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Annotated checklist of the Byrrhoidea and Dryopoidea of Switzerland (Coleoptera)

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Abstract: On the basis of more than 14,000 occurrences obtained from specimens held in museums and private collections, as well as from literature data, we present the first updated checklist of the Swiss species of Byrrhoidea (Byrrhidae) and Dryopoidea (Dryopidae, Elmidae, Heteroceridae, Limnichidae, Psephenidae, and Ptilodactylidae) since 1900. In total, 78 species are retained as part of the Swiss fauna, while 10 species, which were recorded from Switzerland in the past, are excluded from this list. These exclusions are either due to insufficient documentation, because their records were based on misidentified material, or because they represent isolated cases of introductions of a non-indigenous species. *Curimopsis monticola* (Franz, 1967), *Dryops subincanus* (Kuwert, 1890) and *Pedilophorus auratus* (Duftschmid, 1825) are recorded for the first time in Switzerland. This work is a further step towards the comprehension of the whole Swiss beetle fauna.

Keywords: Byrrhidae, Dryopidae, Elmidae, Heteroceridae, Limnichidae, Psephenidae, Ptilodactylidae, distribution, faunistics, new country records, species list.

INTRODUCTION

The superfamily Byrrhoidea, as defined by Lawrence & Newton (1995), includes 13 families worldwide (Bouchard *et al.*, 2011), 10 of which are present in the Palaearctic region for a total of around 1100 species (Löbl & Löbl, 2016). However, the monophyly of this superfamily was long debated (Beutel & Leschen, 2016) and not supported from a genetic point of view (Kundrata *et al.*, 2017; Zhang *et al.,* 2018; McKenna *et al.,* 2019). To accommodate new phylogenomics and fossil data, Cai *et al.* (2022) resurrected the Dryopoidea to include all families except Byrrhidae, the only family remaining in Byrrhoidea. This latter superfamily is the sister group of Buprestoidea, while Dryopoidea is grouped next to Elateroidea (Cai *et al.*, 2022). These results are in adequation with those of previous authors (see for example Hunt *et al.*, 2007; McKenna *et al.*, 2019).

In Switzerland, Dryopoidea is represented by six families (Dryopidae, Elmidae, Heteroceridae, Limnichidae, Psephenidae, and Ptilodactylidae). All these families and the Byrrhidae are very heterogeneous from a morphological point of view, but also in their ecological requirements and in the habitats they colonize in Switzerland.

Byrrhidae (1-12 mm in Switzerland) are easy to recognize with their hemispherical shape and ability to fold their appendages into grooves on the underside in order to seem dead (thanatosis). They colonize different terrestrial habitats. Some species can be found in forests, others in meadows, while some are found on the margins of large rivers. Their ecology is still poorly understood, but larvae have been found in mosses growing on the soil, on stones, and at the bases of tree trunks (Boukal, 2013). Adults and larvae are thought to exclusively feed on mosses (see lists of plants eaten by species in Boukal, 2017).

Swiss species of Dryopidae (2.5-6 mm) are fairly uniform

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in appearance with their oval elongate body covered with golden hairs and their very distinctive antennae, with a highly developed second segment covering a large part of the others. The larvae are riparian or terrestrial, while the adults are found near or in riparian habitats or water bodies both stagnant and running [in particular *Pomatinus substriatus* (P.W.J. Müller, 1806)]. Both larvae and adults are phytophagous and feed on decaying plant matter, wood particles, or microscopic algae (Olmi, 1976; Kodada & Jäch, 2005).

All the Swiss Elmidae species (1.3-8.5 mm) are linked to running water, both as adults and larvae (only pupation takes place on land), and live under rocks and wood, where they generally feed on algae and detrital biofilm (Klausnitzer, 1996). Exceptions are *Oulimnius tuberculatus* (P.W.J. Müller, 1806) and *Stenelmis canaliculata* (Gyllenhal, 1808), which inhabit flowing waters and the littoral zone of lakes (Olmi, 1976; Spitzenberg *et al.*, 2021). Most of Swiss Elmidae species have long threadlike antennae and relatively long legs and tarsal claws in their adult state, enabling them to cling tightly to the substrate and move around despite the water current.

Heteroceridae in Switzerland (1.3-7.6 mm) have densely pubescent elytra and dilatated tibiae armed with robust spines that allow them to dig galleries on sandy and muddy water banks where they live. Both adults and larvae feed on algae, organic detritus and large Protozoa (Messner, 1973; Skalický & Ezer, 2014).

Limnichidae are small (1.5-1.8 mm), oval-shaped beetles that are quite similar in appearance to Byrrhidae, with which they have long been grouped. They live along rivers or ponds where they feed on decaying plant material, algae and mosses (Koch, 1989). Their larvae dig tunnels in the ground on sandy-loamy shores.

The only species of Psephenidae occurring in Europe [*Eubria palustris* (Germar, 1818)] is found on the banks of small streams and ponds especially in forests, marshy meadows, peat meadows, and in wet mossy grassland. It is a 2-3 mm long beetle with a round shape and threadlike antennae. The larvae are strongly dorso-ventrally flattened and disc-shaped. They live in springs, the crenal parts of small streams, and hygropetrical places with a high content of calcium where they feed on algae (Beier, 1950; Koch, 1989; Klausnitzer, 1996; Ruta *et al.*, 2011).

The only two species of Ptilodactylidae found in Europe were accidentally imported with tropical ornamental plants (Denux & Zagatti, 2010). They have only been found a few times in temperate environments (greenhouses, houses), and do not seem to survive outdoors. They are flattened, brown beetles (3-5 mm), and the male specimens have long, feathered antennae.

In Switzerland, the Byrrhoidea and Dryopoidea fauna have not been the subject of a synthetic work since Stierlin (1900). This study aims to present an updated and annotated checklist of the species present in Switzerland. It is based on a review of the Swiss museum and private collections, as well as the literature and data gathered by naturalists. Thus, resident species are distinguished from species mistakenly mentioned for Switzerland or insufficiently documented.

MATERIAL AND METHODS

To present a complete list of the Swiss Byrrhoidea and Dryopoidea and produce distributional maps based on the maximum of information, we performed an exhaustive revision and examination of the material housed in all Swiss natural history museum collections, following the same methodology used for other beetle groups (e.g., Sanchez & Chittaro, 2022; Cosandey *et al.*, 2024). The collections in the following museums were studied (the contact person is reported in parentheses after each institution):

- AGRO: Agroscope-Changins, Nyon (Stève Breitenmoser)
- BNM: Bündner Natur-Museum, Chur (Stephan Liersch)
- ETH: Eidgenössische-Technische Hochschule, Zürich (Michael Greeff)
- HGSB: Musée de l'Hospice du Grand-Saint-Bernard (Jean-Pierre Voutaz)
- LEBA: Laboratoire d'écologie et de biologie aquatique, Université de Genève (Emmanuel Castella) (collection recently moved to the MHNG)
- MHNF: Musée d'histoire naturelle de Fribourg (Sophie Giriens)
- MHNG: Muséum d'histoire naturelle de Genève (Giulio Cuccodoro)
- MHNN: Musée d'histoire naturelle de Neuchâtel (Jessica Litman)
- MHNS: Musée de la nature du Valais, Sion (Sonja Gerber)
- MSNL: Museo cantonale di storia naturale, Lugano (Bärbel Koch, Lucia Pollini Paltrinieri)
- MZL: Naturéum (formerly Musée cantonal de zoologie), Département de zoologie, Lausanne (Anne Freitag)
- MZA: Museum zu Allerheiligen, Schaffhausen (Urs Weibel)
- NMB: Naturhistorisches Museum Basel (Matthias Borer)
- NMBE: Naturhistorisches Museum Bern (Hannes Baur)
- NMLU: Natur-Museum, Luzern (Marco Bernasconi)
- NMSG: Naturmuseum St. Gallen (Karin Urfer)
- NMTG: Naturmuseum Thurgau, Frauenfeld (Barbara Richner)
- NMSO: Naturmuseum, Solothurn (Marc Neumann)
- NMWI: Naturhistorisches Museum, Winterthur (Sabrina Schnurrenberger)

We also cited data gathered from six museums outside Switzerland:
- MAMU: Manchester Museum, Great Britain
- MCB: Museo civico di Bolzano, Italy
- MHNL: Musée Guimet d'histoire naturelle, Lyon
- MUN: Musée d'histoire naturelle, Nîmes
- NHMW: Naturhistorisches Museum, Wien
- SMNS: Staatlichen Museum für Naturkunde Stuttgart, Germany

Moreover, we included data from the private collections of the authors, as well as those of the following professional and amateur entomologists (in alphabetical order): Hansjörg Brägger (Bischofszell TG), Berndt Eismann (Kreuzlingen TG), Barbara Huber (Thusis GR), Lukas Lischer (Ebnat-Kappel SG), Werner Marggi (Thun BE), Alexander Szallies (Wädenswil ZH), André Wagner (Le Sentier VD), and Remo Wüthrich (Dietikon). Data from the following institutions were also considered: Association de la Grande-Cariçaie (Gaël Pétremand, Antoine Gander), Haute école du paysage, d'ingénierie et d'architecture de Genève HEPIA (Beat Oertli, Eliane Demierre), and Office cantonal de l'eau, Genève OCEau (Arielle Cordonier).

All available data from the literature relevant to Switzerland were also considered. The references from these publications are included in the bibliography if they are specifically cited in the text. Publications consulted but not cited in the text are not mentioned.

