Catalogue of Palaearctic Coleoptera

Volume 6

Chrysomeloidea

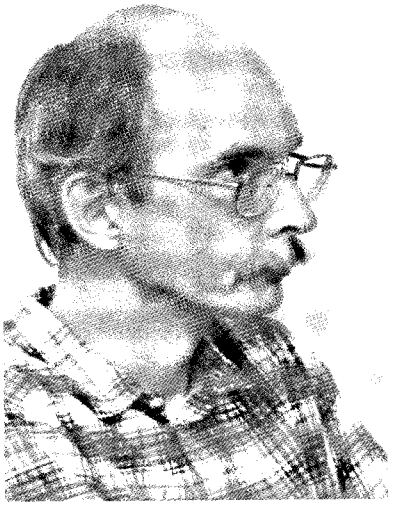
Edited by
I. LÖBL & A. SMETANA

Apollo Books

Catalogue of Palaearctic Coleoptera

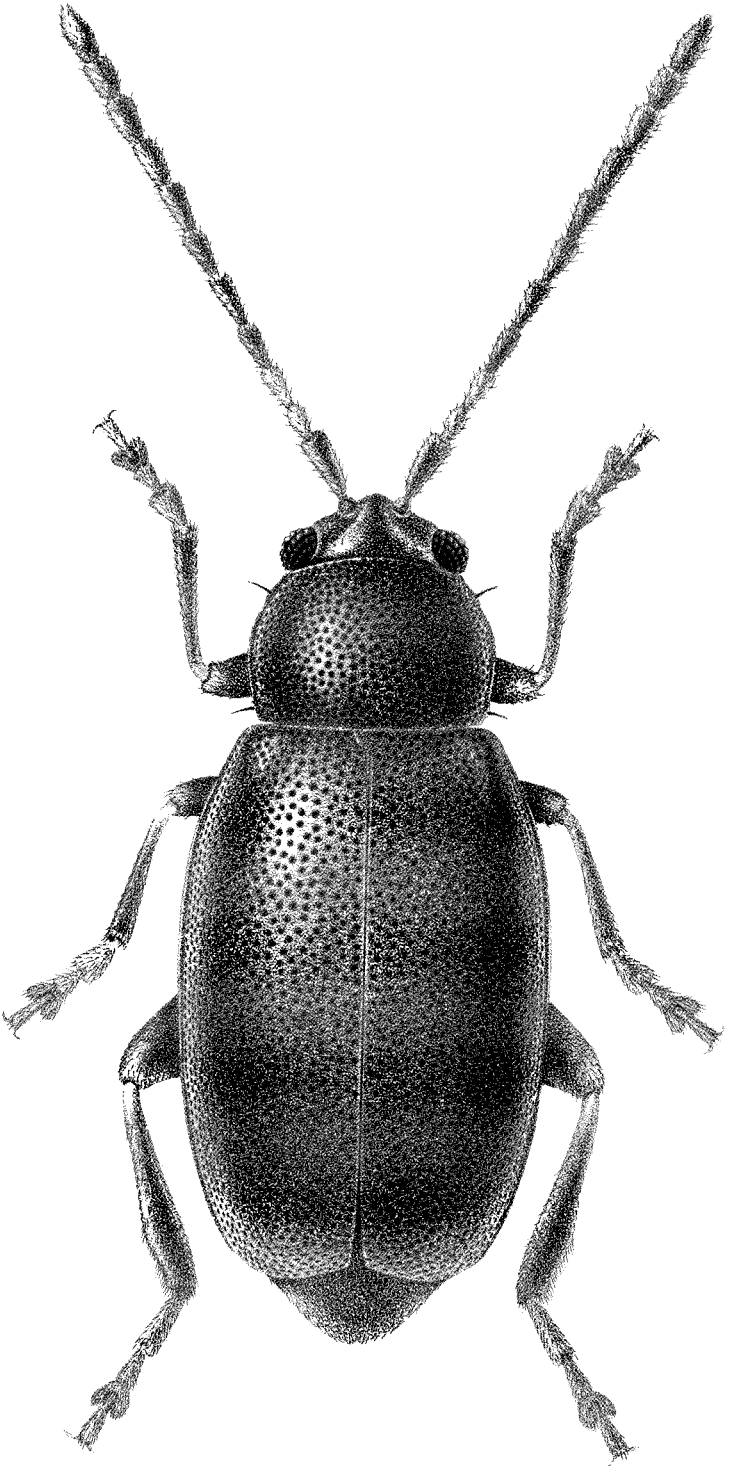
Volume 6

Chrysomeloidea



DEDICATION

The diversity of life is correlated with the size and complexity of habitats. The world-wide network of restrictions established to protect insects and other terrestrial invertebrates is presumed to be a tool to conserve biological diversity. However, these generalized prohibitions of collecting insects, designed and enforced commonly by bureaucrats with little or no attachment to nature, are indeed counterproductive in that they effectively prevent fieldwork and ultimately advancement of knowledge. They are a simplistic, ineffective approach to nature conservancy and do not contribute in any way to protection of entire habitats, which is the only way biodiversity is to be protected and sustained. One of the victims of the inadequate conservation policy is Petr Švácha, České Budějovice, Czech Republic, known for his significant work on longicorn beetles. The present volume is dedicated to him.



Phyllotreta annae Konstantinov, 1992

Catalogue of Palaearctic Coleoptera

Volume 6

Chrysomeloidea

Edited by
I. LÖBL & A. SMETANA

Apollo Books
Stenstrup, 2010

Cover illustration: Alexander Konstantinov.

Edited by: I. Löbl & A. Smetana.

Printed by: Vinderup Bogtrykkeri Aps.

Published by:
Apollo Books
Kirkeby Sand 19
DK-5771 Stenstrup
Denmark
Telephone + 45 62 26 37 37
Telefax + 45 62 26 37 80
E-mail: apollobooks@vip.cybercity.dk
Web site: www.apollobooks.com

Chapters from this publication should be cited as follows:
Danilevsky, M. L., 2010: Apatophyseinae, pp. 142-143. - In I. Löbl & A. Smetana (ed.): *Catalogue of Palaearctic Coleoptera, Vol. 6. Stenstrup: Apollo Books, 924 pp.*

ISBN 978-87-88757-84-2 (Vol. 6)
ISBN 978-87-88757-71-2 (Vols 1-8)

Date of publication: 22.02.2010.

CONTENTS

INTRODUCTION

Structured knowledge requires categorisation of observations and phenomena, and one of these phenomena is life. Structured knowledge of life, as it evolved and is present on our planet, requires cataloguing.

