

Foreword

- 5 This volume of *Mammals of the Soviet Union* is devoted to a description of artiodactyls and perissodactyls found in the Soviet Union. These animals are of great scientific and economic interest; information on them, especially in recent Soviet literature, is voluminous. In recent years world literature on this subject has likewise been considerably enriched with new data. The abundance of information on ungulates (more than on other mammals) explains the size of the present volume.

The format and contents of this book require a comment or two. All species of Artiodactyla and Perissodactyla which have ever inhabited the Soviet Union, including those now extinct, are described. Total coverage provides a correct picture of present-day fauna and permits an evaluation of changes in it. Only rhinoceri, information on which is completely fantastic (see text), and the parabubal antelope (a species of Alcelaphinae; Vereshchagin, 1956) have been excluded; their occurrence in Russia in the historic past requires further confirmation.

Simpson's (1945) system, the latest and most comprehensive, has been adopted as the basis for classification. This system covers the entire class down to genera and includes both present-day and fossil forms. True, it has some drawbacks and debatable points but their correction needs extensive investigation, which falls outside the purview of the present work. Hence only relatively insignificant deviations from Simpson's system have been incorporated and mainly concern the number and scope of generic groups. The latter, of course, at least with reference to recent fauna, ought to be delineated in greater detail. The changes introduced here have been defined in the text.

The number of species of artiodactyls, only recently clarified, has been adopted from Haltenorth and Trenze (1956) with minor modifications (oxen, goat, and camel; V.G. Heptner).

All the characteristics of groups have been described according to a common scheme; deviations occur in a few cases, however. These characteristics are stated briefly and pertain to the group as a whole; they are not exclusive to species of Soviet fauna. Diagnosis is based essentially on morphology. Considerable attention has been given to the composition of the group, its taxonomic relationships, and the position of Soviet forms in world fauna. Paleontological referen-

ces are given, drawn primarily from Simpson's work (1945), but occasionally including other sources as well.

All species are described according to a common plan, altered only in the case of some extinct forms. In devising the scheme for
6 descriptions of species not only the convenience of the reader was kept in mind, but the hope that gaps in our knowledge would become self-evident and stimulate further research.

In describing species geographic distribution and biology are given primary attention. Geographic ranges are presented in general terms (boundaries) based on a critical analysis of the factual material available. Stray occurrences outside the frontiers of the range are usually not included and only the main reference points of the range boundary indicated.

Descriptions are based on "reconstructed" geographic ranges for the historic past, the dynamics of which have been traced insofar as possible. This approach evolved from the conviction that present-day ranges and modern faunal complexes cannot be understood without reconstruction of earlier ranges. Without such a historic perspective, present-day ranges often give an altogether distorted picture of the zoogeographic and ecological features of present-day species and the composition of extant fauna. Furthermore, a reconstructed range provides an excellent basis for undertaking practical measures (acclimatization and reacclimatization).¹ Geographic ranges falling within the USSR have been detailed to the best of our ability but sometimes minor variations in time and space could not be traced. By and large the widest spread of species (in a given interval of time or in general) has been considered.

In those cases where the geographic range underwent significant changes, beyond the magnitude of normal boundary variations, these have been traced and described as completely as possible. This phenomenon is extremely interesting both from theoretical and economic points of view. Only very general remarks are made concerning the geographic ranges in the prehistoric period and the Pleistocene. All the geographic range maps are original and were plotted from material collected for this publication.

Geographic ranges falling outside the USSR, including reconstructed ones, are highly schematic and based on a large number of special studies and important compilations: Seton (1909-1910);

¹For further details on reconstructed geographic ranges, see V.G. Heptner's work: *Dinamika areala nekotorykh mlekopitayushchikh i antropicheskii faktor* (Dynamics of geographic range of some mammals and the human factor). Sb. *Voprosy Geografii*, 1959.

Miller (1912); Lydekker (1913–1916); Sowerby (1923); Anthony (1928); Shorridge (1934); Philips (1935); Heim de Balzac (1936); Allen (1939, 1938–1940, 1942); Cabrera and Yepes (1940); Chasen (1940); Rode (1943–1944); Harper (1945); Simpson (1945); Anderson (1946); Tate (1947); Prater (1947); Hainard (1949); Roberts (1951); Ellerman and Morrison-Scott (1951); Burt and Grossenheider (1952); Morrison-Scott and Hayman (1953); Miller and Kellog (1955); Haltenorth and Trenze (1956); Van den Brink (1958); and others (for which references have been given in the text).

The morphological characters of species are very briefly stated since detailed descriptions are available for most in Soviet literature (deer, cavicorns, sheep, goats, and others). Only species found within the Soviet Union are described; however, the taxonomic position of each has been assessed within the genus as a whole. Geographic variation in the USSR has been revised or critically reviewed. Forms inhabiting the USSR have, by and large, been drawn from the most recent compilations of mammalian species in the Soviet Union.

