



Taxonomic and nomenclatural status of vertebrate species described by Franz Wilibald Schmidt in 1795

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Abstract. Franz Wilibald Schmidt (1764–1796) described in 1795 seven species of mammals, birds and fishes, but subsequent systematists overlooked the existence of these names. The following names were found valid: *Sorex talpinus* (= *Sorex alpinus*) in mammals, and *Strix bohemica* (= *Glaucidium passerinum*), *Motacilla alpestris* (= *Motacilla cinerea*) and *Turdus montanus* (= *Turdus torquatus alpestris*) in birds. The following names were found to be nomina nuda: *Picus squamatus* (Aves), and *Salmo caeruleus* and *Cyprinus asper* (Osteichthyes). *Sorex talpinus* Schmidt, 1795 and *Turdus montanus* Schmidt, 1795 are oldest available names for the respective taxa, but both had to be set aside as nomina oblita in favor of *Sorex alpinus* Schinz, 1837 and *Turdus torquatus alpestris* (Brehm, 1831), respectively. In addition, Schmidt (1795) validated four infrasubspecific names used by previous authors, incl. *Talpa europaea cinerea* Gmelin, 1788, *Cervus elaphus hippelaphus* Erxleben, 1777, *Falco communis leucocephalus* Gmelin, 1788, and *Lanius collurio rufus* Gmelin, 1788.

■ Franz Wilibald Schmidt, taxonomy, nomenclature, Bohemia, Mammalia, Aves, Osteichthyes.

INTRODUCTION

One of the few naturalists working in Bohemia in the second half of the 18th century, who contributed to vertebrate systematics, was Franz Wilibald Schmidt (*7 July 1764 in Planá near Mariánské Lázně, †2 February 1796 in Praha). Although being primarily a botanist, Schmidt published in 1795 first modern checklist of vertebrates (and other animals) of Bohemia. This checklist, one of his two zoological publications (Schmidt 1788b, 1795; for a few comments on animals see also Schmidt 1788a), included seven nominal taxa of mammals, birds and fishes, which were either described by Schmidt as new for science or which were based on published works of previous naturalists, that were later found not available for nomenclatural purposes according to ICZN (1999).

Schmidt's (1795) zoological work was known only to a few students of the Bohemian vertebrate fauna (e.g. Amerling 1852, Frič 1859, 1872, Pražák 1897, Hudeček & Hanák 2004a,b, Hanák & Hudeček 2004). His 1795 paper was omitted from standard 19th-century zoological bibliographies (e.g. Engelmann 1846, Agassiz & Strickland 1854), although the book, in which the paper was published, was listed in them. Schmidt's (1795) names of vertebrate species were not included in any relevant taxonomic surveys known to us. The aim of the present work is thus to evaluate the nomenclatural and taxonomic status of nominal vertebrate taxa described by Schmidt (1795), and to address related nomenclatural and taxonomic issues.

Schmidt (1795) strictly followed binomial nomenclature and, as stated by himself, based his checklist primarily on the 13th edition of Linné's *Systema naturae* (Gmelin 1788–1789). In species accounts he referred also to Linné (1746 or 1761), Brisson (1763a, b), Bloch (1782), Richter (1786), Schmidt (1788b), and Lindaker (1790), although circumstantial evidence indicates, that his knowledge of published data was much broader (see e.g. Schmidt 1788b). Schmidt also studied vertebrates in the field and in the collections of František de Paula Hartig (1758–1797) in Praha, Malebeila Josef Emanuel de Canal (1745–1826) in Praha, and Franz de Paula Adam Waldstein (1759–1823) in “Dux” [= Duchcov].

SYSTEMATIC ACCOUNT

Mammalia

Talpa europaea cinerea Gmelin

Talpa eifliaca cinerea Hüpsch, 1774: 100; not figured.

Talpa europaea e cinerea Gmelin, 1788: 110; not figured.

Talpa cinerea: Schmidt, 1795: 24; not figured.

Original text (Schmidt 1795: 24): “In der Gegend um Reichenberg hat diesen Maulwurf Herr Richter bemerkt, ich fand auch in den Sandgegenden von Tetschen bis Kreibitz seine länglichen Hügel und seichten Gänge, doch das Thier selbst konnte ich nicht zu sehen bekommen.”

Status: Available name. Hüpsch (1774: 100) described *Talpa eifliaca cinerea* as a form of the European mole, additional to those recognized by La Faille (1769). Hüpsch's (1774) paper was not strictly binomial, so that the name *cinerea* Hüpsch is not available for nomenclatural purposes. Gmelin (1788: 110) used *cinerea* as an infrasubspecific name (with a reference to Hüpsch [sic!]), and Schmidt (1795: 24) used it as a valid name for a *Talpa* species. Owing to Schmidt's action, and following ICNZ (1999, para. 45.6.4.1.), *cinerea* is available from Gmelin (1788). *Talpa europaea cinerea* Gmelin, 1788 is currently used as a valid name for the west European subspecies of *Talpa europaea* Linnaeus, 1758 (e.g. Stein 1963, Niethammer 1990).

Type: An animal observed by Hüpsch and a specimen in Hüpsch's collection (see Hüpsch 1774). Their current whereabouts is unknown.

Type locality: Hüpsch (1774) stated that he found his *Talpa eifelensis cinerea* in Eifel, i.e. Eifel Mountains, whose main ridge lies in Rheinland, Germany. Subsequently, Eifel was accepted as the type locality of *Talpa europaea cinerea* Gmelin in modern relevant surveys (e.g. Miller 1912: 4, Ellermann & Morrison-Scott 1951: 37, Niethammer 1990: 108). However, Hüpsch's (1774) data allow identify the type locality more exactly. Hüpsch (1774: 100) mentioned, that he observed a gray-colored individual and then asked local people to catch such a mole for him. Hüpsch (1774: 102) specified, that he obtained only one specimen and that the latter specimen was caught at the “Bleyberg” [= Mechernicher Bleiberg near Mechernich; 50.6° N, 6.5° E], Nordrhein-Westfalen, Germany. Hence, we restrict here the type locality of *Talpa europaea cinerea* Gmelin, 1788 to the vicinity of Mechernicher Bleiberg, as specified above. Mechernicher Bleiberg lies in the northern outcrops of the Eifel Mountains.

Remarks: The form *cinerea* in the sense of Hüpsch (1774) and Gmelin (1788) was reported from Bohemia only twice. Richter (1786: 42) recorded gray moles in dry places

near Reichenberg [= Liberec], remarked that the species produced oblong molehills, but did not give the species a name. He was obviously unaware of Hüpsch's (1774) paper and the Liberec moles were identified with those described by Hüpsch (1774) only by Gmelin (1788: 110). Schmidt (1795: 24) did not see these animals, but recorded oblong molehills in the sandy region between "Tetschen" [= Děčín] and "Kreibitz" [= Chřibská], which he attributed to the work of *Talpa cinerea*.