Taxonomy has a profound impact in many fields, including genetics, physiology, ecology, plant protection, nature conservation, and legislation. At the core of taxonomic information are taxonomic catalogues that serve as guides to the diversity of life. They summarize the work in systematics and taxonomy that enable assessment of faunal diversity and classification, and provide information on historical taxonomic actions. Catalogues are also essential in achieving a universal language in taxonomy that assures unambiguous transfer of biological information.

The ever increasing number of taxa described since the tenth edition of Linné's *Systema Naturae* was probably the main motivation for compiling catalogues in the past. Since the middle of the 19th century numerous catalogues were published, usually covering restricted parts of the world and served as checklists rather than works that we would qualify today as full catalogues. While knowledge is dynamic, catalogues are static and reflect a time restricted information. Therefore, there is always a need of newer, up-to-date, and complete catalogues. The first world catalogue of Coleoptera was Gemminger & Harold's *Catalogus Coleopterorum* issued from 1868 to 1874. It was followed by Junk & Schenkling's (editors) *Coleopterorum Catalogus*, published in separate parts from 1910 to 1940. At present, even though it is desperately obsolete, the *Coleopterorum Catalogus* remains the only source of comprehensive taxonomic information on a world basis for many families of beetles. The only catalogue covering all groups of Coleoptera occurring in the Palaearctic region is Winkler's 1924 – 1932 *Catalogus Coleopterorum regionis palaearcticae*. However, the Junk & Schenkling and Winkler catalogues differ. The former one is approaching the definition of a "full" catalogue, while the latter is rather a checklist. They both share two serious omissions. The primary sources of taxonomic acts were not consistently checked, and the information on distribution was not detailed enough to satisfy the needs of biologists. In addition, many rules subsequently adopted by the *International Code of Zoological Nomenclature* were not respected. Due to the lack of modern catalogues, the language in taxonomic literature remains inadequate in many respects. In particular, unavailable names are regularly used as available and sometimes even regarded as valid, various spellings are used for the same taxon, and references to taxonomic actions are inexact to a high degree for papers published during the 20th century.