We followed the nomenclature and systematics of the "Catalogue of Palaearctic Coleoptera" (Löbl & Löbl, 2016) as well as the references of the taxa names therein. Therefore, we have considered the taxon *Cytilus auricomus* (Duftschmid, 1825) to be synonymous with *Cytilus sericeus*, although according to Allemand (2014) and Dodelin (2024) there are morphological, molecular, and biological diagnostic characters. Lists of the main synonyms for each taxon are provided by Löbl & Löbl (2016) and are, therefore, not reported here.

The specimens were identified using the following publications: Bonadona (1975), Paulus (1979), Allemand (1989) and Boukal (2017) for Byrrhidae, Paulus (1979) for Limnichidae, Drechsel (1979), Mascagni (2014) and Skalický & Ezer (2014) for Heteroceridae, Lohse (1979) for Psephenidae, and Olmi (1976, 1978), Steffan (1979) and Jäch (1992a, b) for Dryopidae and Elmidae.

When not otherwise specified, general information on species' distributions was taken from the "Catalogue of Palaearctic Coleoptera" and the "World Catalogue of Insects": Hájek (2016), Hernando & Ribera (2016), Jäch & Kodada (2016), Jäch *et al.* (2016), Jäger & Pütz (2016), Kodada & Jäch (2016), Lee (2016), and Mascagni (2016).

We have also used the relevant literature concerning the countries and regions adjacent to Switzerland, such as Olmi (1976) for Italy (Dryopidae and Elmidae) and the regional treatment of Kahlen & Hellrigl (1996) for South Tyrol / Alto Adige, Allemand (2014) and Bameul & Queney (2014) for France and regionally Callot (2018) for Alsace, Köhler & Klausnitzer (1998), Köhler (2000, 2011) and Bleich *et al.* (2016) for Germany, as well as Brandstetter & Kapp (1998) for Vorarlberg (Austria) and Liechtenstein.

Once an exhaustive list of species was compiled, we followed the procedure proposed by Monnerat *et al.* (2015) in order to assess which of these species should be considered as belonging to the Swiss fauna. We only retained species whose relative data were deemed sufficient (unambiguous labelling, reliable collections, etc.) for inclusion on the national checklist.

The species whose presence in Switzerland is substantiated by less than 20 valid observations are subject to an additional comment. In these cases, species names in the table are followed by a letter and a number in bold ("**C1**" for example) and all the examined specimens and published observations are mentioned in order to document and justify the presence of these species in the checklist. When not otherwise specified, all examined material was identified or reviewed by the first and last authors.

For most of the species groups in Byrrhoidea and Dryopoidea the most (and sometimes only) reliable characters are the male genitalia. For those species, only dissected male specimens are generally counted as "verified" records, while records based exclusively on female specimens were omitted as unverifiable, with the notable exception of a few specimens identified by other European specialists (then mentioned in the text).

The specimens and literature-based records presented here are listed in chronological order of discovery (or publication date) and then in alphabetical order by locality, depending on available information. All occurrences are cited according to the following scheme: number of specimens, locality (pre-2000 data) or municipality and abbreviated canton (post-2000 data), date, collector, determinator (in the case that the determinator was not one of the authors), collection and official acronym of the institution of specimen deposition.

Information about localities and dates is reported as found on the labels. Interpretations of alphabetical abbreviations are placed within square brackets ("[ ]"). In old collections, the collector (*leg.*) is not always explicitly labelled. In such cases, we favored the "coll." tag. In some cases, the original collection holder was not mentioned on the labels, but we were nonetheless able to identify the source of the collection based on the style of the labels and/or handwriting.

The Charles Maerky collection, deposited in the MHNG, has long been considered problematic (Monnerat *et al.*, 2015). In addition to specimens coming from his personal collection ("coll. Maerky C."), it also contains insects from other sources (labelled, for instance, as "ex

coll. Melly A.") but lacking any original labels. In such cases, we maintained the "coll. Maerky C." mention for his whole collection to ensure the association of these samples with the Maerky C. collection.

For literature-based data, detailed under "Published data", we retained the locality as it appeared in the original citation. We considered the "source" of the records to be the author of the publication, for example: "Ormontsthal by Venetz I. (Stierlin & Gautard, 1867)". If the same records have been published more than once, then only the oldest publication was retained, given that localities in later publications are often altered and sometimes truncated.

Among the data cited in this paper under "Examined material" or "Published data", we inserted a superscript number code before the entries we considered insufficiently documented to be retained, using the following code to describe error type (following Monnerat *et al.*, 2015). Thus, if one of the following eight criteria was fulfilled, a record was considered as doubtful:

1. Data source cannot be verified;
2. Incorrect identification;
3. Specimen from problematic collection;
4. Specimen of unknown origin but attributed to a Swiss locality;
5. Double labeling, original locality misinterpreted or incorrectly copied;
6. Confusion between localities: original finding, breeding or hatching place and collection storage site;
7. Non-Swiss localities or potentially Swiss localities that share their names with foreign place names (and thus of dubious Swiss origin);
8. Chorological or ecological inconsistencies.

Abbreviations used: coll. = collection, det. = determinator, ex. = specimen, *leg*. = collector. Abbreviated Swiss cantons (only cantons cited in the text): AG = Aargau, BE = Bern, BL = Basel-Landschaft, BS = Basel-Stadt, FR = Fribourg, GE = Geneva, JU = Jura, LU = Lucerne, NE = Neuchâtel, TI = Ticino, UR = Uri, VD = Vaud, VS = Valais, ZG = Zug, ZH = Zurich.

RESULTS

List of Swiss Byrrhoidea and Dryopoidea

For the basis of this work, we compiled 14,400 Swiss occurrences of Byrrhoidea and Dryopoidea. In total, 75% of them concern specimens deposited in museums, 10% come from the literature, and 15% are from other sources (private collectors, volunteer observers, research institutes, or ecology offices).

The 78 species listed in bold and without square brackets "[ ]" currently do or formerly did form populations in Switzerland, even if only scant information is available for many of them.

On the other hand, the 10 species listed in square brackets "[ ]" should not be considered as belonging to the Swiss fauna until new data can show otherwise. In this category, we placed species whose individuals come from problematic collections, such as Charles Maerky's or Max Täschler's (Monnerat *et al.*, 2015). This category also contains species that were erroneously mentioned for Switzerland due to incorrect identifications and those cited in old publications, like Stierlin & Gautard (1867), without reference to specific individuals and consequently considered doubtful. An allochthonous species is also considered in this category.

To facilitate searching for species in this document, taxa appear in alphabetical order of superfamilies, families, subfamilies, tribes, subtribes, genera, subgenera, species, and subspecies.

Updated distribution maps of these species are available on the info fauna cartographic server (https://lepus.infofauna.ch/carto/). All the valid data are also available on http://www.GBIF.org (https://doi.org/10.15468/dl.wmtrx7).

Checklist of the Swiss species

BYRRHOIDEA
BYRRHIDAE
Byrrhinae Latreille, 1804
Byrrhini Latreille, 1804
***Byrrhus* (*Byrrhus*) *arietinus arietinus* Steffahny, 1842**
***Byrrhus* (*Byrrhus*) *fasciatus* (Forster, 1771)**
***Byrrhus* (*Byrrhus*) *geminatus* LeConte, 1854 C1**
***Byrrhus* (*Byrrhus*) *pilula pilula* (Linnaeus, 1758)**
***Byrrhus* (*Byrrhus*) *pustulatus pustulatus* (Forster, 1771)**
***Byrrhus* (*Pseudobyrrhus*) *glabratus* Heer, 1841**
[*Byrrhus* (*Pseudobyrrhus*) *luniger* Germar, 1817] **C2**
***Byrrhus* (*Pseudobyrrhus*) *picipes* Duftschmid, 1825 C3**
***Byrrhus* (*Pseudobyrrhus*) *pilosellus* (A. Villa & G.B. Villa, 1833) C4**
***Byrrhus* (*Seminolus*) *gigas* Fabricius, 1787 C5**
[*Byrrhus* (*Seminolus*) *signatus* Sturm, 1823] **C6**
[*Curimus erinaceus* (Duftschmid, 1825)] **C7**
***Curimus lariensis* (A. Villa & G.B. Villa, 1833)**
[*Curimus petraeus* Gredler, 1863] **C8**
***Cytilus sericeus* (Forster, 1771)**
***Porcinolus murinus murinus* (Fabricius, 1794)**
Morychini El Moursy, 1961
***Morychus aeneus* (Fabricius, 1775)**
Pedilophorini Casey, 1912
***Lamprobyrrhulus nitidus* (Schaller, 1783)**
***Pedilophorus auratus* (Duftschmid, 1825) C9**
Simplocariini Mulsant & Rey, 1869
[*Simplocaria* (*Simplocaria*) *acuminata* Erichson, 1847] **C10**
***Simplocaria* (*Simplocaria*) *maculosa* Erichson, 1847 C11**

***Simplocaria* (*Simplocaria*) *metallica* (Sturm, 1807) C12**
***Simplocaria* (*Simplocaria*) *semistriata* (Fabricius, 1794)**
Syncalyptinae Mulsant & Rey, 1869
Syncalyptini Mulsant & Rey, 1869
***Chaetophora spinosa* (P. Rossi, 1794)**
***Curimopsis* (*Curimopsis*) *austriaca* (Franz, 1967) C13**
***Curimopsis* (*Curimopsis*) *cyclolepidia* (Munster, 1902) C14**
***Curimopsis* (*Curimopsis*) *franzi* Paulus, 1973 C15**
***Curimopsis* (*Curimopsis*) *italica* (Franz, 1967)**
***Curimopsis* (*Curimopsis*) *monticola* (Franz, 1967) C16**
***Curimopsis* (*Curimopsis*) *paleata* (Erichson, 1846)**
***Curimopsis* (*Curimopsis*) *setigera* (Illiger, 1798) C17**
***Curimopsis* (*Curimopsis*) *setosa* (Waltl, 1838) C18**