A strictly limited number of synonyms are included, based on the following principles. Only natural synonyms are mentioned. For genera synonyms are presented only for those for which the Soviet forms serve as the type genus, or if the generic name is important, or is sometimes used (or was formerly used), or could be applied to Soviet species. All names, current or otherwise, have been included among the synonyms of a species in the following cases: 1) name assigned from specimens of a species found in Soviet territory; 2) name given from specimens of a species belonging to other territories, but important and used or formerly used but persisting for some Soviet forms; 3) name given for specimens belonging to other territories, not used for Soviet forms but possibly relevant for some; and 4) name of nominal form invariably given irrespective of its type locality (whether within or outside the USSR). Current names have not been separately identified among the synonyms of a species, but are included in the list of subspecies inhabiting the USSR where synonyms pertaining to a given subspecies are also indicated. Synonyms of subspecies occurring outside the USSR have been excluded. Synonyms for categories above genus have not been mentioned; neither have references to their description and nomenclature or, if mentioned, only those based on Simpson's system. Names given for domestic forms (horses, goats, etc.) have not been used here for wild species; the first name given to the wild form is used as its species name. Descriptions of species within an order commence with the least specialized one.

The total number of mammalian species is approximately 3,500 and the number of species in Soviet fauna about 300 (Heptner, 1956).

In the preparation of this book each author contributed as follows: V.G. Heptner has written the introduction, characteristics of groups, including generic, keys for identification, all of the chapter devoted to aurochs*, yaks, and tarpans, and the sections "Diagnosis," "Description," "Geographic Distribution," and "Geographic Variation" for all species except goitered gazelle, Mongolian gazelle, and saiga. He also processed the synonyms for all genera and species. A.A. Nasimovich has written the sections "Biology" and "Economic Importance" for all species of artiodactyls except swine, aurochs, yak, gazelle, antelope, and saiga. A.G. Bannikov compiled the descriptions, apart from synonyms and geographic variation (described by V.G. Heptner) of saiga, goitered and Mongolian gazelles, and the sections "Biology" and "Economic Importance" of hog and wild ass. The authorship of some individual sections has been acknowledged in the form of author initials at the end of the corresponding section or chapter. V.G. Heptner is responsible for the classification adopted for the majority of the species, subspecies, etc.

Literature of 1956 and 1957 and partly 1958 has been included. From the works of 1959 only some articles were included during editorial revision. The bibliography contains only cited works; the literature actually perused was naturally more extensive. Works referred to in giving synonyms of species and genera and those not used subsequently in the text have not been included in the bibliography.

In the compilation of this monograph the authors naturally included in the text (in some cases acknowledged) their unpublished material. Moreover, a significant amount of unpublished data furnished by various authors has been included, namely: K.G. Abramov (Ussuri); Yu.V. Averin (Kishinev); I.I. Bar'abash-Nikiforov (Voronezh); O.P. Bogdanov (Tashkent); G.F. Bromlei (Vladivostok); I.V. Zharkov (Voronezh preserve); M.A. Zablotskii (Prioksko-Terras preserve); Yu.A. Isakov (Moscow); F.L. Ivanauskas (Kaunas); P.F. Kaznevskii (Voronezh preserve); S.G. Kalugin (Caucasian preserve); V.P. Kostin (Tashkent); V.A. Kotov (Caucasian preserve); L.S. Lebedeva (Moscow); A.N. Leont'ev (Chita); R.N. Meklenburtsev (Tashkent); K.D. Mamisashvili (Lagoda preserve); P.A. Merttsem

*Some confusion exists in the Russian original with regard to turs (mountain goats) and aurochs—General Editor.

(Caucasian preserve); B.M. Petrov (Tashkent); A.S. and I.F. Popkov (Zakatal'sk preserve); P.P. Tarasov (Przheval'sk); V.V. Timofeev (Irkutsk); O.I. Semenov-Tyan-Shanskii (Lapland preserve); V.N. Skalon (Irkutsk); A.V. Fedosov (Bryansk); V.I. Chernyshev (Stalinabad); F.D. Shaposhnikov (Tyumen); P.B. Yurgenson (Moscow); and several others (acknowledged at the appropriate place).²

Workers in almost all of the regional game inspectorates to whom requests were sent for information about the distribution of various species responded readily. Extremely informative material was furnished by comrades Starodubchenko (Kur'); Lebedov (Stalingrad); Mikhaylovka (Saratov); Zakharov (Murmansk); Gusev (Rostov-on-Don); Khmelevskii (Orenburg); Sukhikh (Belgorod); Ivanov (Yakutia); Kuz'min and Fofanov (Novosibirsk); Bel'skii (Vladivostok); Anashkin (Ulan Ude); Samsonov (Blagoveshchensk); Sysoev (Khabarovsk); and Zimin (Chita). Some material was provided by N.V. Eliseev, Director of the Central Board of Hunting and Preserves, Russian Soviet Federated Socialist Republic.

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In a work of such magnitude and extensive literary coverage, errors and omissions in information are inevitable. This is particularly so for data on distribution. How vague our knowledge still is,

²To differentiate references to literature, references to personal communications have been identified by including the initials of the author and omitting the year.

is evident in the distribution of argali sheep in Turkmenia, Gissar, and Zerevshan mountains. The authors request all readers, especially folklorists, hunters, and other specialists to send their comments, corrections, and supplementary information to Prof. Vladimir Georgievich Heptner, Zoological Museum, Moscow University, Hertsen Street, 6, Moscow, K-9.