***Sorex talpinus* Schmidt**

Sorex talpinus Schmidt, 1795: 24; not figured.

Original text (Schmidt 1795: 24–25): "Der ganze Körper schwarz; der Schwanz nackt von der Länge des Körpers; die Füße nackt, sehr kurz; der Oberkiefer oder die Schnauze spitzig, lang hervorragend. Ich fand sie im August 1794. im Isergebirg auf den hohen Kamm, im Riesengebirg auf der kleinen Sturmhaube und am Füße der Schneekoppe."

Status: Available name. The description and the reference to the habitat clearly indicate, that *Sorex talpinus* Schmidt is identical with *Sorex alpinus* Schinz, 1837, being thus its senior subjective synonym. The possibility that *Sorex talpinus* Schmidt refers to a *Neomys* species is highly improbable, because Schmidt (1795: 24) listed "*Sorex fodiens*", i.e. *Neomys* sp., as a separate species and also the habitat corresponds with the requirements of *Sorex alpinus* rather than with those of *Neomys* spp.

Although *Sorex talpinus* Schmidt, 1795 is a senior synonym of *Sorex alpinus* Schinz, 1837, the prevailing usage of the latter name must be maintained (ICZN 1999, para. 23.9), because *Sorex talpinus* Schmidt, 1795 has not been used as a valid name after 1899 (ICZN 1999, para. 23.9.1), and *Sorex alpinus* Schinz was used as a valid name for the Alpine Shrew with sufficient frequency to fulfill the conditions of ICNZ (1999, para. 23.9.2). The required references (ICZN 1999, para. 23.9.3) include general literature (Sokolov 1973, Hanák & Mazák 1979, Corbet & Ovenden 1980, Hutterer 1982, 1993, Schiling & Singer 1983, Spitzenberger 1990, Macdonald & Barrett 1993, Mitchell-Jones et al. 1999) and faunal surveys of the range states (e.g. Hanák & Figala 1960, Niethammer 1960, Löhr 1969, Beneš 1970, 1987, Šebek 1971, Ansorge & Franke 1981, Mészáros & Deméter 1984, Štollman & Dudich 1985, Hůrka 1987, Brünner & Braun 1991, Anděra & Bürger 1992, Bělka & Vrána 1993, Rychnovský & Eleder 1994, Hausser 1995, Anděra 2000, Spitzenberger 2001). Herewith, *Sorex alpinus* Schinz, 1837 becomes a nomen protectum, and *Sorex talpinus* Schmidt, 1795 becomes a nomen oblitum in the sense of ICZN (1999).

Type: Animals observed and/or collected by Schmidt in northern Bohemia. Their current whereabouts is unknown.

Type locality: Northwestern part of the Sudeten Mountains, northern Bohemia, incl. "hoher Kamm im Isergebirg" [= main range of Jizerské hory Mountains]), "kleine Sturmhaube" [= Malý Šišák] and foot of "Schneekoppe" [= Sněžka] in Krkonoše Mountains. .

Remarks: Schmidt's (1795) records of the Alpine shrew are the first for Bohemia and the whole Czech Republic (and the whole range of the species indeed). Subsequent sporadic records of this species from the Czech Republic were published more than 70 years later (Tobias 1867, Nitsche 1879). Anděra (2000) credited first records of the Alpine shrew from Bohemia to Amerling (1852), but the latter author only repeated Schmidt's (1795) records, though without referring to his publication.

***Cervus elaphus hippelaphus* Erxleben**

Cervus elaphus α *hippelaphus* Erxleben, 1777: 304; not figured.

Cervus Hippelaphus "Linn.": Schmidt, 1795: 27; not figured.

Original text (Schmidt 1795: 27): "Man bemerkt ihm oft in den großen Wildnissen des Böhmerwaldes, er soll blos das ältere Thier des Vorhergehenden [= "*Cervus Elaphus* Linn."] seyn."

Remarks: Schmidt (1795: 27) attributed this name to "Linn.", i.e. to Gmelin (1788: 176), where the deer is called *Cervus elaphus* β *Hippelaphus*. The name can be traced back to *Cervus elaphus* α *hippelaphus* of Erxleben (1777: 304) and to *Hippelaphus* of Jonston (1652: pl. 35). Jonston (1652) is a pre-Linnaean author. Erxleben (1777: 304) used *hippelaphus* as an infrasubspecific name (with references to numerous authors), and Schmidt (1795: 27) used it as a valid name for a *Cervus* species. Owing to Schmidt's action, and following ICNZ (1999, para. 45.6.4.1.), *hippelaphus* is available from Erxleben (1777). *Cervus elaphus hippelaphus* Erxleben, 1777 is currently used as a valid name for the Central European subspecies of *Cervus elaphus* Linnaeus, 1758 by some authors (e.g. Ellermann & Morrison-Scott 1951, Bützler 1986, Geist 1999, Ludt et al. 2004, Pitra et al. 2004).

Aves

***Falco communis leucocephalus* Gmelin**

Falco leucocephalus Brisson, 1760a: 325; not figured.

Falco communis δ *leucocephalus* Gmelin, 1788: 270; not figured.

Falco leucocephalus "Briss.": Schmidt, 1795: 32; not figured.

Original text (Schmidt 1795: 32): "Hält sich um die Waldsümpfe auf; lebt von kleineren Vögeln. Die Füße sind bis auf die Zähnen mit Federn begleitet."

Remarks: Schmidt (1795: 32) attributed this name to Brisson (1763a: 93), and the description can be traced back to Brisson (1760a: 423). However, Brisson's species-group names are not available for nomenclatural purposes, because his books were not strictly binomial (ICZN 1955). Gmelin (1788: 270) used *leucocephalus* as an infrasubspecific name (with references to Brisson 1763a: 93, Latham 1781: 66, and Frisch 1733–1743: pl. 75), and Schmidt (1795: 32) used it as a valid name for a *Falco* species. Owing to Schmidt's action, and following ICNZ (1999, para. 45.6.4.1.), *leucocephalus* is available from Gmelin (1788). *Falco leucocephalus* Gmelin, 1788 is a junior subjective synonym of *Falco lagopus* Pontoppidan, 1763 = *Buteo lagopus* (Pontoppidan), and a junior primary homonym of *Falco leucocephalus* Linnaeus, 1766 = *Haliaeetus leucocephalus* (Linnaeus).

***Strix bohemica* Schmidt**

Strix Bohemica Schmidt, 1795: 36; not figured.