DRYOPOIDEA
DRYOPIDAE
***Dryops anglicanus* Edwards, 1909 C19**
***Dryops auriculatus* (Geoffroy, 1785)**
***Dryops ernesti* Gozis, 1886**
[*Dryops griseus* (Erichson, 1847)] **C20**
***Dryops luridus* (Erichson, 1847)**
***Dryops lutulentus* (Erichson, 1847) C21**
***Dryops nitidulus* (Heer, 1841)**
[*Dryops rufipes* (Krynicki, 1832)] **C22**
***Dryops similaris* Bollow, 1936 C23**
***Dryops striatopunctatus* (Heer, 1841)**
***Dryops subincanus* (Kuwert, 1890) C24**
***Dryops viennensis* (Laporte, 1840)**
***Pomatinus substriatus* (P.W.J. Müller, 1806)**

ELMIDAE
Elminae Curtis, 1830
Elmini Curtis, 1830
Elmina Curtis, 1830
[*Dupophilus brevis* Mulsant & Rey, 1872] **C25**
***Elmis aenea* (P.W.J. Müller, 1806)**
***Elmis latreillei* (Bedel, 1878) C26**
***Elmis maugetii maugetii* Latreille, 1802**
***Elmis obscura* (P.W.J. Müller, 1806) C27**
***Elmis rietscheli* Steffan, 1958**
***Elmis rioloides* Kuwert, 1890 C28**
***Esolus angustatus* (P.W.J. Müller, 1821)**
***Esolus parallelepipedus* (P.W.J. Müller, 1806)**
***Esolus pygmaeus* (P.W.J. Müller, 1806) C29**
***Limnius intermedius* Fairmaire, 1881 C30**
***Limnius muelleri* (Erichson, 1847) C31**
***Limnius opacus* P.W.J. Müller, 1806 C32**
***Limnius perrisi perrisi* (Dufour, 1843)**
***Limnius volckmari* (Panzer, 1793)**
***Oulimnius tuberculatus* (P.W.J. Müller, 1806)**
***Riolus cupreus* (P.W.J. Müller, 1806)**
***Riolus illiesi* Steffan, 1958 C33**
***Riolus nitens* (P.W.J. Müller, 1817) C34**
***Riolus sodalis* (Erichson, 1847) C35**
***Riolus subviolaceus* (P.W.J. Müller, 1817)**
Stenelmina Mulsant & Rey, 1872
***Stenelmis canaliculata* (Gyllenhal, 1808)**
[*Stenelmis consobrina* Dufour, 1835] **C36**
Macronychini Gistel, 1848
***Macronychus quadrituberculatus* P.W.J. Müller, 1806 C37**
Larainae LeConte, 1861
Potamophilini Mulsant & Rey, 1872
***Potamophilus acuminatus* (Fabricius, 1792) C38**

HETEROCERIDAE
Heterocerinae W.S. Macleay, 1825
Augylini Pacheco, 1964
***Augyles* (*Augyles*) *crinitus* (Kiesenwetter, 1850) C39**
***Augyles* (*Augyles*) *flavidus* (P. Rossi, 1794) C40**
***Augyles* (*Augyles*) *hispidulus* (Kiesenwetter, 1843) C41**
***Augyles* (*Augyles*) *pruinosus* (Kiesenwetter, 1851)**
***Augyles* (*Augyles*) *sericans* (Kiesenwetter, 1843) C42**
Heterocerini W.S. Macleay, 1825
***Heterocerus fenestratus* (Thunberg, 1784)**
***Heterocerus flexuosus* Stephens, 1828 C43**
***Heterocerus fossor* Kiesenwetter, 1843 C44**
***Heterocerus fusculus fusculus* Kiesenwetter, 1843**
***Heterocerus marginatus* (Fabricius, 1787)**
***Heterocerus obsoletus* Curtis, 1828 C45**
Micilini Pacheco, 1964
***Micilus murinus* (Kiesenwetter, 1843) C46**

LIMNICHIDAE
Limnichinae Erichson, 1846
***Limnichus incanus* Kiesenwetter, 1851 C47**
***Limnichus pygmaeus* (Sturm, 1807) C48**
***Limnichus sericeus* (Duftschmid, 1825)**
***Pelochares versicolor* (Waltl, 1838)**

PSEPHENIDAE
Eubriinae Lacordaire, 1857
***Eubria palustris* (Germar, 1818)**

PTILODACTYLIDAE
Ptilodactylinae Laporte, 1838
[*Ptilodactyla exotica* Chapin, 1927] **C49**

Comments

C1) *Byrrhus* (*Byrrhus*) *geminatus* LeConte, 1854
Examined material: 1 ♂, Suisse, Grisons, Poschiavo, S. Cavajone, 17.VII.1984, *leg*. Besuchet C., MHNG; 1 ♂, 1 ♀, Leuk VS, 25.IV.2006, 5.VI.2006, *leg*. and coll. Chittaro Y.
Comments: *Byrrhus geminatus* has a wide holarctic distribution. However, in Europe, it is only known from Russia, and from the Alps in Italy (Fabbri, 1996) and Switzerland, where it is very rare. In Switzerland, a male was caught in a southern valley of the Grisons

(Poschiavo), at 2200 m, close to the border with Italy, and two individuals were caught in a south exposed forest in central Valais at 1300 m altitude.

C2) [*Byrrhus* (*Pseudobyrrhus*) *luniger* Germar, 1817]
Published data: [1)]Dübendorf by Bremi-Wolf J. J. and [1)]Zürich by Heer O. (Dietrich, 1865); [1)]Bern, Dübendorf and [1)]Pissevache im Wallis by Heer O. and [1)]Schaffhausen by Stierlin G. (Stierlin & Gautard, 1867); [1)]Pisse-vache près Vernayaz by Favre E. (Favre, 1890); [1)]St. Gallen by Müller-Rutz J. (Müller, 1904); [1)]Il Fuorn, 24.VII.1920 and Val Nüglia, [2)]29.VII.1919, [2)]8. VIII.1920 by Handschin E. (Handschin, 1963); [2)]Gais, Riedlergmeind, VI.1962, [2)]Gonten, gegen Hüttenberg, V.1963, [2)]Sirnach, Bergholz, IV.1965, [2)]St. Fiden, Galgentobel, III.1957 and [2)]Urnäsch, Schwägalp, Passhöhe, VI. 1963 by Hugentobler H. (Hugentobler, 1966); [1)]Maienfeld by Müller-Rutz J. (Linder, 1967).
Comments: To our knowledge, this species is not part of the Swiss fauna, despite the large number of citations in the literature and the many specimens that existed under this name in the collections examined. After checking these specimens, all dissected male specimens happened to be *Byrrhus glabratus*. *Byrrhus luniger* is widespread in Central and Eastern Europe and is also known from areas bordering Switzerland [from very old records from Südtirol (Kahlen & Hellrigl, 1996) and southern Germany (Köhler & Klausnitzer, 1998; Bleich *et al.*, 2016)], so its presence in Switzerland remains potential but needs to be confirmed.

C3) *Byrrhus* (*Pseudobyrrhus*) *picipes* Duftschmid, 1825
Examined material: [3,7)]1 ♂, 1 ♀, Monte Moro, *leg*. and coll. Gaud A., MZL.
Published data: 1 ♀, Schwanden, V.-VII.1995, *leg*. Duelli P., det. and coll. Boukal M. and 4 ♂, 1 ♀, Disentis, V.-VI.1997, *leg*. Duelli P., det. Boukal M., coll. Boukal M. and Zahradnik P. (Boukal, 2013).
Comments: This species is only known from Austria, particularly from Vorarlberg (Brandstetter & Kapp, 1998), Italy and Switzerland (Boukal, 2013). In Switzerland, Boukal (2013) reports it as new on the basis of a few specimens captured with barber traps in the east of the country. An additional specimen bearing a Monte Moro label is deposited at the MZL. Given that the Gaud A. collection has sometimes proved problematic (Monnerat *et al.*, 2015), but also that this mountain straddles Switzerland and Italy and that several species of beetles exist only on the Italian side, we prefer not to retain this record. No other specimens were found in the collections examined, although the species must be more widely distributed in Switzerland. The taxonomic value of the three described subspecies (*amphibolus* Ganglbauer, 1902, *judicarius* Ganglbauer, 1904 and *orobianus* G. Fiori, 1952) is still unclear (Boukal, 2017).

