

HOOFDSTUK 14 SUMMARY

THE FRESHWATER MOLLUSCS OF THE NETHERLANDS

Recent and fossil molluscs from fresh- and brackish waters

For the first time, this book provides identification keys for all Dutch freshwater molluscs, including fossil Pleistocene species. In addition, maps on the basis of a 5 km square grid, give a picture of distribution and change of faunal composition. The book deals with 82 indigenous species, 4 non-indigenous species and 33 fossil species. Some species show a severe decline, such as *Mercuria confusa*, *Myxas glutinosa*, *Omphiscola glabra*, *Unio crassus*, while others are markedly expanding or even recent additions to the fauna, such as *Corbicula fluminalis* and *C. fluminea*.

GENERAL INTRODUCTION

The Netherlands are characterised by a broad variety of freshwater and brackish water biotopes and a correspondingly rich molluscan fauna. Only the subterranean waters are very poor in species. Several species that occurred in the Netherlands during the Pleistocene became extinct in The Netherlands, or even globally. Other Dutch species are only known from the recent fauna. The data on the species are summarised, with figures and keys for identification, descriptions of the shells and soft parts of the animals, their habitats, food, and life cycles. The fossil and the recent occurrence in the Netherlands are reported, as well as the global recent distribution. Distribution maps show reliable records of the species for the periods before and after 1970. Obvious gaps in our knowledge of particular species or species groups are pointed out. By providing references to the literature, whenever possible, this book tries to facilitate further study.

Members of the Dutch Malacological Society (NMV: founded 1934) and the WorkingGroup for Tertiary and Quaternary Geology (WTKG: founded 1963) in particular have contributed substantially to the data on which this book could be based.

The generic classification and nomenclature published by Vaught (1989) are used throughout, but with several amendments, indicated as such with references to the sources. For some species included in this book, one might argue whether they are really aquatic and non-marine. Such species may have been included purely for pragmatic reasons, as is true for the Ellobiidae, which have been included because they are not listed in a book on the Dutch terrestrial molluscs. Exotic species, found under exceptional circumstances or once only, are reported briefly and not illustrated. In this summary, most emphasis is given to those parts of the book which might be useful to interested readers not familiar with the Dutch language. Therefore, relatively long, explanatory texts on more general principles, are largely neglected.

INTRODUCTORY CHAPTERS

Chapter 2 gives a general introduction on the structure of molluscs, gastropods and bivalves, with most emphasis on the characters used in taxonomy. Introductory remarks on

systematics and nomenclature are to be found in Chapter 3, which also refers to current progress in phylogeny reconstruction of the higher taxa. In this chapter all species dealt with are given in a systematic check-list, with higher taxa and the names of generic and subgeneric type species cited as well. Names of extinct species are preceded by the symbol †; when the animals are no longer living in the Netherlands, but still occur elsewhere, that is indicated by (†). Superscript figures refer to the notes in a following paragraph. Within a subfamily, the genera are listed alphabetically. The same applies to subgenera within a genus, and the species, arranged after the epithets. Data on ecology and distribution are presented in Chapter 4, which contains a paragraph on some marine molluscs, not treated in this book, and the inland waters from which they have been reported (see table 3). Endangered species and measures for their protection are dealt with in Chapter 5. Aspects of the Quaternary non-marine molluscan fauna are the subject of Chapter 6, in which the fluctuating environmental conditions and their complex consequences for the unstable distributional patterns of the molluscs are emphasised. Attention is paid to scientific backgrounds and practical aspects of collecting and collection management in Chapter 7. Ethical questions are taken into consideration as well. Short introductory notes on societies that may be relevant for people interested in molluscs are also given here.

THE SPECIES

In principle, all species can be identified with a key, which starts in Chapter 8, going down to the family level, to be continued in the families treatments in Chapters 10 and 11. Chapter 9 serves as an introduction for chapters 10 and 11, which form the main part of the book, as they treat all the species: gastropods in chapter 10 and bivalves in chapter 11.

Format species descriptions

The only taxonomic levels described, are family and species. The order is the same as in the checklist in Chapter 3. For each family a brief introduction and key to species are provided. For every species the scientific name is given, preceded by † or (†) when the species in question is extinct or only so in the Netherlands, respectively. Dutch trivial names are added for the recent species. Synonyms are indicated (heading '**Synoniemen**') only if these have been used in the literature on the Dutch molluscan fauna or in important other publications. Morphological data on the shell and the soft parts are given under the headings '**Schelp**' and '**Dier**', respectively. Notes on the life-cycle, food, and habitat are presented under '**Levenscyclus**', '**Voedsel**', and '**Biotopen**'. These data are rather heterogeneous because of the many gaps in our knowledge. The distribution in the Netherlands is summarised under '**Recente verspreiding**', whereas '**Ar-eaal**' refers to the entire range of the species. The heading '**Fossiel voorkomen**' is used for data of the Quaternary occurrence in the Netherlands. Miscellaneous notes are found under '**Opmerkingen**' and in the case of Sphaeriidae some historic notes under '**Historie**'.

Illustrations

Most of the drawings of shells are original ones, made by G.A. Peeters, and with very few exceptions after specimens from Dutch populations. These drawings have been grouped according to similarity, more or less in taxonomic order. Reference to these figures is made in the margin, next to a species-heading, accompanied by a miniature 'thumbnail' figure. Apart from full-grown shells and opercula, juvenile specimens have also been figured whenever that seemed to be useful to facilitate recognition of the species in question. In the case of the Planorbidae, these have been grouped on one plate (figs. 356-370).

Some text-figures, mostly from the literature, illustrate living animals or genitalia. On some plates we have grouped existing drawings of egg-cases.

Some species and biotopes are illustrated in full-colour on plates.

Maps

For each recent species, in principle two distribution maps are provided, for the periods before and after 1970, respectively. Only records of recent autochthonous specimens are

taken into account. Fragments and specimens from flood rubbish are neglected. Empty shells are accepted if these clearly indicate the occurrence of a recent population in the area, mostly only for the period before 1970. The maps are grouped after each family, references are given after the heading '**Recente verspreiding**'. Fig. 32 and 33 give a picture of the overall mapping effort: in fig. 33 we give the number of species per grid square.

For some problematic taxa, we only provide a map for the species complex or pair (viz. *Radix peregrina/ovata*, *Stagnicola palustris* group and *Anisus leucostomus/spirobis*).

THE LITERATURE, APPENDICES

The extensive literature referred to in this book is listed in Chapter 13. Many references are included that are relevant for information and research on non-marine molluscs in general. Chapter 12 provides a glossary of terms.

The book ends with appendices ('bijlagen') giving a table of water-types and species ('bijlage 1'), full label-data of the specimens illustrated ('bijlage 2'), list of co-operators for the distribution maps ('bijlage 3') and useful addresses of institutes and societies ('bijlage 4').