Original text (Schmidt 1795: 36): "Diese Art ist die Kleinste von allen, die ich kenne. Sie ist von der Größe eines Gimpels und so viel ich weiß in keinen mir bekannten ornithologischen Werke noch angeführt. Zwei Stück wurden in der Gegend von Zbirow geschossen."

Status: Available name. The reference to body size and the inclusion of the bird among the "Käuze", i.e. earless owls, allows identify this species as a Pygmy Owl (genus *Glaucidium* Boie, 1826). Considering the locality, *Strix Bohemica* Schmidt, 1795 can be identified with the Eurasian Pygmy Owl *Strix passerina* Linnaeus, 1758 = *Glaucidium passerinum* (Linnaeus), of which it is a junior subjective synonym.

Type: Two individuals collected at Zbiroh and examined by Schmidt (1795) in Canal's

collection in Praha. Current whereabouts of these syntypes is unknown, but they were probably destroyed long ago. Avifauna of the Zbiroh region was described in detail by Jirasek (1786), who did not mention this species. It is thus probable that both syntypes were collected there between 1786–1795.

Type locality: The vicinity of “Zbirow” [= Zbiroh; 49.9° N, 13.8° E], Central Bohemia, Czech Republic (see Schmidt 1795: 36).

Remarks: European Pygmy Owls are currently known as *Glaucidium passerinum* (Linnaeus, 1758), but Schmidt (1795: 36) and other contemporaneous authors (e.g. Scopoli 1769: 22, Gmelin 1788: 296, Bechstein 1791: 367, Temminck 1820: 92), applied the name *Strix passerina* Linnaeus, 1758 to the Little Owl *Athene noctua* (Linnaeus, 1758). Schmidt's (1795) record of Pygmy Owls from Zbiroh forests is the first record of this species for the Czech Republic (cf. Hudec 1983, Hudec & Štastný 2005).

***Picus squamatus* Schmidt**

Picus squamatus Schmidt, 1795: 40; not figured.

Original text (Schmidt 1795: 40): None (only Latin and German names listed).

Status: Nomen nudum (no description or indication).

Remarks: Both the descriptive Latin name and the accompanied German name ("Schuppenspecht") indicate, that Schmidt (1795) had juvenile *Picus viridis* Linnaeus, 1758 in mind. Being a nomen nudum, *Picus squamatus* Schmidt, 1795 does not compete with *Picus squamatus* Vigors, 1831.

***Motacilla alpestris* Schmidt**

Motacilla alpestris Schmidt, 1795: 58; not figured.

Original text (Schmidt 1795: 58): “Gelbe Bachstelze mit der schwarzen Kehle. [...] An Bächen, im Iser- und Riesengebirg; im August 1794. beobachtet.”

Status: Available name. The description, though very brief, clearly refers to adult male Grey Wagtail *Motacilla cinerea* Tunstall, 1771. Hence, *Motacilla alpestris* Schmidt, 1795 is a junior subjective synonym of the latter species.

Type: Birds observed by Schmidt in August 1794 in northern Bohemia.

Type locality: Northwestern part of the Sudeten Mountains, northern Bohemia, incl. “Isergebirg” [= Jizerské hory Mountains] and “Riesengebirg” [= Krkonoše Mountains].

***Turdus montanus* Schmidt**

Merula montana Brisson, 1760b: 232; pl. 51, fig. 1.

Turdus montanus “Brisson” Schmidt, 1795: 54; not figured.

Original text (Schmidt 1795: 54): None (only Latin and German names are listed).

Status: Available name. Schmidt (1795) attributed this species to “Brisson”, which can be traced back to Brisson (1763a: 223) and to Brisson (1760b: 232), where the bird bears the name *Merula montana*. Brisson (1760b, 1763a) gave a good description of the bird, and presented its figure (Brisson 1760b: pl. 51, fig. 1). Brisson's species-group names are not available for nomenclatural purposes, because his books were not purely binomial (ICZN 1955). With the reference to Brisson (1760b, 1763b), *Turdus montanus* Schmidt is an available name.

Brisson's (1760b) *Merula montana* applied to 1st-winter individuals of Ring Ouzels *Turdus torquatus* Linnaeus, 1758. The description equally applies to 1st-winter individuals of all three currently recognized forms of the Ring Ouzel (see e.g. Hartert 1903–1910,

Vaurie 1959, Clement 2000), but the Brissonian type locality (see below) encompasses only the areas of the north European *Turdus torquatus torquatus* Linnaeus, 1758 and the central European *Turdus torquatus alpestris* Brehm, 1831. None of the syntypes is known to survive till today, so that the taxonomic meaning of *Turdus montanus* Schmidt, 1795 can be fixed only by a designation of a neotype. Hence, respecting original description (1st-winter individual) and type locality (Sudeten Mountains), we designate here specimen P6V-1138 as the neotype of *Turdus montanus* Schmidt, 1795 (for details see below).

With the designation of the neotype, *Turdus montanus* Schmidt, 1795 becomes a senior subjective synonym of *Merula alpestris* Brehm, 1831 = *Turdus torquatus alpestris* (Brehm, 1831). In spite of that, prevailing usage of the latter name must be maintained (ICZN 1999, para. 23.9), because *Turdus montanus* Schmidt, 1795 has not been used as a valid name after 1899 (ICZN 1999, para. 23.9.1), and *Turdus torquatus alpestris* (Brehm) has been used as a valid name for Central European Ring Ouzels with sufficient frequency to fulfill the conditions of ICNZ (1999, para. 23.9.2). The required references (ICZN 1999, para. 23.9.3) include general literature (e.g. Vaurie 1959, Ripley 1964, Lindorfer 1970, Běme 1975, Makatsch 1976, Klüz 1980, Cramp 1988, Janiga & Poxton 1997, Snow & Perrins 1998, Clement 2000, Gubitz & Spath 2002) and faunal surveys of the range states (e.g. Ferienc 1965, Schifferli et al. 1980, Makatsch 1981, Hudec 1983, Pontius 1986, Wüst 1986, Štastný et al. 1987, 1996, Haffer 1988, Tomiałojć 1990, Fry et al. 1997, Rašajski 1997, Flousek & Gramsz 1999, Karaska 2002, Stepanjan 2003). Here-with, *Merula alpestris* Brehm, 1831 becomes a nomen protectum, and *Turdus montanus* Schmidt, 1795 becomes a nomen oblitum in the sense of ICZN (1999).