C4) *Byrrhus* (*Pseudobyrrhus*) *pilosellus* (A. Villa & G. B. Villa, 1833)
Examined material: [4,6)] 1 ex., Helvetica [Helvetia], coll. Czwalina G., det. Pütz A., NHMW; [7)]2 ex., Mt. Rosa, *leg*. Anonymous, ETH and NMB; [7)]1 ex., M. Rosa, coll. Killias E., BNM; 1 ex., St. Bernhard, *leg*. Huguenin E., MHNG; [3,4,6)]1 ex., Wallis, *leg*. and coll. Schneider G., NMB; [3,4,6)]1 ♂, Tessin, *leg*. Anonymous, coll. Spälti A., MHNG; [3,4,6)]2 ex., Alpes, Barmaz, 9.VIII., *leg*. and coll. Maerky C., MHNG; [7)]5 ex., M. Moro, 5.VIII.1878, *leg*. and coll. Bugnion E., MZL; 1 ex., Mattmark, 29.VII.1914, *leg*. and coll. Mathey A., NMBE; 1 ex., Suisse, Valais, Laquintal, 1.VII.1954, *leg*. Besuchet C., MZL; 1 ex., Suisse, Valais, Laquintal, 29.VI.1962, *leg*. Besuchet C., MHNG; 1 ex., VS, Laggintal, VII.1962, *leg*. Toumayeff G., MHNG; 1 ex., Suisse, Tessin, Gridone, 21.VII.1981, *leg*. Besuchet C., MHNG; 1 ex., Suisse, Valais, Furggtal, 23.VII.1997, *leg*. Besuchet C., MHNG.
Published data: [1)]Monte Rosa and [1)]Simplon by Villa A. (Heer, 1841); [1,7)]Mont Moro by Gautard V. and [1)]Rheinwald by Stierlin G. (Stierlin & Gautard, 1867); [1)]1 ♀, Helvexia [Helvetia], det. Boukal M., Museum of Eastern Bohemia, Hrardec Králové, Czech Republic (Boukal, 2013).
Comments: Characterized by its long golden hairs, this species is easy to identify. It appears to be very localized in Switzerland, where it is known only from a few alpine localities in the Saas Valley, the southern slopes of the Simplon, and a peak straddling Ticino and Italy (Gridone). The species is present only on the eastern side of the Alps (Allemand, 1989), in Italy, in France, and in Switzerland. The taxonomic value of the two described subspecies (*doderoi* G. Fiori, 1952 and *similis* G. Fiori, 1952) is still unclear (Boukal, 2017).

C5) *Byrrhus* (*Seminolus*) *gigas* Fabricius, 1787
Examined material: 1 ♀, Maienfeld, VII.1903, *leg*. Anonymous [Müller-Rutz J.?], det. Boukal M., South Bohemia Museum in České Budějovice.
Published data: Maienfeld by Müller-Rutz J. (Linder, 1967).
Comments: This species is distributed in Central Europe (Austria, Bosnia-Herzegovina, Croatia, Germany, Hungary, Italy, and Slovenia), while it is considered doubtful in Czechia and Slovakia (Boukal, 2017). Following constructive discussions with Milan Boukal, it appears that the only Swiss record in the literature (Linder, 1967) is supported by the existence of a real specimen deposited in the South Bohemian Museum, Czechia. This species is known from neighboring regions, such as South Tirol (Kahlen & Hellrigl, 1996) and Vorarlberg (Brandstetter & Kapp, 1998). These data are credible, and we consider *B. gigas* to be part of the Swiss fauna. Since this species has not been reported in Switzerland for over a century,

it may have disappeared from the country. Targeted prospections should be done in the extreme east of the Swiss Alps to try to find this species again.

C6) [*Byrrhus* (*Seminolus*) *signatus* Sturm, 1823]
Examined material: [3,4,6)]1 ♀, St. Gallen, *leg*. Täschler M., coll. Spälti A., MHNG.
Published data: [1)]Monte-Moro by Gautard v. G. (Stierlin & Gautard, 1867); [1)]Wormser Joch by Gistel J. (Caflisch, 1894); [1)]Schweiz (Ganglbauer, 1904); [1)]St. Gallen by Müller-Rutz J. (Müller, 1904).
Comments: In the collections consulted, only one specimen of this species is deposited in the MHNG, while all literature data are unverifiable. The only known specimen is attributed to Max Täschler's collection, which is considered problematic (Monnerat *et al.*, 2015), and this record should, therefore, not be considered valid. The species is only known from Austria [especially Vorarlberg according to Brandstetter & Kapp (1998)], Germany [only Land Bayern according to Bleich *et al.* (2016)], Italy, Slovenia, and Croatia (Boukal, 2017). It remains a potential species in Switzerland, but this needs to be confirmed.

C7) [*Curimus erinaceus* (Duftschmid, 1825)]
Published data: [2)]Bisbino [Monte Bisbino], [2)]Chiasso and [2)]Generoso [Monte Generoso] by Fontana P. (Fontana, 1947).
Comments: The specimens cited by Fontana were found in his collection and happened to be *C. lariensis*. All of the *Curimus* specimens from Switzerland that we have been able to verify are *C. lariensis*. Therefore, we conclude that *C. erinaceus* does not exist in Switzerland. It is only cited from Austria, Bosnia-Herzegovina, Croatia, Germany, Hungary, Italy, Slovenia (Jäger & Pütz, 2016), Poland (Burakowski *et al.*, 1983), Czechia, and Slovakia (Boukal, 2017).

C8) [*Curimus petraeus* Gredler, 1863]
Published data: [2)]Bisbino [Monte Bisbino], [2)]Chiasso and [2)]Generoso [Monte Generoso] by Fontana P. (Fontana, 1947); [1)]La Motela, IV.-VII.2004, identification with a "?", by Focarile A.V. (Focarile, 2004).
Comments: The specimens cited by Fontana were found in his collection and happened to be *C. lariensis*. All *Curimus* specimens from Switzerland that we have been able to verify are *C. lariensis*. Therefore, we conclude that *C. petraeus* does not exist in Switzerland. *Curimus petraeus* is only known from Austria and Italy, from Lake Garda to the Gailtal Alps in Carinthia (Paulus, 1979). To the west of Lake Garda, it is replaced by *Curimopsis lariensis*.

C9) *Pedilophorus auratus* (Duftschmid, 1825)
Examined material: 1 ex., Berninapass, Alp. Su. [Alpes suisses?], coll. Strupi D. L., det. Pütz A., NHMW.
Comments: This wingless species is considered part of the Swiss fauna on the basis of a single specimen collected in the first half of the 20th century by D.L. Strupi, and deposited at the NHMW. This specimen was collected at the Bernina Pass, at a high altitude (about 2000 to 2300 m) in south-eastern Switzerland. As the species is known from Austria and Italy, we consider this occurrence to be credible. The range of *P. auratus* includes central Europe and the northern Balkan Peninsula (Boukal, 2017).

C10) [*Simplocaria* (*Simplocaria*) *acuminata* Erichson, 1847]
Published data: [1)]Alpe de Torrent, [1)] glacier d'Aletsch and [1)]Lac de Mattmark by Favre E. and [1)]Lausanne by Bugnion E. (Favre, 1890); [1)]SZ [Switzerland] (Jäger & Pütz, 2016).
Comments: This species was only reported from Switzerland by Favre E. in his book (Favre, 1890), and this information was probably used as a source for the Palaearctic Catalogue (Jäger & Pütz, 2016). However, we have not seen any specimen of *S. acuminata* in the collections examined that would support the presence of this species in our country. This species is known from Austria, Croatia, Italy, Poland, Romania, Slovakia, Slovenia, and Ukraine. Its presence in Switzerland is not impossible but needs to be confirmed.

C11) *Simplocaria* (*Simplocaria*) *maculosa* Erichson, 1847
Examined material: 1 ♂, Suisse, Thurgovie, Pfyn, 1.IV.1979, *leg*. Besuchet C., MHNG.
Published data: [1)]Gadmen by Rätzer A. (Stierlin, 1883).
Comments: There is only a single Swiss specimen in a Swiss collection supporting the presence of this species in our country. It was caught in the canton of Thurgau, in the very north of Switzerland, in continuity with its populations in neighbouring southern Germany (Köhler & Klausnitzer, 1998; Bleich *et al.*, 2016) and Vorarlberg (Brandstetter & Kapp, 1998). Overall, this species is known from Austria, Czechia, Great Britain, Germany, Poland, Romania, Ukraine, and Russia (Jäger & Pütz, 2016), Latvia (Vorst *et al.*, 2007), and Croatia and Slovakia (Boukal, 2017) and, thus, appears to barely reach northern Switzerland in a marginal way. The specimen was collected "from a poplar stump" (probably by sieving near the Thur river) according to the information on the label, which seems to be consistent with the information given by Boukal (2017) who indicates that it occurs in the close vicinity of banks of large rivers.

C12) *Simplocaria* (*Simplocaria*) *metallica* (Sturm, 1807)
Examined material: 1 ♂, Chandolin, *leg*. Favre E., MHNG.
Published data: Chandolin by Favre E. (Favre, 1890).
Comments: This holarctic species is found in North America and in a number of countries in northern Europe (Russia, Finland, Sweden, Norway, and Latvia), but also locally in mountains of Central and Southern Europe (Austria, Bulgaria, Czechia, Germany, Italy, Poland, Slovakia, Romania, Ukraine, and Switzerland) (Tamutis *et al.*, 2011; Jäger & Pütz, 2016; Boukal, 2017). In Central Europe, Boukal (2017) indicates that it is an alpine species occurring above the upper limit of forests. In Switzerland, its presence was announced by Favre (1890) from central Valais, and there is indeed a specimen of this species in his collection. On this basis, we retain this species for the Swiss fauna, although further data would be desirable to ensure that it is indigenous to Switzerland.