Undoubtedly, the Coleoptera of the Palaearctic Region were over the years studied by more professional and amateur biologists than those in other parts of the World, and the results may exceed those of the study of many other arthropods. It is therefore remarkable that an overview of the present knowledge of the Palaearctic Coleoptera is badly lagging behind other groups, such as the Nearctic Coleoptera, or Palaearctic Diptera. Systematic studies of many groups of Palaearctic Coleoptera, even in view of their popularity for biologists, have to start with searches for data scattered throughout the literature of the past 250 years.

A full catalogue provides information concerning all published names within a group, their classification, taxonomic history, and so on. Ideally, the present Catalogue should include such data. However, considering the number of taxa and the low number of present day taxonomists, along with difficulties in accessing primary literature, a full catalogue of all Palaearctic beetles would not be completed within a reasonable period of time.

Having this in mind, the aim of this Catalogue is to provide a tool that meets the most urgent needs: 1) a list of available names, both valid and invalid, of taxa occurring in the Palaearctic Region, in their verified orthography and with correct publication dates, 2) a complete list of verified references to primary descriptions, and 3) informative distributions of the species and subspecies. Thus, the Catalogue is expected to respond to questions related to biodiversity and to the stability of the taxonomic nomenclature.

This Catalogue is a collective work involving many authors. For its realisation, it was necessary to achieve a reasonable consensus in very diverse fields. The Editors appreciate the understanding of the need of consistency by the contributing authors. The most controversial points concern the spelling of names, and the delimitation of the Palaearctic Region and its main subdivisions.

The first point is purely formal. The alternatives adopted by the Editors and presented below result from the consensus achieved during the discussions with colleagues. The Editors are aware of the difficulty in satisfying all opinions and appeal to the understanding of the user.

The second point pertains to the presentation of distributional data. The Palaearctic Region, as it is defined for the purpose of this Catalogue, includes some areas that are usually considered to belong to the Afrotropical, Oriental, and Pacific Regions respectively, i.e. the south of the Arabian Peninsula and Suqutra, all of Pakistan, the Himalayan part of India including Arunachal Pradesh, Bhutan, and Nepal, the south of China, and the Pacific Islands of Japan. The main reasons for inclusion of these areas are as follows:

Old records of "Arabia" and "China" may pertain to any states on the Arabian Peninsula and to Jordan, or to any part of the People's Republic of China, respectively.

1. Recent field work in the Himalaya and in the mountains of mainland China and Taiwan provides evidence of altitudinal faunal transition in Coleoptera, as well as in other insect groups. While subtropical climate with dominant Oriental taxa prevails at low elevations, significant faunal changes are found already at elevations of 1500 m, and almost "pure Palaearctic" taxa are present at elevations of 2500 m and above. Thus, it appears illusory to draw simple biogeographical frontiers in any of these parts of the world.
2. The Catalogue includes more information. This is an obvious advantage in the absence of modern catalogues covering the Afrotropical and Oriental regions.

The Catalogue of Palaearctic Coleoptera is published in a number of independent volumes, each having its own Reference section and Index. The taxonomic, geographical and bibliographical information in this volume is presented as in the previous Volumes.

The present volume treats the polyphagous superfamily Chrysomeloidea. As in the previous volumes, the adopted arrangement of families and subfamilies within the superfamiliy is consistent with J. F. Lawrence & A. F. Newton's 1995 classification (in J. Pakaluk & S. A. Ślipiński (eds): *Biology, phylogeny, and classification of Coleoptera. Papers celebrating the 80th birthday of Roy A. Crowson*. Volume 2. Warszawa: Muzeum i Instytut Zoologii PAN). The more important changes concern the Galerucinae and Alticinae, treated as separate subfamilies.

The volume includes about 28.560 names of chrysomeloid taxa and 6.668 primary references to the genus- and species-group names, and to other cited sources.

The Editors adopted the policy that the gap between the publication date of each volume of the Catalogue and the date of the corresponding entry deadline should not exceed three years. While the first Volume contains the available genus- and species-groups names in Archostemata, Myxophaga and Adephaga published before January 1, 2000, the second Volume contains the available names in Staphyliniformia published before January 1, 2002, the third Volume contains the available names in Scarabaeoidea, Dascilloidea, Buprestoidea and Byrrhoidea published before January 1, 2004, the fourth Volume contains the available names in Elateroidea, Derodontoidea, Bostrichoidea, Lymexyloidea, Cleroidea, and Cucujoidea published before January 1, 2005, the fifth Volume contains the available names in Tenebrionoidea published before January 1, 2007, and the present Volume is extended to contain the available names in Chrysomeloidea published before January 1, 2009.