Type: Birds described by Brisson (1760b: 232) and references cited therein (i.e. Aldrovandi 1600, Schwenckfeld 1603, Jonston 1650, Charleton 1668, 1677, Willughby 1676, Ray 1713, Rzaczynski 1736, Barrère 1745, Linné 1746, 1748) form the type series of *Turdus montanus* Schmidt (see ICZN 1999, para. 72.4.4.). The neotype (designated above) is the mounted specimen P6V-1138, housed in the Department of Zoology, National Museum, Praha, Czech Republic. It is a 1st-winter individual, collected on 22 November 1931 in Špindlerův Mlýn, Czech Republic. The neotype (prepared by Hořice) was part of the renowned collection of Czech birds created by Alfred Hořice (1865–1945) and donated by himself to the National Museum, Praha, in 1945 (accession number 6344/1945). Morphological characters of the neotype clearly allow to assign the bird to the Central European subspecies of Ring Ouzels, which is currently known as *Turdus torquatus alpestris* Brehm, 1831.

Type locality: The Brisson's (1760b: 232–233) type locality of his *Merula montana* included the Pyrenees (Barrère 1745), the Alps (Aldrovandi 1600), Sudeten Mountains (Schwenckfeld 1603), British Islands (Charleton 1668, 1677, Willughby 1676, Ray 1713), and Sweden (Linné 1746). Other references cited by Brisson (1760b) are either secondary or less informative in respect to the type locality. The Brissonian type locality of *Turdus montanus* Schmidt thus encompasses areas occupied by north European (British Islands and Sweden) and central European (Pyrenees, Alps and Sudeten) forms of the Ring Ouzel (see e.g. Vaurie 1959, Janiga & Poxton 1997 and Clement 2000 for the distribution of these forms). Designation of the neotype restricted the type locality to Špindlerův Mlýn [50.7° N, 15.6° E], Krkonoše Mountains, Královéhradecký District, Czech Republic, i.e. to the area that was part of the original Brissonian type locality of *Turdus montanus* Schmidt (owing to Schwenckfeld 1603). Moreover, it is a locality, where Schmidt made ornithological observations in August 1794 (see Schmidt 1795).

Remarks: *Merula montana* Brehm, 1831 (see Brehm 1831: 375) is an available name, attributed to Central European Ring Ouzels of the subspecies *Turdus torquatus alpestris* Brehm, 1831 (e.g. Seebohm 1881: 246, Hartert 1903–1910: 663). Within the genus *Turdus* Linnaeus, 1758, *montana* Brehm, 1831 is a junior homonym of *Turdus montanus* Schmidt, 1795.

Turdus montanus Voigt in Cuvier, 1831 (see Cuvier 1831: 484) is a new replacement name for *Turdus citrinus* Latham, 1790 = *Zoothera citrina* (Latham) from the family Turdidae, hence its junior objective synonymy. Also, it is a junior homonym of *Turdus montanus* Schmidt, 1795.

Orpheus montanus Townsend, 1837 (see Townsend 1837: 192) was transferred to the genus *Turdus* Linnaeus, 1758 by Audubon (1838: 487). Within the genus *Turdus* Linnaeus, 1758, *montanus* Townsend, 1837 is a junior homonym of *Turdus montanus* Schmidt, 1795. The bird belongs in the Mimidae, where it is currently known as *Oreoscoptes montanus* (Townsend, 1837) (e.g. Davis & Miller 1960, AOU 1998).

Turdus montanus Lafresnaye, 1844 (see Lafresnaye 1844: 167) is a junior primary homonym of *Turdus montanus* Schmidt, 1795. No nomenclatural changes are necessary, however, because *Turdus montanus* Lafresnaye, 1844 is a junior subjective synonym of *Muscicapa fusca* Müller, 1776 = *Allenia fusca* (Müller) from the family Mimidae (Cory 1891, Hellmayr 1934: 339, Davis & Miller 1960, AOU 1998, Hunt et al. 2001, Banks et al. 2002).

Turdus merula var. *montana* Dresser, 1872 (see Dresser 1872: 99) is an infrasubspecific name without standing in zoological nomenclature.

***Lanius collurio rufus* Gmelin**

Lanius Collurio γ *rufus* "Briss." Gmelin, 1788: 301; not figured.

Lanius ruffus "Prisson" [sic!]: Schmidt, 1795: 37; not figured.

Original text (Schmidt 1795: 37): "Mit der vorhergehenden [= "*Lanius Collurio* Linn."], von dem er nur eine Spielart seyn soll."

Status: Available name. Schmidt (1795) attributed this name to "Prisson [sic!] orn. p. 201 [sic!]", which can be traced back to *Lanius rufus* of Brisson (1760b: 147, 1763a: 199), whose species-group names are not available for nomenclatural purposes (ICZN 1955). Gmelin (1788: 110) used *rufus* as an infrasubspecific name (with a reference to Brisson), and Schmidt (1795: 24) used it as a valid name for a *Lanius* species (misspelling *rufus* as *ruffus*). Owing to Schmidt's action, and following ICNZ (1999, para. 45.6.4.1.), *rufus* is available from Gmelin (1788). *Lanius collurio rufus* Gmelin, 1788 is a junior subjective synonym of *Lanius senator* Linnaeus, 1758 (cf. Gadow 1883: 283) and a junior primary homonym of *Lanius rufus* Linnaeus, 1766 = *Schetba rufa* (Linnaeus) (Aves: Vangidae), and of *Lanius rufus* Scopoli, 1786 = *Coracias vagabunda* Latham, 1790 = *Dendrocitta vagabunda* (Latham) (Aves: Corvidae).

Remarks: Schmidt (1795) probably applied the name *Lanius rufus* to female and/or juvenile Red-backed Shrikes *Lanius collurio* Linnaeus, 1758.

Osteichthyes

***Salmo caeruleus* Schmidt**

Salmo caeruleus Schmidt, 1795: 65; not figured.

Original text (Schmidt 1795: 65): "In der Moldau, in Winter."

Status: Nomen nudum (no description or indication).

Remarks: Amerling (1852: 206) misspelled the species name as "*coerulescens*" and

speculated on the possibility, that the species is identical with *Salmo Wartmanni* Bloch, 1784 = *Coregonus wartmanni* (Bloch). Frič (1859: 185) doubted Amerling's opinion and later (Frič 1872: 122–123) conjectured that Schmidt (1795) applied this name to young Atlantic salmon "Trutta salar" = *Salmo salar* Linnaeus, 1758.

***Cyprinus asper* Schmidt**

Cyprinus asper Schmidt, 1795: 67; not figured.

Original text (Schmidt 1795: 67): "Diese Karpfenart wird nur immer im Winter in der Moldau gefangen, wo sie dann unter anderen Fischen auf dem Markte verkauft wird." Status: Nomen nudum (no description or indication).

CONCLUSIONS

Schmidt (1795) listed 403 vertebrate species as occurring in Bohemia, incl. 49 mammals, 272 birds, 13 reptiles, 10 amphibians and 59 fishes (s.l.). Seven of these species were named as new for science and four were elevated from a variety to a full species.