C13) *Curimopsis* (*Curimopsis*) *austriaca* (Franz, 1967)
Examined material: [3,4,6)]1 ♂, Basel, *leg*. Anonymous, NMB; 1 ♀, Helvetia, Ticino, Cadenazzo, *leg*. and coll. Focarile A., det. Fabbri R., MSNL; 1 ♀, 1 ♂, Kt. Bern, Aarwangen, X.1928, V.1930, *leg*. and coll. Linder A., ETH; 1 ♀, Helv., Kt. Zü., Hänsisried, 22.XI.1931, *leg*. Lautner J., det. Paulus H., NMB; 1 ♂, Chiasso, 1.V.1940, *leg*. and coll. Fontana P., MSNL; 1 ♂, Bas. Jura, Tannenfluh [Tannenflue SO], 17.XII.1944, *leg*. Wolf J.-P, MHNG; 1 ♀, Pfyn, 8.IV.1952, *leg*. Hugentobler H., NMTG; 1 ♂, Pfyn-Ochs. [Ochsenfurt], 29.V.1953, *leg*. Hugentobler H., NMTG; 1 ♂, 3 ♀, Suisse, Genève, London [Allondon], 7.V.1959, *leg*. Besuchet C., MHNG; 1 ♂, 1 ♀, Suisse, Tessin, Rancate, 5.VI.1969, *leg*. Besuchet C., MHNG; 1 ♂, 1 ♀, Suisse, Genève, Malval, crue Allondon, 23.X.1974, *leg*. Besuchet C., MHNG; 1 ♂, Suisse, Tessin, Rancate, 11.VIII.1974, *leg*. and coll. Scherler P., NMBE; 1 ♂, TI, Moneto, IX.1976, *leg*. Toumayeff G., MHNG; 1 ♂, 1 ♀, Suisse, Tessin, Stabio, bord Gaggiolo, 8.XI.1984, *leg*. Besuchet C., MHNG; 1 ♂, Svizzera, TI, Ronco s/Ascona, Sponde, 13.-30.V.1997, *leg*. Moretti M., MSNL.
Published data: A pair from Canton Geneva, near the French border at Malval, by Besuchet C. (Allemand, 1991).
Comments: This species is rare in Switzerland and is only known from a few scattered records distributed widely in low-elevation regions (Ticino, Geneva and northern Switzerland). It is also known from Austria, Bosnia-Herzegovina, Croatia, Czechia, France, Germany, Hungary, Italy, Russia, Slovakia, Slovenia, Serbia, and Montenegro. It is found mostly on mosses at the feet of trees (Boukal, 2017). Found only in well-preserved natural biotopes, it indicates the patrimonial status of a forest (Boukal 2017).

C14) *Curimopsis* (*Curimopsis*) *cyclolepidia* (Munster, 1902)
Examined material: 2 ♀, Helvetia, Ticino, Luzzone, Alpe Motterascio, IX.1992, VIII.1993, *leg*. Focarile A., MSNL.
Comments: Among the *Curimopsis* species, this one is well characterized by the presence of round scales covering the body, unlike all the other species of the genus, which have elongated scales. This external morphological characteristic makes it possible to consider the two female specimens found two years apart in the same alpine locality in northern Ticino (at an altitude of 2,250 m) as this species and to retain it for the fauna of Switzerland. It is widespread in Scandinavia and Siberia but extremely rare in the Alps. It is only known from two localities in Austria (Franz, 1967), one locality in France (Dodelin, 2020), and one locality in Switzerland. These must be relict populations that have survived in glacial refuges (Dodelin, 2020). It should also be noted that the Swiss discovery site of *C. cyclolepidia* is the only Swiss locality known for *Patrobus septentrionis* Dejean, 1828, and one of only three known localities for *Agonum carbonarium alpestre* (Heer, 1838), two rare carabid beetles.

C15) *Curimopsis* (*Curimopsis*) *franzi* Paulus, 1973
Examined material: 1 ♂, Generoso, *leg*. Fontana P., MSNL; 1 ♂, Helv., Ticino, Mad. Valmora, Arogno, *leg*. Focarile A., MSNL; 1 ♂, 2 ♀, Bisbino, 21.IV.1929, 24.XI.1938, *leg*. Fontana P., MSNL; 1 ♂, 1 ♀, Scudellate, 27.VIII.1965, *leg*. and coll. Scherler P., MHNG.
Comments: This species is only present in Italy (Jäger & Pütz, 2016), Slovenia (Boukal, 2017) and marginally in southern Switzerland. In Switzerland, its presence is attested by a few male specimens caught in the south of Canton Ticino. The last Swiss record dates back more than 50 years, so this species would be worth looking for to confirm its continuous presence in the country.

C16) *Curimopsis* (*Curimopsis*) *monticola* (Franz, 1967)
Examined material: 1 ♂, Suisse, VS, Finges, 9.X.1991, *leg*. and coll. Scherler P., NMBE.
Comments: The species is known from Russia, Kazakhstan, Kyrgyzstan, and in Central Europe from Austria, Germany, Italy, Poland, Slovakia, and Switzerland. In Switzerland, a single male specimen, identified on the basis of its genitalia, was captured in Finges, in central Valais, by "sieving plants" in October. According to Boukal (2017), it occurs in mosses between rock outcrops of limestone mountains.

C17) *Curimopsis* (*Curimopsis*) *setigera* (Illiger, 1798)
Examined material: 3 ♂, 1 ♀, Nidau, 18.VI.1913, 18.V.1917, *leg*. Mathey A., NMBE; 1 ♂, BL, Aesch, V.1957, *leg*. Toumayeff G., MHNG; 1 ♂, Suisse, ZH, Albis, IX.1958, *leg*. Toumayeff G., MHNG.

Published data: [1)]Dübendorf by Bremi-Wolf J. J. (Dietrich, 1865); [1)]Basel by J., [1)]Bern by von Ougspurger F. P., [1)]Dübendorf by Bremi-Wolf J. J., [1)]Genf by Chevrier F. and [1)]Schaffhausen by Stierlin G. (Heer, 1841); [1)]Wallis by Venetz I. (Stierlin & Gautard, 1867); [1)]Aigle, bord du Rhône by Jaccard H, [1)]Cossonay and [1)]Regensberg (Favre, 1890); [1)]Rheintal (Stierlin, 1900); [1)]Chiasso, 1915 by Fontana P. (Fontana, 1922); [1)]Bisbino and [1)]Generoso by Fontana P. (Fontana, 1947); [2)]Saint-Cergue, 25.VI.1950 by Rehfous M. (Rehfous, 1955); [1)]Buchs, Rheinufer [Buchs SG], 1874 and [2)]Pfyn [TG], V. 1953 by Hugentobler H. (Hugentobler, 1966); [1)]Saas by Linder A. (Linder, 1967).
Comments: The presence of this species in Switzerland is attested only by a few male specimens from the northern half of the country. Most of the citations in the literature were not supported by specimens in the collections consulted, and when specimens existed, they were other species of *Curimopsis*. As the species was no longer reported in Switzerland after 1958, it should be the subject of targeted research to confirm its continued presence. It is widespread in Northern and Central Europe, while its presence in France has yet to be confirmed (Allemand, 2014). It is a lowland species, found mainly on the banks of large rivers (Boukal M., comm. pers.).

C18) *Curimopsis* (*Curimopsis*) *setosa* (Waltl, 1838)
Examined material: 2 ♂, 38 ex., Helv., Ticino, V. Maggia, Someo, *leg*. Focarile A., MSNL; 2 ex., Locarno, coll. Bernhauer M. and Wingelmüller A., det. Franz H., NHMW; 1 ♂, 1 ♀, digues du Rhône [Aigle], IX.1881, *leg*. Gaud A., coll. Besuchet C., MZL; 1 ♂, 1 ♀, digues Rhône [Aigle], 14.VI.1901, *leg*. and coll. Gaud A., MZL; 1 ♂, Kt. St. Gallen, Buchs, VI.1936, *leg*. and coll. Linder A., ETH; 2 ♂, Kt. Bern, Grasburg, X.1936, *leg*. and coll. Linder A., ETH; 1 ♂, Tessin, Biasca, 15.VII.1951, *leg*. and coll. Wolf J.-P., MHNG; 1 ♀, Helv., BS, Riehen, 10.III.1981, *leg*. Blatti H., det. Allemand R., MHNG; 1 ♂, 3 ex., Suisse, FR, Heitenried, 14.V.1978, 20.V.1981, *leg*. and coll. Scherler P., NMBE; 1 ♂, Suisse, TI, Aurigeno, 20.VII.1981, *leg*. and coll. Scherler P., NMBE; 1 ♂, Suisse, Berne, Rüschegg, 12.X.1981, *leg*. and coll. Scherler P., NMBE; 1 ♂, Bedretto TI, 9.VI.2007, *leg*. Focarile A., MSNL; 1 ex., Flüelen UR, 10.VI.2021, *leg*. and coll. Lischer L.; 1 ♂, 8 ex., Seedorf UR, 1.VI.2021,10.VI.2021, *leg*. and coll. Lischer L.; 1 ♂, 2 ♀, Blenio TI, 17.VI.2022, *leg*. Koch B., coll. Chittaro Y.; 2 ♂, 1 ♀, Acquarossa TI, 11.VIII.2022, *leg*. Koch B., coll. Chittaro Y.; 1 ♂, Acquarossa TI, 23.V.2023, *leg*. and coll. Chittaro Y.
Published data: [1)]Basel, [1)]Bern, [1)]Dübendorf, [1)]Genf [Genève] and [1)]Schaffhausen by Heer O., and [1)]Jura by Gautard V. (Stierlin & Gautard, 1867); [1)]St. Bernhard by Luisier (Stierlin, 1883); [1)]Entremont [Val d'Entremont] by Rätzer A. (Rätzer, 1888); [1)]digues du Rhône à Aigle by Jaccard H., [1)]Martigny and [1)]St-Bernard [Col du Grand-Saint-Bernard] by Favre E. (Favre, 1890); [2)] Chiasso, Tannino, 20.VIII.1930, by Fontana P. (Fontana, 1947); Buchs, Rheindamm [Buchs SG], VI.1936, by Linder-Hebeisen A. (Hugentobler, 1966); [1)]Maienfeld by Müller-Rutz J. (Linder, 1967); [1)]Val Bavona, 2003, by Focarile A. (Focarile, 2003).
Comments: The presence of this rare species in Switzerland is attested by several male specimens, mainly from Ticino, but also from the Alps and Prealps (cantons of Vaud, Bern, Fribourg, Uri, and St. Gallen). Most of the examined specimens come from the banks of rivers with high conservation value. This species is only known from eastern France (Allemand, 2014; Callot, 2018), Land Bayern in Germany (Köhler & Klausnitzer, 1998; Bleich *et al.*, 2016), Austria [Vorarlberg in particular (Brandstetter & Kapp, 1998)] and Switzerland.