An index of the species-group names was not provided for practical reasons associated with the printing and bookbinding costs. Therefore, as for the previous volumes, an electronic version of species-group names indexes is available on the web sites of the Apollo Books (www.apollobooks.com) and of the Muséum d'histoire naturelle in Geneva (www.ville-ge.ch/musinfo/mhng).

The Editors were repeatedly asked to make the Catalogue available electronically, either as an online interactive database, or as CD-Rom. After careful consideration they decided to publish the work only in book form for the following reasons: Information in taxonomy, unlike that in most other biological fields, remains useful for extremely long periods of time, extending over centuries. Taxonomic work deals commonly with sources published throughout the 19th and 20th centuries and often even earlier. Consequently, catalogues that summarize taxonomic work are consulted over a very long period of time. The simple, although often ignored, reason for the

durability of taxonomic data is in the fact that taxonomy provides the language indispensable for unambiguous conveyance of biological information. The bulk of correctly recorded data in Catalogues remains informative even under a continuous inflow of additional new taxa, and even if the assignments and ranks of taxa and the validity or invalidity of names are changing, and the known distributions of species become gradually more precise. It is therefore necessary to insure access to taxonomic work, including Catalogues, not only in spatial but also in temporal dimensions. Experience shows that printed texts may remain available for centuries, while life expectancy of electronic information is unknown. Ideally, works like this Catalogue, should be available in both print- and electronic formats; however, the real world is not ideal and the production of printed Catalogues is associated with considerable costs. The consequence of providing low-cost online or CD-Rom editions would have a serious negative economic impact on the production of printed version. We believe that under the globally inadequate institutional interest for the needs of taxonomy, the livelihood of those who are willing to accept the commercially hazardous production of printed taxonomic publications should be protected. We advocate the growth and continuation of taxonomy, not its demise.

TAXONOMIC INFORMATION

The present Catalogue includes all available names, both valid and invalid, of extant beetle taxa described before January 1, 2005 and known to occur in the Palaearctic Region, as it is defined below. The higher classification, from suborder down to subfamily, is based on the work of Lawrence & Newton (1995): *Families and subfamilies of Coleoptera* (*with selected genera, notes, references and data on family-group names*). However, the classification proposed in this work is not taken as dogma, and changes are accepted when considered well founded. All taxa below subfamily rank are arranged alphabetically within the higher taxon and the synonyms follow the respective valid name alphabetically.

Extinct taxa, names rejected by the ICZN (*International Code of Zoological Nomenclature, Fourth Edition.* London: International Trust for Zoological Nomenclature, 1999), misspellings, misidentifications and other nomina nuda are not included in the Catalogue. However, concepts that are important for nomenclatural purposes, may be included. Similarly, all infrasubspecific names, such as those established as "morpha", "natio", or "race", "subvariety" and "aberration", or proposed as variety and form of a subspecies, and names published, e.g., as *A-us b-us c-us* , but specified in the text that they are actually proposed for a "natio" or "race", etc., are not considered subspecific and are therefore excluded from the Catalogue. Names proposed as varieties and forms before 1961 are included, if deemed subspecific under the provisions of the ICZN, Article 45.6. Unjustified emendations may be included.

The currently valid names of the family-group taxa include the name of the author and the year of the publication. Their synonyms are not listed.

The names of the genus-group taxa are given with the name of the author, and the year and page of publication. The page given is the page where the name and the actual description of the taxon is printed. The type species of all genus-group names are given in their original combination. If the type species is currently regarded as a junior synonym, the valid senior synonym is given in brackets in its original combination.

The names of the species-group taxa are given with the name of the author, and the year and page of publication. The page given is the page where the name and the actual description of the taxon is printed. In bi-languaged Chinese/English and Japanese/English publications both respective pages of the actual description may be given. For species-group taxa subsequently transferred to another genus, the name of the original genus is given in parentheses, following the page of publication.

Some authors (e.g., V. Apfelbeck, H. John) published the same description twice, or even more times, in separate papers. Such publications produce, de facto, primary homonyms and objective synonyms. The first publication in such cases is referred to as indicated above, followed by the mark = , the year and first page of the subsequent description/s in square brackets. This is particularly important for taxa that are erroneously associated with their junior description.

The following symbols, all given in square brackets following the page of publication, or the original combination when applicable, are used for taxonomic information : HN for homonyms, RN for replacement names, NO for nomina oblita, NP for nomina protecta, DA for doubtful assignment, and EA for erroneous assignment.

Taxa considered incertae sedis and nomina dubia are listed separately at the end of the nearest applicable taxon.