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REFERENCES

- Agassiz L. & Strickland H.E., 1854: Bibliographia zoologiae et geologiae. Vol. 4. – London: Ray Society, [3] + 604 pp.
- Aldrovandi U., 1600: Ornithologiae hoc est de avibus historiae libri XII. Vol. 2. – Bononiae [= Bologna]: Franciscus de Franciscis Senentem, [22] + 862 + [62] pp.
- Amerling K., 1852: Fauna čili zvířena česká [Bohemian fauna]. Vol. 1. – Praha: K. Amerling, viii + 224 pp. [In Czech.]
- Anděra M., 2000: Atlas rozšíření savců v České republice. Předběžná verze. Vol. 3. Hmyzožravci (Insectivora) [Atlas of mammals in the Czech Republic. Preliminary version. Vol. 3. Insectivora]. – Praha: Národní muzeum, 108 pp. [In Czech.]
- Anděra M. & Bürger P., 1992: The community of small terrestrial mammals in a climax spruce forest (the Šumava Mts.). – Folia Zoologica 41: 97–106.
- Ansorge H. & Franke R., 1981: Die Alpenspitzmaus, *Sorex alpinus* Schinz, 1837 in der Oberlausitz. – Abhandlungen und Berichte des Naturkundemuseums Görlitz 55: 45–48.
- AOU [= American Ornithologists' Union], 1998: Checklist of North American birds. 7th ed. – Washington, DC: American Ornithologists' Union, 829 pp.
- Audubon J. J., 1838: Ornithological biography. Vol. 4. – Edinburgh: Adam and Charles Black, xxviii + 618 pp.
- Banks R. C., Cicero C., Dunn J. L., Kratter A.W., Rasmussen P. C., Remsen J. V., Rising J. D. & Stotz J. F., 2002: Forty-third supplement to the American Ornithologists' Union check-list of North American birds. – Auk 119: 897–906.
- Barrère P., 1745: Ornithologiae specimen novum. – Perpiniani [= Perpignan], 84 + [12] pp.
- Bechstein J. M., 1791: Gemeinnützige Naturgeschichte der Vögel Deutschlands. Vol. 1. – Leipzig: Siegfried Lebrecht Crusius, xvi + 840 pp.
- Bělka T. & Vrána J., 1993: Nález rejska horského (*Sorex alpinus*) u Nového Města nad Metují [Records of the Alpine shrew (*Sorex alpinus*) at Nové Město nad Metují]. – Východočeský Sborník Přírodovědný, Práce a Studie (n. s.) 1: 65. [In Czech.]
- Běme R. L., 1975: Pticy gor jižnoj palearktiki [The birds of south Palearctic mountains]. – Moskva: Izdatel'stvo Moskovskogo Universiteta, 182 pp. [In Russian.]
- Beneš B., 1970: Beitrag zur Verbreitung und Bionomie der Alpenspitzmaus (*Sorex alpinus* Schinz) in der Tschechoslowakei. – Časopis Slezského Muzea v Opavě (A) 19: 45–49.
- Beneš B., 1987: Rozšíření rejska horského (*Sorex alpinus*) na Moravě [Distribution of the Alpine shrew (*Sorex alpinus*) in Moravia]. – Časopis Slezského Muzea v Opavě (A) 36: 53–60. [In Czech.]

- Bloch M. E., 1782: *Oeconomische Naturgeschichte der Fische Deutschlands*. Vol. 1. – Berlin: M. E. Bloch, xiv + 258 pp.
- Brehm C. L., 1831: *Handbuch der Naturgeschichte aller Vögel Deutschlands*. – Ilmenau: Bernh. Friedr. Voigt, xxiv + 1088 pp.
- Brisson M.-J., 1760a: *Ornithologie – Ornithologia*. Vol. 1. – Paris: Jean-Baptiste Bauche, xxiv + 526 + lxxiii pp.
- Brisson M.-J., 1760b: *Ornithologie – Ornithologia*. Vol. 2. – Paris: Jean-Baptiste Bauche, [2] + 516 + lxxviii pp.
- Brisson M.-J., 1763a: *Ornithologia*. Vol. 1. 2nd abridged ed. – Lugduni Batavorum [= Leiden]: Theodor Haak, [24] + 500 pp.
- Brisson M.-J., 1763b: *Ornithologia*. Vol. 2. 2nd abridged ed. – Lugduni Batavorum [Leiden]: Theodor Haak, [4] + 527 pp.
- Brünner H. & Braun M., 1991: Zur Alpenspitzmaus (*Sorex alpinus*) in Baden-Württemberg. – *Carolinae* 49: 115–120.
- Bützler W., 1986: *Cervus elaphus* Linnaeus, 1758 – Rothirsch. – In: Niethammer J. & Krapp F. (eds.): *Handbuch der Säugetiere Europas*. Vol. 2(2). Paarhufer – Artiodactyla (Suidae, Cervidae, Bovidae): 107–139. Wiesbaden: AULA-Verlag.
- Charleton W., 1668: *Onomasticon Zoicon*. – Londini [= London], [18] + 309 + [34] pp.
- Charleton W., 1677: *Exercitationes de differentiis and nominibus Animalium*. – Oxoniae [= Oxford].
- Clement P., 2000: *Thrushes*. – Princeton: Princeton University Press, 463 pp.
- Corbet G. & Ovenden D., 1980: *The Mammals of Britain and Europe*. – London: Collins Sons & Co., 240 pp.
- Cory C. B., 1891: On the West Indian birds. – *Auk* 8: 41–46.
- Cramp S., 1988: *The birds of the western Palearctic*. Vol. 5. Tyrant flycatchers to thrushes. – Oxford: Oxford University Press, [viii] + 1063 pp.
- Cuvier G., 1831: *Das Thierreich, geordnet nach seiner Organisation*. Vol. 1. Säugethiere und Vögel. – Leipzig: F. A. Brockhaus, xlviii + 975 pp. [Translated and amended by F. S. Voigt.]
- Davis J. & Miller A. H., 1960: Family Mimidae. – In: Mayr E. & Greenway J. C. Jr. (eds.): *Check-list of birds of the world*. Vol. 9: 440–458. – Cambridge, MA: Museum of Comparative Zoölogy.
- Dresser H. E., 1872: *A history of the birds of Europe*. Vol. 2. – London: H. E. Dresser.
- Ellermann J. R. & Morrison-Scott T. C. S., 1951: *Check-list of Palaearctic and Indian mammals 1758 to 1946*. – London: British Museum, 810 pp.
- Engelmann W., 1846: *Bibliotheca historico-naturalis*. Vol. 1. – Leipzig: Verlag von Wilhelm Engelmann, ix + 786 pp.
- Erxleben J. C. P., 1777: *Systema Regni Animalis per classes, ordines, genera, species, varietates cum synonymia et historia Animalium*. Classis 1. Mammalia. – Lipsiae [= Leipzig]: Weygand, xlviii + 636 + [64] pp.
- Ferianc O., 1965: *Stavovce Slovenska*. Vol. 3: Vtáky Vol. 2. [Vertebrates of Slovakia Vol. 3: Birds Vol. 2.]. – Bratislava: Vydavateľstvo Slovenskej Akadémie Vied, 419 pp. [In Slovak.]
- Flousek J. & Gramsz B., 1999: *Atlas hnízdního rozšíření ptáků Krkonoš (1991–1994)* [Atlas of breeding birds in the Krkonoše Mts. (1991–1994)]. – Vrchlabí: Správa Krkonošského národního parku, 424 pp. [In Czech.]
- Frič A., 1859: *České ryby* [Bohemian fishes]. – *Živa* 7: 36–49, 108–118, 178–191, 224–241. [In Czech.]
- Frič A., 1872: *Obratlovci země české* [The vertebrates of Bohemia]. – *Archiv Přírodovědecký k Proskoumání Čech* (4) 2: 1–148. [In Czech.]
- Frisch J. L., 1733–1743: *Vorstellung der Vögel in Teutschland und beyläufig auch einiger Fremden*. Vol. 1. – Berlin: J. L. Frisch.
- Fry C. H., Keith S., Lack P. C., de Naurois R., Prigogine A. & Urban E. K., 1997: *Turdidae, thrushes*. – In: Urban E. K., Fry C. H. & Keith S. (eds.): *The birds of Africa*. Vol. 5: 1–57. San Diego: Academic Press.
- Gadow H., 1883: *Catalogue of the birds in the British Museum*. Vol. 8: *Cichlomorphae: Part V. containing the families Paridae and Laniidae (titmice and shrikes), and Certhiomorphae (creepers and nuthatches)*. – London: British Museum, xiii + 386 pp.
- Geist V., 1999: *Deer of the world: their evolution, behaviour and ecology*. – Mechanicsburg, PA: Stackpole Books, vii + 421 pp.
- Gmelin J. F., 1788–1789: *Systema naturae*. Vol. 1. 13th ed. – Lipsiae [= Leipzig]: Georg Emanuel Beer, [12] + 1516 pp.
- Gubitz C. & Spath H., 2002: Die Ringdrossel *Turdus torquatus alpestris* im Fichtelgebirge. – *Ornithologischer Anzeiger* 41: 50–56.
- Haffer J., 1988: *Turdus torquatus* Linnaeus 1758 – Ringdrossel, Ringamsel. – In: Glutz von Blotzheim U. N. (ed.): *Handbuch der Vögel Mitteleuropas*. Vol. 11: 800–838. Wiesbaden: AULA-Verlag.

