

HOOFDSTUK 12 SUMMARY

THE BUTTERFLIES OF THE NETHERLANDS

Since a Painted Lady *Vanessa cardui* was pinned onto a board in 1749, a great deal of information has been collected on butterflies in the Netherlands concerning not only their numbers, but also their habitats and ecology. All this information has been ordered, and analysed. We now present it in this atlas. Special emphasis has been given to threats and conservation of these highly endangered species.

CHAPTER 1 Introduction

In 1989, M.H. Tax published the *Atlas van de Nederlandse Dagvlinders* [Atlas of Dutch Butterflies]; this work was based on 230,000 records. Since then, the Dutch butterfly database has grown to 1.4 million records. Consequently, our knowledge on the distribution has grown enormously. Moreover, the Dutch Monitoring Scheme, which started in 1990, has provided information on changes both in the number of butterflies between years and in various biotopes. In the 1990s, more information about trends in occurrence became available, leading to the appearance of the first Dutch Red List in 1995; about 70% of the native species were on it. A new Red List will be published in 2006; both lists are briefly discussed in this book. In addition to the fresh information on distribution and trends in occurrence, many new facts have come to light since 1989 through research on the ecology of individual species. With these new insights and so much additional data, a new atlas seemed timely.

CHAPTER 2 The Dutch butterflies

This chapter briefly discusses the difference between butterflies and moths. After summarising the global distribution of butterfly families, we introduce those found in the Netherlands. A checklist of Dutch butterflies is given. In the Netherlands, 106 species have been found: 71 residents, 4 migrants, 9 irregular residents and 22 vagrants. When comparing this list with that in Tax (1989), it can be seen that three species have been added and four species and one subspecies is removed. The status (e.g. resident, vagrant) and occurrence (e.g. common, rare, extinct) of each species is indicated. Synonyms for scientific names used in the Dutch literature as well as the common names are given.

CHAPTER 3 The history of the study of Dutch butterflies

Dutch lepidopterology forms the subject of this chapter, with brief sketches of the work of important lepidopterists. In the database on which the present atlas is based, we have 32 records from before 1845, and 4,337 from the period 1845-1899. This number increased to 9,663 between 1900 and 1929, reaching 86,765 between 1930 and 1989, and 1.3 million from 1990 until 2003.

CHAPTER 4 The life cycle

This chapter discusses various aspects of the life cycle of a butterfly. The terms generation, hibernation, and flight

period are explained. The different stages of the life cycle receive attention: the egg, its production, form, deposition and numbers; the camouflage and defence of the caterpillar, its foodplant and food choice in different larval stages; the pupa, and finally, the imago or adult stage.

CHAPTER 5 Distribution, mobility and landscape

Probably, all our butterfly species colonised the Netherlands after the last Ice Age, about 10,000 years ago. To explain their occurrence, we have classified them into four groups according to their mobility. In addition, the characteristics of the various landscapes of the Netherlands are given. These comprise the lower parts of the country with peaty and clay soils, the higher parts with sandy, and alluvial soils, and the undulating landscape of the southern part of Limburg with calcareous soils. Built-up areas are also mentioned as habitat, and the possibilities they offer for butterflies are discussed.

CHAPTER 6 Threats

Since 1950, butterfly numbers have fallen dramatically in the Netherlands, not only the number of individuals, but also the number of species. Of the seventy-one resident species, seventeen have become extinct. However, there is one new resident species, *Leptidea sinapis*, which acquired this status in 2002. Many other species are becoming less common. On the first Dutch Red List for butterfly species in 1995, nearly 70% of our species was categorised either as extinct (24%), critically endangered (10%), endangered (16%), vulnerable (14%) or susceptible (3%). At the new Dutch Red List, there is one more species and the degree to which they are threatened has increased. The diversity has fallen drastically as well. Looking at the number of species occurring in 5x5 km squares, before 1980, there were a few squares with more than sixty species, and many with more than fifty. At present, the highest number of species recorded in a 25 km² square is only 41. The lowest fall in the number of species, only 12.5%, is in the northern dunes. However, in other dunes and on the inland sandy soils in the northern and central parts of the country, diversity has fallen by about 30%; on the southern and eastern inland sandy soils, near the great river and the south of the province of Limburg, the decline is as high as 40 to 50%. Compared with other animal groups, the butterflies seem to be the most endangered group of the Dutch fauna.

CHAPTER 7 Conservation and management

In this chapter, a brief review of the causes for the decline of butterflies, both in numbers as in species, is given. Several measures for the conservation of butterflies and their habitats recommended, especially how management can be improved.

CHAPTER 8 The Dutch butterfly database

In this chapter, we describe the way in which the Dutch butterfly database was set up. Before 1980, most data were taken from private and museum collections and from the

literature. Later, as Dutch Butterfly Conservation grew as an organisation, the number of volunteers increased, and so too did the number of butterfly observations. For the period 1995-2003, we have 1.3 million records from all except one of the 1671 5×5 km grid squares covering the Netherlands, and from more than 70% of the 1×1 km squares.

CHAPTER 9 The species

This is the longest and most important chapter, here species

are presented individually. It begins with an introduction, explaining the methods, conventions, and various maps, graphs and other illustrations used. The procedures for making the Red List are also given. This information can be found in English on p.62. We would like to draw your attention to the ecological profiles given for all resident and migrant species. These profiles summarise ecological characteristics and important aspects of conservation. An English summary accompanies each species description.