Taxonomic and nomenclatural acts published after December 31, 2008 are considered only when they concern taxa described on or before that date.

DISTRIBUTIONAL INFORMATION

The limits of the Palaearctic region, as those of other biogeographical regions, are arbitrarily defined (Map 1). For practical reasons, the boundaries of the Palaearctic Region, as they were established for the Catalogue (see above), usually follow national boundaries. The region includes Europe, Africa north of the Sahara, and Asia except for the part that is arbitrarily defined as belonging to the Oriental Region.

For each species and subspecies an outline of its present distribution is given. Fossil records are not considered. The information is given by means of symbols, presented at three levels.

The first level is the subdivision of the Palaearctic Region into three main parts, Europe (letter **E**, bold), North Africa (letter **N**, bold) and Asia (letter **A**, bold).

Europe includes the Azores, Iceland and Turkey west of the Bosporus. The eastern boundaries are a matter of controversy. In the Catalogue, Europe includes Russia west of the main ridge of the Ural mountains, the Permsk Oblast, Bashkortostan Republic and Orenburskaya Oblast, and the small part of Kazakhstan west of the Ural River. It includes the Caucasian republics of Georgia, Armenia and Azerbaijan. The south-eastern boundaries are the political boundaries of the Asian part of Turkey, Iran, Kazakhstan, and the Caspian and Black seas.

Yugoslavia has been recently split into two independent countries: Serbia and Montenegro. At the time of the split almost all distributional records for the respective species were finished, using the symbol YU. It would have been an unreasonably time consuming effort to retroactively differentiate these records, therefore, as a compromise, the term Yugoslavia is no longer used in the list of geographical symbols on page 14, but records for Serbia and Montenegro are still listed under the symbol YU in the body of the Catalogue.

North Africa includes Morocco (incl. Western Sahara), Algeria, Tunisia, Libya and Egypt west of the Suez Canal, and the Canary and Madeira islands.

Asia includes Sinai and the Arabian Peninsula (including Suqutra), Turkey east of the Bosporus, the Middle East and Central Asian countries, Russia east of the main ridge of the Ural mountains, Korea, Japan (including Ryukyu [= Nansei] Islands and the Japanese Pacific Islands), the entire People's Republic of China, Taiwan, Bhutan, Nepal, North India along the base of the Himalaya (Arunachal Pradesh, Uttarakhand (= Uttaranchal), northwestern area of former Uttar Pradesh), Himachal Pradesh), Jammu & Kashmir and all of Pakistan. Thus, India is the only state for which the strict political boundaries are not respected. Large parts of Uttar Pradesh south of Nepal are overpopulated plains. Information on Coleoptera from this North Indian state is based almost exclusively on its Himalayan districts lying west of Nepal, which are in the present state Uttaranchal.

The second level of the geographic information is provided by two-letter symbols for countries, major areas of Russia and North Indian states, and by three-letter symbols for provinces of mainland China and for Taiwan (see Table 1, Map 3).

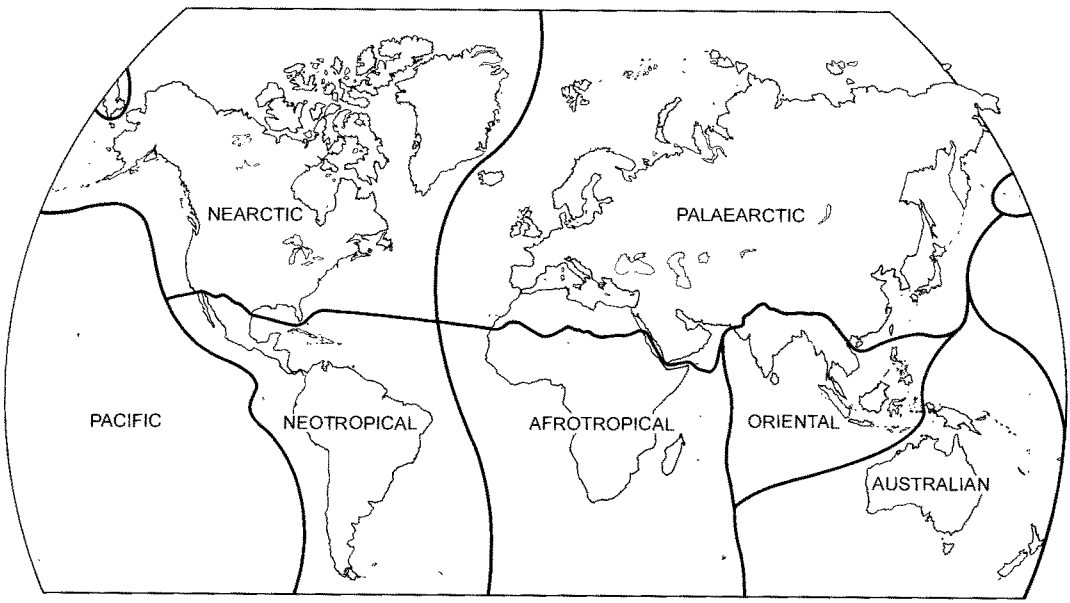
The symbols are arranged in alphabetical order within the first-level subdivision. Some, usually older, distributional records cannot be accommodated within the structure of the Catalogue (e.g., Arabia, Caucasus, North India, Siberia). Such information is given in quotation marks (e.g., "Caucasus") behind the last symbol of the respective first-level symbol. Russia is subdivided into six major sub-regions (Map 2), each of which has its own two-letter symbol. These, as well as the symbol RU for Russia, are used only when more detailed information is not available. Similarly, the symbol CH for the People's Republic of China, as well as the seven two-letter symbols for China's major regions, are used only in the absence of more detailed geographical information.