- Hanák F. & Hudeček J. J., 2004: Kavče červenzobé (*Pyrrhocorax pyrrhocorax*) v Čechách [Chough (*Pyrrhocorax pyrrhocorax*) in Bohemia]. – Zprávy Moravského Ornitologického Spolku 62: 91–96. [In Czech.]
- Hanák V. & Figala J., 1960: Kleisäuger des Mittleren Böhmerwaldes. – Acta Universitatis Carolinae, Biologia 1960 (2): 103–124.
- Hanák V. & Mazák V., 1979: Bunte Welt der Säugetiere. – Praha: Artia, 352 pp.
- Hartert E., 1903–1910: Die Vögel der paläarktischen Fauna. Vol. 1. – Berlin: R. Friedländer und Sohn, xii + 832 pp.
- Hausser J., ed., 1995: Säugetiere der Schweiz. Verbreitung – Biologie – Ökologie. – Basel: Birkhäuser Verlag, 502 pp.
- Hellmayr C. E., 1934: Catalogue of birds of the Americas and adjacent islands. Part VII. Corvidae – Paridae – Sittidae – Certhiidae – Chamaeidae – Cinclidae – Troglodytidae – Prunellidae – Mimidae – Turdidae – Zeledoniidae – Sylviidae. – Field Museum of Natural History, Zoological Series 13: i-vi, 1–531.
- Hudec K., ed., 1983: Fauna ČSSR. Sv. 23–24: Ptáci – Aves 3 [Fauna of the Czechoslovak Socialist Republic. Vol. 23–24: Birds – Aves 3]. – Praha: Academia, 1235 pp. [In Czech.]
- Hudec K. & Štastný K., eds., 2005: Fauna ČR. Vol. 29. Ptáci 2 [Fauna of the Czech Republic. Vol. 29: Birds – Aves 2]. – Praha: Academia, 1300 pp. [In Czech.]
- Hudeček J. J. & Hanák F., 2004a: Schmidtův seznam ptáků a dalších obratlovců Čech [Schmidt's check-list of birds and other vertebrates of Bohemia]. – Zprávy Moravského Ornitologického Spolku 62: 35–49. [In Czech.]
- Hudeček J. J. & Hanák F., 2004b: Ibis hřivnatý (*Geronticus eremita*) – vyhynulý člen české fauny [Bald Ibis (*Geronticus eremita*) – an extinct member of the Czech avifauna]. – Zprávy Moravského Ornitologického Spolku 62: 51–61. [In Czech.]
- Hunt J. S., Bermingham E. & Ricklefs R. E., 2001: Molecular systematics and biogeography of Antillean thrashers, tremblers, and mockingbirds (Aves: Mimidae). – Auk 118: 35–55.
- Hüpsch E. H., 1774: Beobachtung einer bisher unbekanntten Art von Maulwürfen. – In: Walch J.E.I. (ed.): Der Naturforscher 3: 98–102. Halle: J. J. Gebauers Witwe & Joh. Jac. Gebauer.
- Hůrka L., 1987: Rozbor populace *Sorex alpinus* (Mammalia, Soricidae) a poznámky k jeho výskytu na území západních Čech [Analysis of a population of *Sorex alpinus* (Mammalia, Soricidae) and comments on its occurrence in the territory of western Bohemia]. – Zprávy Muzeí Zápaadočeského Kraje, Příroda 34–35: 81–93. [In Czech.]
- Hutterer R., 1982: Biologische und morphologische Beobachtungen an Alpenspitzmäusen (*Sorex alpinus*). – Bonner Zoologische Beiträge 33: 3–18.
- Hutterer R., 1993: Order Insectivora. – In: Wilson D. E. & Reeder D. M. (eds.): Mammal species of the world. A taxonomic and geographic reference. 2nd ed., pp. 69–130. Washington: Smithsonian Institution Press.
- ICZN [= International Commission on Zoological Nomenclature], 1955: Direction 16. – Opinions and Declarations Rendered by the International Commission on Zoological Nomenclature 1: 81–88.
- ICZN [= International Commission on Zoological Nomenclature], 1999: International code of zoological nomenclature. 4th ed. – London: International Trust for Zoological Nomenclature, xxix + 306 pp.
- Janiga M. & Poxton I. R., 1997: Ring Ouzel *Turdus torquatus*. – In: Hagemeyer W. J. M., Blair M. J. (eds.): The EBCC atlas of European breeding birds: 542–543. London: T. A. D. Poyser.
- Jirasek J., 1786: Versuch über die Naturgeschichte einiger im Berauner Kreise gelegenen Kammeral-Herrschaften, besonders Zbirow, Tocznyk und Königshof, und der anliegenden im Pilsner Kreise gelegenen Herrschaften Miröschau und Wosek. – Abhandlungen der Böhmisches Gesellschaft der Wissenschaften 1786: 60–106.
- Jonston [Jonstonus] J., 1650: Historiae naturalis de avibus libri VI. – Francofurti ad Moenum [= Frankfurt am Main]: Impensa Matthaei Meriani, 227 + [9] pp.
- Jonston [Jonstonus] J., 1652: Historiae naturalis de quadrupetibus libri. – Francofurti ad Moenum [= Frankfurt am Main]: Impensis Haeredum Math. Meriani, 231 + [5] pp.
- Karaska D., 2002: Drozd kolohrivý (*Turdus torquatus*). [Ring Ouzel (*Turdus torquatus*)]. – In: Danko Š, Darolová A. & Krištín A. (eds.): Rozšíření vtákov na Slovensku [Distribution of birds in Slovakia]: 479–480. Bratislava: Veda. [In Slovak.]
- Klůz Z., 1980: Pomocné ornitologické tabulky [Ancillary ornithological tables]. – Ostrava: Krajské Středisko Státní Památkové Péče a Ochrany Přírody, 176 pp. [In Czech.]
- La Faille C. de, 1769: Essai sur l'histoire naturelle de la taupe. – Paris: J. Legier, 125 pp.
- Lafresnaye F. de, 1844: Oiseaux de la Guadeloupe. – Revue Zoologique 7: 167.
- Latham J., 1781: A general synopsis of birds. Vol. 1(1). – London: Benjamin White.
- Lindaker T., 1790: Systematisches Verzeichniss der böhmischen Amphibien mit Beobachtungen. – Neuere Abhandlungen der Königlich Böhmisches Gesellschaft der Wissenschaften 3: 109–128.