C19) *Dryops anglicanus* Edwards, 1909
Examined material: [3,4,6,8)]1 ♂, Hallw. [Hallwil], 2.VI., *leg*. Frey-Gessner E., coll. Maerky C., MHNG; 1 ♂, Katzsen. [Katzensee], 17.X.1884, *leg*. Ris F., ETH; 1 ♂, Mategnin, 1.V.1935, *leg*. Simonet J., MHNG; 3 ♂, Yens VD, 31.III.2019, *leg*. and coll. Cosandey V.; 4 ♂, Meyrin GE, 23.IV.2020, *leg*. and coll. Cosandey V.; 1 ♂, Zürich ZH, 7.V.2024, *leg*. and coll. Chittaro Y.
Published data: [1)]La Vraconnaz, 1985 by Mulhauser G. (Mulhauser *et al.*, 1987); [1)]Bolle di Magadino, 1986-1988 by Focarile A. (Focarile, 1989); 1 ♂, Hänsiried, 20.IV.2012 by Babbi M. and [2)]6 ex., La Rippe, 1976 by Anonymous, MHNG (Babbi *et al.*, 2014).
Comments: This species belongs to the Swiss fauna on the basis of only several isolated observations on the Swiss Plateau. The specimens from La Rippe cited in the literature (Babbi *et al.*, 2014) refer to *Dryops luridus*. *Dryops anglicanus* is mainly found in Northern and Central Europe, where it is rare and local (Boukal *et al.*, 2012), but it also exists, for example, in northern Italy (Olmi, 1976), making it likely to be found in southern Switzerland also.

C20) [*Dryops griseus* (Erichson, 1847)]
Published data: [1)]Rheintal by Kubli H. (Stierlin, 1883).
Comments: *Dryops griseus* is not considered part of the Swiss fauna: there is no specimen in the examined collections and the only data in the old literature is not verifiable. Confusion with *D. similaris*, a highly similar species, or other congeners is probable. However, it remains a potential species, particularly in northern Switzerland, given its wide distribution and its presence in southern Germany (Köhler & Klausnitzer, 1998; Bleich *et al.*, 2016) and Alsace (Callot, 2018). In France, this septentrional species is also sporadically present in the southern Alps (Queney, 2018), which suggests that it could also be present in the Swiss Alps.

C21) *Dryops lutulentus* (Erichson, 1847)
Examined material: [3,4,6)]1 ♂, Genève, *leg*. Anonymous, MHNG; 1 ♂, Aigle, 14.V.1887, *leg*. Gaud A., MZL; 1 ♂, London [Allondon], 15.VII.1924, *leg*. Simonet J., MHNG; 2 ♂, Allondon, Malval, 24.VII.1955, 27.VIII.1955, *leg*. Rehfous M., MHNG; 1 ♂, Suisse, Vaud, Changins, VII.1964, *leg*. Besuchet C., MHNG; 2 ex., Bürglen, Erlen, 29.VI.1987, *leg*. and coll. Brägger H., det. Kless J.; 4 ♂, Suisse, Valais, Fully, VII.1990, VIII.1990, *leg*. Station fédérale de recherches agronomiques Changins, MHNG; 3 ♂, St. Antoni FR, 8.IX.2021, *leg*. and coll. Cosandey V.; 3 ♂, Plasselb FR, 12.IX.2021, *leg*. and coll. Cosandey V.; 1 ♂, Fully VS, 23.VII.2021, *leg*. Sierro A., coll. Chittaro Y.; 1 ♂, Plaffeien FR, 17.VI.2022, *leg*. and coll. Chittaro Y.; 2 ♂, Zumholz FR, 17.VI.2022, *leg*. and coll. Cosandey V.
Published data: [1)]Greifensee, 2.IX,1854, 3.VIII.1857, 9.VII.1859, [1)]Mettmenstätten, X.1843, [1)]Nürensdorf, 23.VI.1858, [1)]Wallisellen, 7.VIII.1857 and [1)]Wülflingen, 21.IX.1857 by Dietrich K. (Dietrich, 1865); [1)]Basel by Staehlin-Bischoff and [1)]La London bei Genf by Tournier H. and de Bonvouloir H. (Stierlin & Gautard, 1867); [1)] Grabs by Kubli H. (Täschler, 1872); [1)]Katzensee by Isenschmid M. (Stierlin, 1883); [1)]Aigle by Jaccard H., [1)]Lausanne, bord du lac by Bugnion E. and [1)]Martigny by Favre E. (Favre, 1890); [1)]Grono by Killias E. (Caflisch, 1894).
Comments: Widespread in Central and Southern Europe, North Africa, and the Middle East, this species is rare in Switzerland. It is only known from a few localities of western and northern Switzerland. Most of the Swiss records for the last few years come from floodplains of national importance. Old literature data are not supported by specimens in collections and cannot be accepted.

C22) [*Dryops rufipes* (Krynicki, 1832)]
Published data: [1)]SZ [Switzerland] (Jäch & Kodada, 2016).
Comments: We are not aware of any direct data supporting the presence of this species in Switzerland, apart from the country's listing in the Palaearctic Catalogue (Jäch & Kodada, 2016). Although the species is cited from many countries in Central and Southern Europe (but also from north Africa and the Middle East), many of the records from the regions bordering Switzerland are very old [see Köhler & Klausnitzer (1998) and Bleich *et al.* (2016) for Germany, Brandstetter & Kapp (1998) for Vorarlberg in Austria] or far from the Swiss border [see Olmi (1976) for Italy]. Furthermore, most records in Central Europe concern warm lowland regions (Boukal *et al*., 2007), which may be absent of Switzerland. Although this species remains a potential species for Switzerland, we consider that the information available is insufficient to retain it in the Swiss list at present.

C23) *Dryops similaris* Bollow, 1936
Examined material: [3,4,6)]1 ♂, Basel M, *leg*. Anonymous, NMB; 1 ex., P. T. [Pian Tivano], 28.VII.1940, *leg*. Fontana P., MSNL; 1 ♂, Suisse, Tessin, Mendrisio, 28.VIII.1954, *leg*. Besuchet C., MZL; 2 ♂, Helv., Ticino, Bolle di Magadino, V.1987, *leg*. Focarile A., MSNL; 3 ♂, 5 ♀, Helvetia, Ticino, Bolle di Magadino, Pozzasc, V.1998, *leg*. Focarile A., MSNL; 1 ♂, Tessin, Gordola, Bolle di Magadino, VI.1991, *leg*. Brunetti R., Reser L., MHNG; 1 ♂, Suisse, Tessin, Gordola, VI.1996, *leg*. Besuchet C., MHNG.
Comments: A few specimens from the canton of Ticino, in the continuity of its Italian populations (Olmi, 1976), allow us to retain this species for the fauna of Switzerland. Widely distributed in Europe and known from southern Germany (Köhler & Klausnitzer, 1998; Bleich *et al.*, 2016) and Alsace (Callot, 2018), *D. similaris* could also be found in northern Switzerland. The specimen from Basel, which would confirm this hypothesis, cannot be retained at present as the information on the label is too incomplete (no dates, no collector, possibility of confusion between the place of collection and the place where the collection is deposited, etc.).

C24) *Dryops subincanus* (Kuwert, 1890)
Examined material: 1 ♀, CH, TI, Coldrerio-Süd, Molino, V. d. Motta, 1.VII.1988, *leg*. Reser-Rezbanyai L., NMLU; 1 ♂, Suisse, Tessin, S. Pietro, VII.1994, *leg*. Besuchet C., MHNG; 1 ♂, TI, Mezzana, Balerna, 21.VI.1997, *leg*. Reser-Rezbanyai L., NMLU.
Comments: The species is reported here for the first time from Switzerland. Systematic dissections of male specimens of *Dryops* deposited in Swiss collections have revealed the presence of two specimens of this species in southern Ticino, caught with a light trap. This species is mainly found in North Africa and southern Europe, where it was previously cited from Albania, Bosnia-Herzegovina, Bulgaria, Croatia, France, Greece, Italy, and Russia. The data from Germany are dubious, or at least very old (Bleich *et al.*, 2016).

C25) [*Dupophilus brevis* Mulsant & Rey, 1872]
Published data: [1,4,6,8)]"Switzerland? (Schöll, 2002)" (Jäch *et al.,* 2016).
Comments: *Dupophilus brevis* is known from Portugal, Spain, France, Italy, Georgia, Armenia and Turkey. In Switzerland, it is cited with uncertainty in the World Catalogue by Jäch *et al*. (2016). The original occurrence refers to a report by Schöll (2002) dealing with macrozoobenthos in the Rhine. In this document, *D. brevis* is mentioned in the Rhine in a sector running from Basel (in Switzerland) to Neuburg (in Germany), but most probably not within the Swiss borders, since Basel is already the border. Furthermore, this species

is not known from Alsace (Callot, 2018) or Germany (Jäch *et al*., 2016), so there is no evidence to support its presence in northern Switzerland. However, the type locality of this species is located on the river Ardière in the Rhône department of France – just 100 km west of the Swiss border (Mulsant & Rey, 1872), suggesting that this sporadic species could be present in western Switzerland. It therefore remains a potential species but is not currently included in the Swiss list.