In general, the published distributional information is based on both identified material in collections and on published records, scattered in an enormous number of taxonomic and faunistic papers that are virtually impossible to review in their entirety. Revisions of collections reveal a high proportion of misidentifications, attaining 40% of specimens in some large museums. The degree of identification reliability and of the records derived from identifications, is a function of faunal diversity and quality of systematic revisions. Thus, the reliability in general increases from south to north and from poorly studied groups to "popular" groups. At present, a number of modern catalogues or check-lists, covering the beetle faunas of many European and some extra-European countries or archipelagos, are available. The use of data contained in these and other faunistic

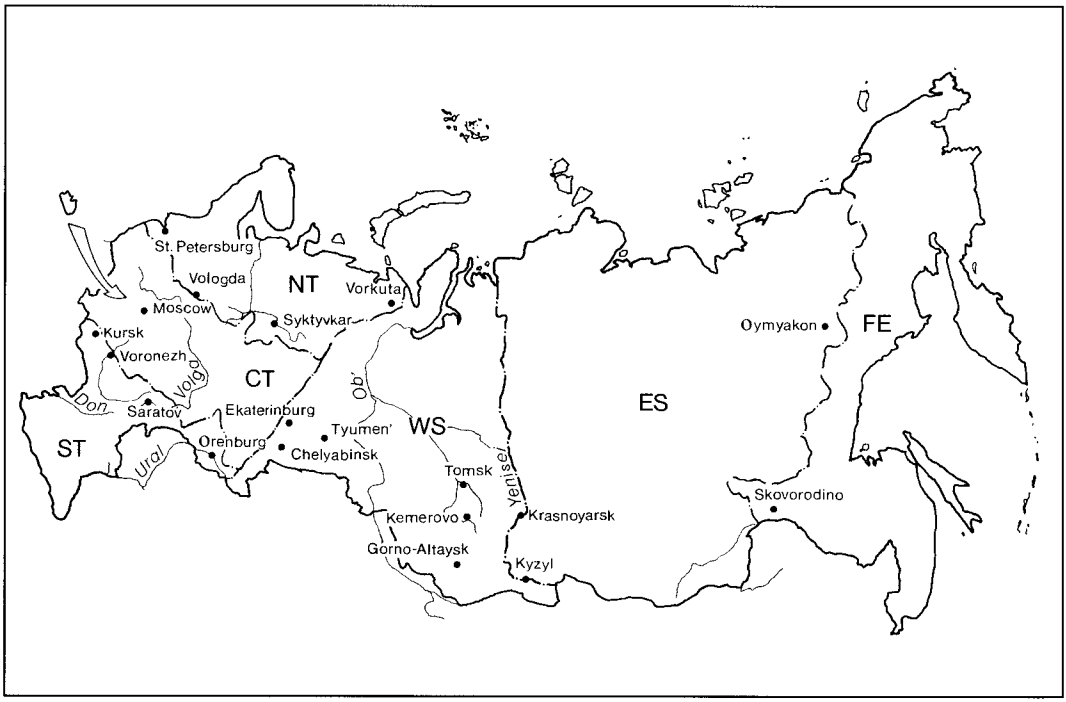
works is left to the discretion of the authors, who may also add unpublished information available to them. The second-level geographic information is not necessarily exhaustive, it should rather be considered as a base for future faunal research.