- Lindorfer J., 1970: Nester und Gelege der Brutvögel Oberösterreichs. – Linz: Oberösterreichischer Musealverein, 171 pp.
- Linné K. [Linnaeus C.], 1746: Fauna suecica. – Lugduni Batavorum [= Leiden]: C. Wishoff et G.J. Wishoff, [14] + 411 pp.
- Linné K. [Linnaeus C.], 1748: Systema naturae. – Holmiae [= Stockholm]: Godofr. Kiese Wetter, [2] + 224 + [27] pp.
- Linné K. [Linnaeus C.], 1761: Fauna suecica. 2nd ed. – Stockholmiae [= Stockholm]: Laurentii Salvii, [48] + 578 pp.
- Löhr H., 1969: Die Alpenspitzmaus (*Sorex alpinus* Schinz) erneut für die Schwäbische Alb nachgewiesen. – Jahreshefte des Vereins für Vaterländische Naturkunde in Württemberg 124: 280–281.
- Ludt C. J., Schroeder W., Rottmann O. & Kuehn R., 2004: Mitochondrial DNA phylogeography of red deer (*Cervus elaphus*). – Molecular Phylogenetics and Evolution 31: 1064–1083.
- Macdonald D. & Barrett P., 1993: Collins Field guide to the mammals of Britain & Europe. – London: Harper Collins Publ., 303 pp.
- Makatsch W., 1976: Die Eier der Vögel Europas. Vol. 2. – Leipzig: Neumann Verlag, 460 pp.
- Makatsch W., 1981: Verzeichnis der Vögel der Deutschen Demokratischen Republik. – Leipzig: Neumann Verlag, 151 pp.
- Mészáros F. & Deméter A., 1984: The Alpine shrew (*Sorex alpinus* Schinz, 1837) new to the fauna of Hungary. – Vertebrata Hungarica 22: 47–49.
- Miller G. S., 1912: Catalogue of the mammals of Western Europe (Europe exclusive of Russia) in the collection of the British Museum. – London: British Museum, xv + 1019 pp.
- Mitchell-Jones A. J., Amori G., Bogdanowicz W., Kryštufek B., Reijnders P. J. H., Spitzenberger F., Stubbe M., Thissen J. B. M., Vohralik V. & Zima J., 1999: The atlas of European mammals. – London: Academic Press, 484 pp.
- Niethammer J., 1960: Über die Säugetiere der Niederen Tauern. – Mitteilungen aus dem Zoologischen Museum in Berlin 36: 408–443.
- Niethammer J., 1990: *Talpa europaea* Linnaeus, 1758 – Maulwurf. – In: Niethammer J. & Krapp F. (eds.): Handbuch der Säugetiere Europas. Vol. 3(1): Insektenfresser – Insectivora, Herrentiere – Primates: 99–133. Wiesbaden: AULA-Verlag.
- Nitsche H., 1879: *Sorex alpinus* Schinz, auf dem Riesengebirge. – Zoologischer Anzeiger 2: 571–572.
- Pitra C., Fickel J., Meijaard J. & Groves P. C., 2004: Evolution and phylogeny of old world deer. – Molecular Phylogenetics and Evolution 33: 880–895.
- Pontius H., 1986: Ringdrossel – *Turdus torquatus* L., 1758. – In: von Knorre D., Grün G., Günther R. & Schmidt K. (eds.): Die Vogelwelt Thüringens: 272–273. Jena: Gustav Fischer Verlag.
- Pražák J. P., 1897: Über die Vergangenheit und Gegenwart der Ornithologie in Böhmen, nebst einer “Bibliographia ornithologica bohémica”. – Untermaus: J. P. Pražák, [1] + 86 pp.
- Rašajski J., 1997: Ptice Srbije [Birds of Serbia]. – Novi Sad: Prometej, 273 pp. [In Serbian.]
- Ray [Raius] J., 1713: Synopsis methodica avium et piscium. – Londini [= London]: Gulielmi Innys, [2,] + 198 + [18] + 166 + [12] pp.
- Richter W., 1786: Naturgeschichte der Gegend um Reichenberg. – In: (no editor): Drey Abhandlungen über die physikalische Beschaffenheit einiger Distrikte und Gegenden von Böhmen: 9–44. Prag [= Praha]: Böhmisches Gesellschaft der Wissenschaften.
- Ripley S. D., 1964: Subfamily Turdinae. – In: Mayr E. & Paynter R. A., Jr. (eds.): Check-list of birds of the world 10: 13–227. Cambridge, Mass.: Museum of Comparative Zoology.
- Rychnovský B. & Eleder P., 1994: Is *Sorex alpinus* rare in the Žďárské vrchy Hills? – Folia Zoologica 43: 285–287.
- Rzaczyński G., 1736: Auctuarium historiae naturalis curiosae Regni Poloniae. – Gedani [= Gdańsk], 504 pp.
- Schifferli A., Praz P. & Winkler R., eds., 1980: Verbreitungsatlas der Brutvögel der Schweiz – Atlas des oiseaux nicheurs de Suisse. – Sempach: Schweizerische Vogelwarte Sempach, 462 pp.
- Schilling D. & Singer D., 1983: Säugetiere. 181 Arten Europas. – München: BLV Verlagsgesellschaft, 288 pp.
- Schinz H. R., 1837: Verzeichniss der in der Schweiz vorkommenden Wirbelthiere. – Neue Denkschriften der Allgemeinen Schweizerischen Gesellschaft für die Gesamten Naturwissenschaften 1: 1–168.
- Schmidt F. W., 1788a: Versuch einer Topographie der Stadt Plan, nebst der physischen Beschreibung der Gegend, besonders in Rücksicht des Pflanzenreichs. – Abhandlungen der Böhmisches Gesellschaft der Wissenschaften 4: 34–80.
- Schmidt F. W., 1788b: Ueber die Böhmisches Schlangenarten. – Abhandlungen der Böhmisches Gesellschaft der Wissenschaften 4: 81–106.
- Schmidt F. W., 1795: Versuch eines Verzeichnisses aller in Böhmen bisher bemerkten Thiere. – In: Schmidt F.W. (ed.): Sammlung physikalisch-ökonomischer Aufsätze. Vol. 1: 1–103. Prag [= Praha]: Joh. Gottf. Calve.

