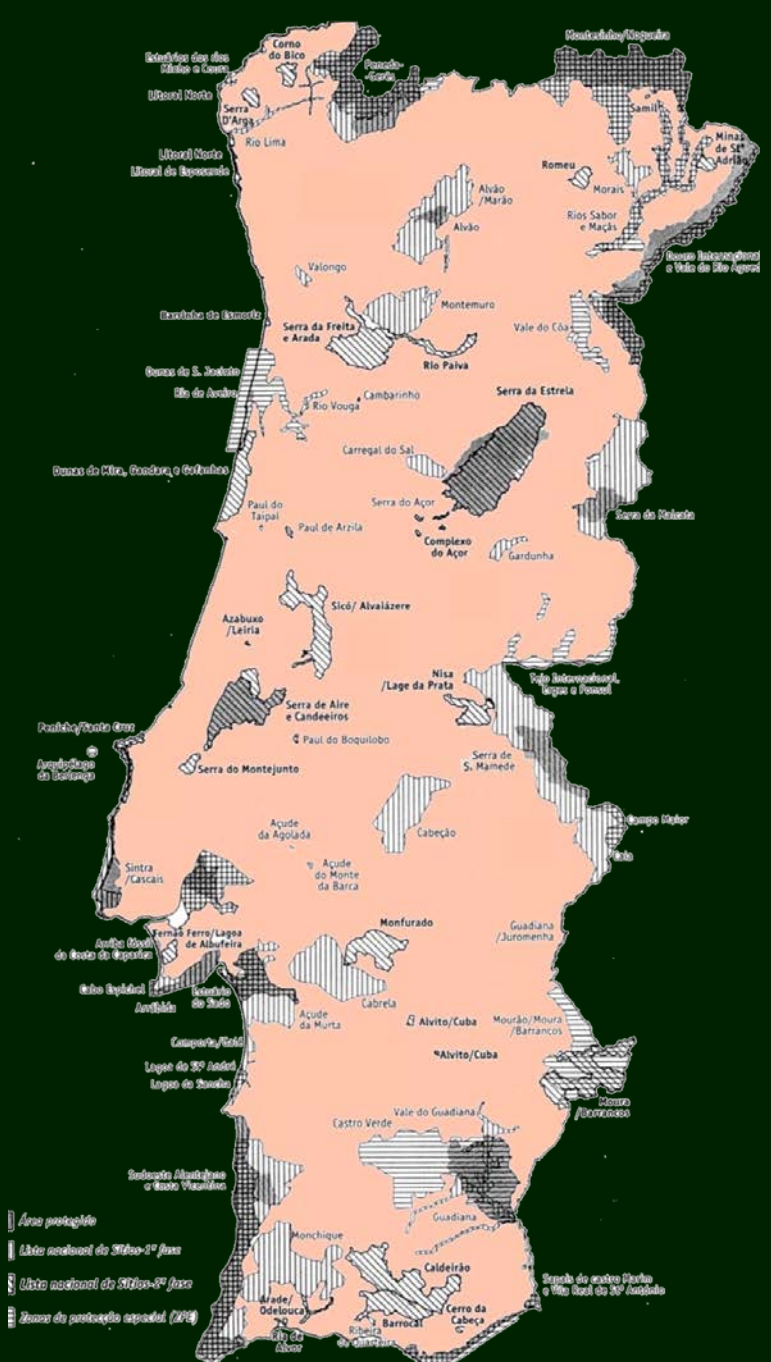


Fig. 2 - Natura 2000 Network (Portugal) ICN - Instituto para a Conservação da Natureza

Selected Bibliography

- ARAÚJO, M. B., 1998: Avaliação da Biodiversidade em Conservação. *Silva Lusitana*, 6(1): 19-40.
- ARAÚJO, M. B. & SÉRGIO, C., 1998: Gap Analysis – vantagens e desvantagens para uma avaliação da Rede Natura 2000 em Portugal. *Acta Entomológica Iberica e Macaronésica* (in press).
- GARCIA-BARROS, E., GARCIA-PEREIRA, P. & MUNGUIRA, M. L., 1999: The geographic distribution and state of butterfly faunistic studies in Iberia (Lep., Papilionoidea, Hesperioidea). *Belgian Journal of Entomology*, 1(2). In press.
- GARCIA-PEREIRA, P., GARCIA-BARROS, E. & MUNGUIRA, M. L., 1999: Evaluación del conocimiento de la fauna de mariposas de Portugal continental (Lep.: Papilionoidea, Hesperioidea). *SHILAP Revista. Iepid.* 27(106):225-231.
- MARAVALHAS, E., 1998: Estatuto Ecológico das Borboletas (Lepidoptera: Rhopalocera) de Portugal. *Acta Entomológica Iberica e Macaronésica* (in press).
- MARAVALHAS, E., 1999: A Conservação de Lepidópteros Ropalóceros em Portugal – Áreas e Espécies Prioritárias (Insecta: Lep.: Rhopalocera)- 2º Encontro Biodiversidade, Oporto.
- MARAVALHAS, E. (web page): Portuguese Butterflies - Threatened Species. @ <http://homepage.esoterica.pt/~maraval>
- MUNGUIRA, M. L. & MARTÍN, J., (Eds.) 1999: Action Plan for Maculinea Butterflies in Europe. Nature and environment, no. 97. Council of Europe Publishing, Strasbourg.
- NEW, T. R., 1997: *Butterfly Conservation* (2nd ed.). Oxford University Press, Melbourne.
- PASSOS DE CARVALHO, J. & PASSOS DE CARVALHO, M. U., 1985: Atlas provisório dos Ropalóceros de Portugal (Ciclóst.). Estação Agronómica Nacional, Oeiras.
- PASSOS DE CARVALHO, M. U. & COSTA DE SOUSA, M. L., 1985: Contribuição para o inventário dos ropalóceros de Portugal. Estação Agronómica Nacional, Oeiras.
- SAMWAYS, M. J., 1995: *Insect Conservation Biology*. Chapman & Hall, London.
- SILVA CRUZ, M. A. & GONÇALVES, T., 1943: Notas Lepidopterológicas. Novos elementos adicionais à Lista de Lepidópteros de Portugal de J. T. Wattison. *Mem. Est. Mus. Zool. Univ. Coimbra*, (1), 150: 1-138.
- VAN SWAAY, C. A. M. & WARREN, M. S., 1999: *Red Data Book of European Butterflies (Rhopalocera)*. Nature and Environment, Nº 99, Council of Europe Publishing, Strasbourg.
- WATTISON, J. T., 1928-30: Lepidópteros de Portugal. *Mem. Est. Mus. zool. Univ. Coimbra*, 1:1-100. 3 fasc.