The third-level geographic information concerns species and subspecies with restricted distribution. Taxa of this category may be strict endemites, or taxa comparatively widely distributed in one area but restricted in another area. For example, the distributional record of a species widely distributed in North Africa with isolated occurrence on Pantelleria would appear as follows: **E**: IT (Pantelleria) **N**: AG MO TU. The third-level information is facultative. It is given in parentheses after the respective second-level symbol. The official language of the respective state is used for records in languages using the Latin alphabet, or it is transliterated from the Cyrillic alphabet. Records in languages using non-Latin or Cyrillic characters (e.g. Chinese or Japanese pictographs) are translated into English, and the translated geographical terms are spelled as closely as possible to those used in the Times Atlas®, or in other well-known sources. Detailed geographical information may refer to natural geographical features such as islands, mountains, lakes, valleys, caves, or to administrative entities, such as districts.

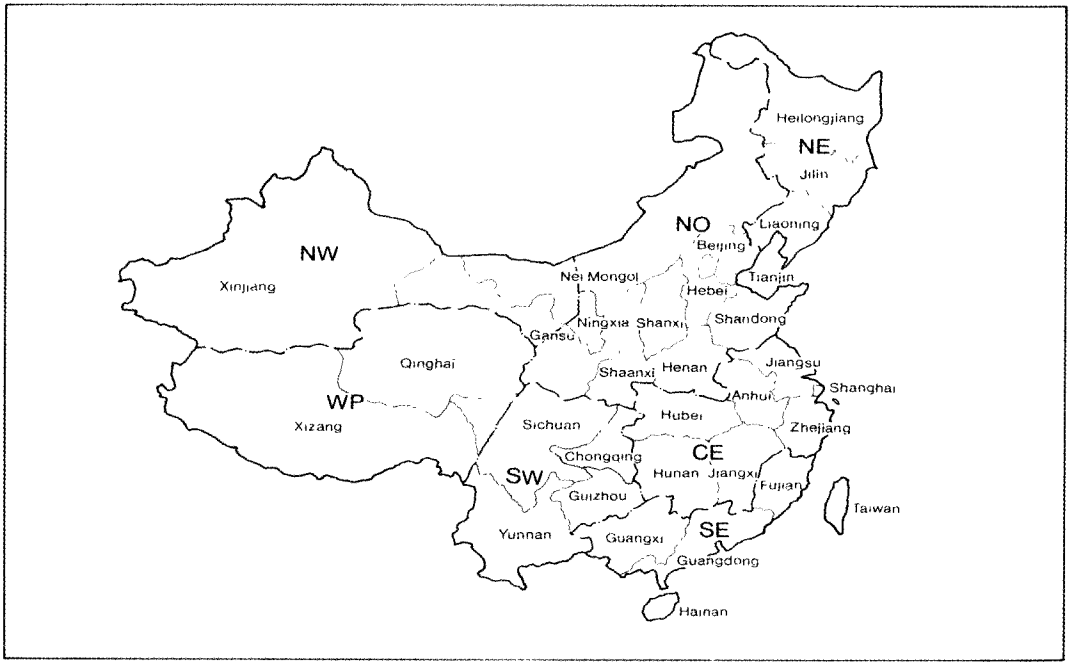
The extralimital distribution of some Palaearctic species is indicated by three letter symbols in bold, cosmopolitan species by the symbol **COS**, all located at the end of the respective geographical information (see Table 1). Introductions are indicated by the letter "i" (e.g., **Ei**: GB). The extralimital regions for the needs of the Catalogue are defined as follows (see Map 1): Nearctic (**NAR**): north of Mexico; Neotropical (**NTR**): south of the United States; Afrotropical (**AFR**): south of the North African states included in the Palaearctic Region; Oriental (**ORR**): areas south of the People's Republic of China and Taiwan, areas south of the Himalaya in India, the Philippines, Malaysia and Indonesia south to the Lydekker line; Australian (**AUS**): south of the Lydekker line, Pacific.