- Schwenckfeld C., 1603: Theriotropeum Silesiae. – Lignicii [= Legnica]: David Albertus Bibliopol. Vratisl., 565 pp.
- Scopoli J., 1769: Annus I historico-naturalis. – Lipsiae [= Leipzig]: C. G. Hilscher, 168 pp.
- Šebek Z., 1971: Zur Verbreitung der Alpenspitzmaus (*Sorex alpinus* Schinz, 1937, Soricidae, Insectivora) in der Tschechischen Sozialistischen Republik. – Zoologické Listy 20: 319–329.
- Seebohm H., 1881: Catalogue of the birds in the British Museum. Vol. 5: Cichlomorphae: Part II. containing the family Turdidae (warblers and thrushes). – London: British Museum, xvii + 427 pp.
- Snow D. W. & Perrins C. M., 1998: The birds of the western Palearctic. Concise edition. Vol. 2. – Oxford: Oxford University Press, xxxii + 1697 + 43 pp.
- Sokolov V. E., 1973: Sistematika mlekopitajůšičich. Otrjady: odnoprochodnych, sumčatych, nasekomojadnych, šerstokrylov, rukokrylych, primatov, nepolnozubyh, jaščerov [Classification of mammals. Orders: Monotremata, Marsupialia, Insectivora, Dermoptera, Chiroptera, Primates, Edentata, Pholidota]. – Moskva: Izdatel'stvo "Vysšaja škola", 431 pp. [In Russian.]
- Spitzenberger F., 1990: *Sorex alpinus* Schinz, 1837 – Alpenspitzmaus. – In: Niethammer J. & Krapp F. (eds.): Handbuch der Säugetiere Europas. Vol. 3(1): Insektenfresser – Insectivora, Herrentiere – Primates: 295–312. Wiesbaden: AULA-Verlag.
- Spitzenberger F., 2001: Die Säugetiere Österreichs. – Graz: Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft, 896 pp.
- Štátný K., Randík A. & Hudec K., 1987: Atlas hnízdního rozšíření ptáků v ČSSR 1973/77 [Atlas of breeding birds in Czechoslovakia 1973/77]. – Praha: Academia, 484 pp. [In Czech.]
- Štátný K., Bejček V. & Hudec K., 1996: Atlas hnízdního rozšíření ptáků v České republice 1985–1989 [Atlas of breeding birds in the Czech Republic 1985–1989]. – Jinočany: Nakladatelství a Vydavatelství H&H, 459 pp. [In Czech.]
- Stein, G. H. W., 1963: Unterartengliederung und nacheiszeitliche Ausbreitung des Maulwurfs, *Talpa europaea* L. – Mitteilungen aus dem Zoologischen Museum in Berlin 39: 379–402.
- Stepanjan L. S., 2003: Konspekt ornitologičeskoj fauny Rossii i sopredelnyh territorij (v granicah SSSR kak istoričeskoj oblasti) [Conspectus of the ornithological fauna of Russia and adjacent territories (within the borders of the USSR as a historic region)]. – Moskva: Akademkniga, 808 pp.
- Štollman A. & Dudich A., 1985: Doplnky k rozšíreniu piskora vrchovského (*Sorex alpinus* Schinz 1837; Soricidae, Insectivora) na Slovensku [Additions to the distribution of the Alpine shrew (*Sorex alpinus* Schinz, 1837; Soricidae, Insectivora) in Slovakia]. – Biológia (Bratislava) 40: 1041–1043. [In Slovak.]
- Temminck C.-J., 1820: Manuel d'ornithologie. 2nd ed. Vol. 1. – Paris: Gabriel Dufour, cxv + 439 pp.
- Tobias R., 1867: Säugetiere der Oberlausitz. – Abhandlungen der Naturforschenden Gesellschaft zu Görlitz 12: 59–96.
- Tomiałojć L., 1990: Ptaki Polski. Rozmieszczenie i liczebność [The birds of Poland. Distribution and numbers]. – Warszawa: Państwowe Wydawnictwo Naukowe, 463 pp. [In Polish.]
- Townsend J. K., 1837: Description of twelve new species of birds, chiefly from the vicinity of Columbia river. – Journal of the Academy of Natural Sciences of Philadelphia 7: 187–193.
- Vaurie C., 1959: The birds of the Palearctic fauna. Order Passeriformes. – London: H. F. & G. Witherby, xii + 762 pp.
- Willughby [Willughbeius] F., 1676: Ornithologiae libri tres. – Londini [= London]: Joannis Martyn, [12] + 307 + [5] pp.
- Wüst W., 1986: Avifauna Bavariae. Vol. 2. – München: Ornithologische Gesellschaft in Bayern, pp. 733–1449.