C26) *Elmis latreillei* (Bedel, 1878)

Examined material: [3,4,6)]3 ex., Bâle, *leg*. Anonymous, det. Richoux P., MHNG; [3,4,6)]3 ex., Basel, *leg*. Anonymous, det. Richoux P., NMB; [3,4,6)]1 ex., Genève, *leg*. Melly A., coll. Maerky C., det. Richoux P., MHNG; [3,4,6)]1 ex., Suisse, Bienne, 15.V., *leg*. and coll. Maerky C., det. Richoux P., MHNG; [3,4,6)]2 ex., Genève, La Plaine, 8.VII., *leg*. and coll. Maerky C., det. Richoux P., MHNG; [3,4,6)]1 ex., Alpes, Orsières, 3.VIII., *leg*. and coll. Maerky C., det. Richoux P., MHNG; 1 ♂, Vouvry, *leg*. Favre E., MHNG; 1 ex., Alpes Vaud, La Petite Gryonne, 9.VIII.1912, *leg*. Gaud A., det. Richoux P., MHNG; 6 ex., Ticino, Fusio, 18.VII.1935, 20.VI.1937, *leg*. Pozzi G., det. Richoux P., MHNG; 2 ex., Kt. Graubünden, Mesocco, VIII.1943, *leg*. Linder A., det. Ienistea M. A., ETH; 6 ex., Kt. Wallis, Simplon, VII.1963, *leg*. Linder A., det. Ienistea M. A., ETH; 3 ex., Weisstannen, 1.VII.1964, *leg*. and coll. Spälti A., det. Richoux P., MHNG; 16 ex., Suisse, Tessin, Alpe Brogoldone s/Claro, 17.VII.1990, *leg*. Besuchet C., det. Richoux P., MHNG; 7 ex., Molinera, 19.VII.1990, *leg*. and coll. Scherler P., det. Richoux P., NMBE; 9 ex., Gambarogno TI, 29.VI.2022, *leg*. Uhlmann V., coll. Birnstiel E.

Published data: Alpes vaudoises by Gaud A. (Gaud, 1913); 7 ex., Mesocco [bei P. 770 in die Moësa mündenden Bächlein], VI.-VII.1943 by Allenspach V. (Allenspach, 1965).

Comments: The presence of this species in Switzerland is attested by only a few specimens from scattered localities throughout the Alps. Widely distributed in western and Central Europe, this cold-water-adapted species colonizes crenal biotopes and mountain brooks between 800 m and 2000 m in elevation. Targeted research should be carried out in high altitude springs to clarify the distribution of this species.

C27) *Elmis obscura* (P.W.J. Müller, 1806)

Examined material: 2 ex., Fusio, 8.V.1914, *leg*. Fontana P., det. Ienistea M. A., MSNL; 1 ex., Kt. Zürich, Gattikon, V.1944, *leg*. Linder A., det. Ienistea M. A., ETH; 1 ex., Zürich, Gattikon, 31.V.1944, *leg*. Allenspach V., det. Richoux P., MHNG; 1 ♂, Soloth. Jura, Kaltbr. T., 24.VII.1945, *leg*. Wolf J.-P., det. Carron G., ETH.

Published data: [1)]Schaffhausen by Stierlin G. and [1)]Waadt [Canton de Vaud] by Mellet L. (Stierlin & Gautard, 1867); Fusio by Fontana P. (Fontana, 1922); [1)]Chiasso by Fontana P. (Fontana, 1947).

Comments: This Western and Central European species is very rare in Switzerland and is known from only four collecting events in four localities – one from the Jura region, one from the Swiss Plateau, and two from Ticino. The last record in Switzerland dates back to 1945, and the species could now be extinct in Switzerland. It is considered to be very sporadic in France (Bameul & Queney, 2014) and very rare in Italy (Olmi, 1976). The species is mainly found on submerged roots or wood in hyporhithral and epipotamal sections of warm summer streams (Jäch *et al.*, 2005; Boukal *et al.*, 2012).

C28) *Elmis rioloides* Kuwert, 1890

Examined material: 32 ♂, Vouvry, *leg*. Favre E., MHNG; 2 ex., Büren, VI.1887, VIII.1890, *leg*. Rätzer A., det. Carron G., NMBE; 1 ex., Bienne, VIII.1908, *leg*. Anonymous, coll. Besuchet C., det. Carron G., MHNG; 8 ex., Basel, Dornach, Birs, 22.VII.1945, *leg*. Wolf J.-P., det. Carron G., ETH; 1 ex., Basler Jura, Krintal, 10.VIII.1958, *leg*. Wolf J.-P., det. Carron G., ETH; 1 ex., Suisse, Bâle, Reinacher Heide, 12.X.1990, *leg*. Besuchet C., det. Carron G., MHNG; 3 ex., Montricher VD, 4.IX.2004, *leg*. and coll. Carron G., ETH and LEBA; 2 ex., Trélex VD, 12.VIII.2004, *leg*. and coll. Carron G., ETH and LEBA; 3 ♂, 2 ♀, 29 ex., Le Chenit VD, 9.VII.2005, 16.VIII.2005, *leg*. and coll. Carron G., ETH; 1 ex., Duggingen BL, 15.VI.2006, *leg*. Stucki P., det. Carron G., ETH; 2 ex., Ocourt JU, 25.VIII.2007, *leg*. and coll. Carron G., ETH; 1 ♂, Boncourt JU, 21.III.2019, *leg*. Wüthrich R., coll. Birnstiel E.; 5 ♂, Wattwil SG, 15.IV.2019, *leg*. Wüthrich R., coll. Birnstiel E.; 2 ♂, Flawil SG, 20.III.2020, *leg*. and coll. Birnstiel E.; 5 ♂, Schwarzenburg BE, 7.-8.V.2020, *leg*. Wüthrich R., coll. Birnstiel E.; 4 ♂, Ueberstorf FR, 7.V.2020, *leg*. Wüthrich R., coll. Birnstiel E.; 1 ♂, Plaffeien FR, 17.V.2020, *leg*. Wüthrich R., coll. Birnstiel E.; 5 ♂, Münchenstein BL, 22.V.2020, *leg*. and. coll. Birnstiel E., det. Wüthrich R.; 2 ♂, Le Chenit VD, 20.VIII.2024, *leg*. Chittaro Y., coll. Chittaro Y. and Cosandey V.

Comments: The presence of this species in Switzerland is attested by a few occurrences from the northern half of the country. *Elmis rioloides* is widespread in Europe, as well as in Israel, Lebanon, and Turkey. It is often found with congeners like *E. aenea* or *E. maugetii*, but also colonizes streams in cooler habitats (Schulte, 1989).

C29) *Esolus pygmaeus* (P.W.J. Müller, 1806)

Examined material: [3,4,6)]1 ex., Basel, *leg*. Anonymous, NMB; [3,4,6)]1 ex., Schaffhausen, *leg*. Täschler M., coll. Linder A., det. Ienistea M. A., ETH; [3,4,6)]1 ex., Suisse,

leg. Melly A., coll. Maerky C., MHNG; [3,4,6)]2 ex., Suisse, *leg*. Poncy E., coll. Maerky C., det. Ienistea M. A., MHNG; [3,4,6)]1 ex., Alpes, Unterwald, *leg*. and coll. Maerky C., det. Ienistea M. A., MHNG; [3,4,6)]2 ex., Genève, Carouge, 4.VI., *leg*. and coll. Maerky C., det. Carron G., MHNG; 1 ex., Le Chenit VD, 16.VIII.2005, *leg*. and det. Carron G., ETH.
Published data: [1)]Mühlenthal bei Schaffhausen by Stierlin G. (Stierlin & Gautard, 1867).
Comments: This species is known from Western and Central Europe, North Africa, and the Near East. The presence of this species is very marginal in Switzerland. Its presence is attested only by a single specimen collected in the Orbe River in the Joux Valley. All other occurrences are linked to problematic collections and cannot be considered valid. The species is extinct or very rare and endangered in central Europe, including Czechia (Boukal *et al.*, 2012).

C30) *Limnius intermedius* Fairmaire, 1881
Examined material: [3,4,6)]1 ex., Genève, *leg*. Melly A., coll. Maerky C., det. Carron G., MHNG; [3,4,6)]1 ex., Genève, La London [Allondon], 6.VI., *leg*. and coll. Maerky C., det. Carron G., MHNG; 1 ex., Chancy, La Laire, 12.VIII.1956, *leg*. Rehfous M., det. Carron G., MHNG.
Comments: This species is included in the Swiss fauna on the basis of a single specimen collected in a river in the very west side of the country, in Canton Geneva. Although widespread, particularly in Central and Western Europe, its presence in Switzerland is marginal. Despite intensive surveys [see Carron (2009) and Cosandey (2023)], the species has not been seen in Canton Geneva for almost 70 years and has probably disappeared. The species is mainly widespread in the Mediterranean area and is associated with hyporhithral and epipotamal sections of streams (Jäch *et al.*, 2005).