Map 1. The limits of the geographic Regions as defined for the purpose of this Catalogue



Map 2. Subdivisions of Russia



Map 3. Subdivisions and provinces of the People's Republic of China

Table 1: GEOGRAPHICAL SYMBOLS

E	**Europe**
AB	Azerbaijan
AL	Albania
AN	Andorra
AR	Armenia
AU	Austria
AZ	Azores
BE	Belgium
BH	Bosnia Herzegovina
BU	Bulgaria
BY	Belarus
CR	Croatia
CT	Russia: Central European Territory
CZ	Czech Republic
DE	Denmark
EN	Estonia
FA	Faeroe Islands
FI	Finland
FR	France (incl. Corsica, Monaco)
GB	Great Britain (incl. Channel Islands)
GE	Germany
GG	Georgia
GR	Greece (incl. Crete)
HU	Hungary
IC	Iceland
IR	Ireland
IT	Italy (incl. Sardinia, Sicily, San Marino)
KZ	Kazakhstan
LA	Latvia
LS	Liechtenstein
LT	Lithuania
LU	Luxembourg
MA	Malta
MC	Macedonia
MD	Moldavia
ME	Montenegro
NL	The Netherlands
NR	Norway
NT	Russia: North European Territory
PL	Poland
PT	Portugal
RO	Romania
RU	Russia
SB	Serbia
SK	Slovakia
SL	Slovenia
SP	Spain (incl. Gibraltar)
SR	Svalbard (Spitzbergen)
ST	Russia: South European Territory
SV	Sweden
SZ	Switzerland
TR	Turkey
UK	Ukraine
YU	Serbia and Montenegro

N	**North Africa**
AG	Algeria
CI	Canary Islands
EG	Egypt
LB	Libya
MO	Morocco (incl. Western Sahara)
MR	Madeira Archipelago
TU	Tunisia

A	**Asia**
AE	Arab Emirates
AF	Afghanistan
AP	India: Arunachal Pradesh
BA	Bahrain
BT	Bhutan
CE	China: Central Territory
CH	China
CY	Cyprus
ES	Russia: East Siberia
FE	Russia: Far East
HP	India: Himachal Pradesh
IN	Iran
IQ	Iraq
IS	Israel
JA	Japan
JO	Jordan
KA	India: Kashmir
KI	Kyrgyzstan
KU	Kuwait
KZ	Kazakhstan
LE	Lebanon
MG	Mongolia
NE	China: Northeast Territory
NC	North Korea
NO	China: Northern Territory

NP	Nepal
NW	China: Northwest Territory
OM	Oman
PA	Pakistan
QA	Qatar (incl. United Arab Emirates)
RU	Russia
SA	Saudi Arabia
SC	South Korea
SD	India: Sikkim, Darjeeling District
SE	China: Southeastern Territory (incl. Macao, Hongkong)
SI	Egypt: Sinai
SW	China: Southwestern Territory
SY	Syria
TD	Tajikistan
TM	Turkmenistan
TR	Turkey
UP	India: Uttarakhand (= Uttaranchal), Uttar Pradesh
UZ	Uzbekistan
WP	China: Western Plateau
WS	Russia: west Siberia
YE	Yemen (incl. Suqutra)

CHINA: PROVINCES, AUTONOMOUS REGIONS OR MUNICIPALITIES, AND TAIWAN

ANH	Anhui (Anhwei)
BEI	Beijing (Peking or Peiping)
CHQ	Chongqing
FUJ	Fujian (Fukien)
GAN	Gansu (Kansu)
GUA	Guandong (Kwantung)
GUI	Guizhou (Kweichow)
GUX	Guangxi (Kwangsi)
HAI	Hainan
HEB	Hebei (Hopeh)
HEI	Heilongjiang (Heilungkiang)
HEN	Henan (Honana)
HKG	Hongkong
HUB	Hubei (Hupeh)
HUN	Hunan
JIA	Jiangsu (Kiangsu)
JIL	Jilin (Kirin)
JIX	Jiangxi (Kiangsi)
LIA	Liaoning
MAC	Macao
NIN	Ningxia (Ningsia)
NMO	Nei Mongol (Inner Mongolia)
QIN	Qinghai (Tsinghai)
SCH	Sichuan (Szechwan)
SHA	Shaanxi (Shensi)
SHG	Shanghai
SHN	Shandong (Shantung)
SHX	Shanxi (Shansi)
TAI	Taiwan (Formosa)
TIA	Tianjin (Tsiensin)
XIN	Xinjiang (Sinkiang)
XIZ	Xizang (Tibet)
YUN	Yunnan
ZHE	Zhejiang (Chekiang)

WORLD ZOOGEOGRAPHICAL REGIONS

AFR	Afrotropical Region
AUR	Australian Region
NAR	Nearctic Region
NTR	Neotropical Region
ORR	Oriental Region