C31) *Limnius muelleri* (Erichson, 1847)
Examined material: 1 ex., 2 ♂, Basel, *leg*. Seiler P., coll. Stöcklin N., NMB; 1 ex., Zürcherhorn, *leg*. and coll. Bugnion E., det. Carron G., MZL.
Published data: [1)]Basel by Staehlin-Bischoff, and [1)]Schaffhausen by Stierlin G. (Stierlin & Gautard, 1867); [1)] Burgdorf, and [1)]Waadt by Anonymous (Stierlin 1900); [1)] SZ [Switzerland] (Kodada & Jäch, 2016).
Comments: *Limnius muelleri* is only known from Austria, Czechia, France, Germany, Hungary and Switzerland. In Switzerland, it is known only from four specimens from two localities in the north of the country, without indication of dates but certainly collected before 1900. As the species has not been seen for over a century, it has most likely disappeared from Switzerland. *Limnius muelleri* is currently extinct [as in Germany (Spitzenberg *et al.*, 2016)] or at least very rare [as in France (Bameul & Queney, 2014)] throughout its entire distribution range (Boukal *et al.*, 2012).

C32) *Limnius opacus* P.W.J. Müller, 1806
Examined material: 1 ex., Chiasso, canale del Faloppia, 3.V.1934, *leg*. Fontana P., det. Ienistea M. A., MSNL; 1 ♂, 1 ♀, Möriken AG, 15.IV.2019, 5.VII.2023, *leg*. Wüthrich R. and Birnstiel E., coll. Birnstiel E.
Published data: [1)]La London [Allondon] by Tournier H. (Stierlin & Gautard,1867); [1)]Genf by Anonymous (Stierlin, 1900); Chiasso by Fontana P. (Fontana, 1947).
Comments: Widely distributed in Europe, this species is very rare in Switzerland: so far only three specimens have been collected at two localities. The first specimen, dated 1934, came from the extreme south of Ticino, as a northernmost record of populations in northern Italy, particularly in the Varese region (Olmi, 1976). After more than 80 years without being recorded, the species was found again in 2019 and 2023 in a locality in northern Switzerland, close to populations in southern Germany (Bleich *et al.*, 2016).

C33) *Riolus illiesi* Steffan, 1958
Examined material: 1 ex., Lausanne, Flon, 2.VI., *leg*. and coll. Bugnion E., det. Richoux P., MHNG.
Comments: This species is only known from Belgium, France, Germany, Spain, and Switzerland. In Switzerland, it has been retained on the basis of a single specimen from the Lausanne region, collected before 1900 by a reliable collector. As the species has not been found for over 120 years in Switzerland, it has probably disappeared from the country.

C34) *Riolus nitens* (P.W.J. Müller, 1817)
Examined material: [3,4,6)]1 ex., Alpes, Viège, 15.VIII., *leg*. and coll. Maerky C., det. Richoux P., MHNG; 1 ex., Pierrettes [Saint-Sulpice], VIII., *leg*. and coll. Bugnion E., det. Richoux P., MHNG; 1 ex., Büren, VIII.1888, coll. Rätzer A., det. Richoux P., MHNG; 1 ♀, Wiesdang, VIII.1911, *leg*. and coll. Jörger J. B., det. Richoux P., NMB; 1 ♀, Boncourt JU, 21.III.2019, *leg*. Wüthrich R., coll. Birnstiel E.
Published data: [1)]Pomy by Mellet L. and [1)]Schaffhausen by Stierlin G. (Heer, 1841); [1)]Schaffhausen, X.1887 by Flach K.L. (Flach, 1889); [1)]Müllheim, 1888, by Müller-Rutz J., ex. coll. Täschler M. (Hugentobler, 1966); [1)]Zoo Basel, secteur H by Anonymous (Sprecher *et al.*, 2008).
Comments: Widely distributed in Europe but also known from Morocco, Algeria, Turkey, Lebanon, and Israel, this species is very rare in Switzerland and only known by a few specimens from scattered localities. Literature data cannot be verified. After more than a century without data, the species was rediscovered in northern Switzerland in 2019. Further research is needed to try to locate other populations.

C35) *Riolus sodalis* (Erichson, 1847)
Examined material: [3,4,6)]1 ♂, Basel, *leg*. Anonymous, det. Richoux P., NMB.

Published data: [1)]Basel, in der Birs, by Staehlin-Bischoff and [1)]Genf by Tournier H. (Stierlin & Gautard, 1867); Schaffhausen, X.1887 by Flach K.L. (Flach, 1889); bei Schaffhausen (Ganglbauer, 1904).
Comments: According to Kodada & Jäch (2016), this species is only known from France, Germany, Italy, Spain and Switzerland. *Riolus sodalis* is included in the Swiss list on the basis of a single citation from Schaffhausen (Flach, 1889). The author gives convincing explanations and even proposes an identification key "to draw the attention of entomologists in southern Germany to this almost extinct species". On the other hand, we do not retain the Basel specimen: its label is very incomplete (no date, no collector) and there is a real possibility that "Basel" refers to the place where the collection is deposited and not to the collecting locality (Monnerat *et al.*, 2015). In any case, the species has not been found in Switzerland since 1887 and is certainly extinct, as is the case in Germany (Spitzenberg *et al.*, 2016). In France, the species is only known from the southern half of the country (Bameul & Queney, 2014).

C36) [*Stenelmis consobrina* Dufour, 1835]
Published data: [1)]SZ [Switzerland] (Kodada & Jäch, 2016).
Comments: Rare but widely distributed in Central and Southern Europe, North Africa, and the Near East (Jäch *et al.,* 2024), this species is reported from Switzerland in Kodada & Jäch (2016). We have not found any Swiss specimens in the Swiss collections and propose not to include this species in the Swiss list until proven otherwise. Bameul & Queney (2014) indicate that it is a sporadic species in France, where it is known from the Aquitaine Basin, the Mediterranean region, and the Lyonnais. In Germany, it is considered extinct (Spitzenberg *et al.*, 2016) and was known only from old records located several hundreds of kilometers from Switzerland (Bleich *et al.*, 2016). In Italy, Olmi (1976) cites only four localities and considers it rarer than *Stenelmis canaliculata*. The species is listed as a facultative saproxylic species by Bouget *et al.* (2019). It is often attracted at light (Bameul & Queney, 2014) and would probably have been caught during the extensive session of light trapping effectuated in Switzerland during the last decades (particularly the intensive trapping carried out by L. Reser-Rezbanyai).

C37) *Macronychus quadrituberculatus* P.W.J. Müller, 1806
Examined material: [3,4,6)]1 ex., Basel, *leg*. Anonymous, NMB; [3,4,6)]1 ex., Schaffhausen, *leg*. Seiler P., coll. Stöcklin N., MHNG; [3,4,6)]2 ex., Schaffhausen, *leg*. Anonymous, NMB; 1 larva, Pratteln BL, 12.IV.2018, *leg*. Unger B.; 16 larvae, Münchenstein BL, 22.V.2020, *leg*. and coll. Birnstiel E., det. Wüthrich R.; 4 ex., Unterengstringen ZH, 1.IV.2021, *leg*. and coll. Wüthrich R.; 1 larva, Suhr AG, 5.VII.2023, *leg*. and coll. Birnstiel E., det. Wüthrich R.; 3 ex., 3 larvae, Niederlenz AG, 5.V.2023, 5.VII.2023, *leg*. and coll. Birnstiel E., det. Wüthrich R.; 3 ex., Niederlenz AG, 14.VII.2023, *leg*. and coll. Cosandey V.; 4 ex., Niederlenz AG, 13.IX.2023, *leg*. and coll. Chittaro Y. and Sanchez A.
Published data: 1 ex., Aabach, 2012, *leg*. Lubini V. (Oester *et al.*, 2021).
Comments: This highly distinctive species is attested in Switzerland only by a few specimens from rivers in the north of the country. It is widespread in Europe but sporadic and often known from a small number of records [for example, in Italy according to Olmi (1976), or in southern Germany according to Köhler & Klausnitzer (1998) and Bleich *et al.* (2016)]. Both larvae and adults feed on algae and/or decaying wood and can usually be found on submerged water-logged wood (or sometimes on stones) in the lower course of small to medium-sized perennial streams and rivers, with slow or medium-velocity water current (Novaković *et al.*, 2020). *Macronychus quadrituberculatus* is considered saproxylic (Bouget *et al.*, 2019).

C38) *Potamophilus acuminatus* (Fabricius, 1792)
Examined material: 13 larvae, Niederlenz AG, 5.V.2023, 5.VII.2023, *leg*. Birnstiel E., det. Wüthrich R., coll. Gutwasser; 3 ex., Niederlenz AG, 14.VII.2023, *leg*. and coll. Cosandey V.; 3 ex., Niederlenz AG, 13.IX.2023, *leg*. and coll. Chittaro Y. and Sanchez A.
Published data: [1)]Silvaplaner See by Gistel (Caflisch, 1894); 1 larva, 2 ♂, 2 ♀, Helv., AG, Lenzburg, Aabach, 9.VII.2020, 21.VII.2020 by Birnstiel E. and Frei A. (Oester *et al.*, 2021).
Comments: The old citation from the literature (Caflisch, 1894), which is not supported by any reference specimen and concerns a high-altitude (1700 m) location, must be considered dubious. This species has only been very recently confirmed in Switzerland (Oester *et al.*, 2021), where it is currently only known from a small river in the canton of Aargau. Although it is widespread in Europe, but also in the Near East and known from Tunisia, the species is generally very rare [for example, in Italy according to Olmi (1976), in Germany according to Köhler & Klausnitzer (1998) and Bleich *et al.* (2016) or in Austria according to Jäch *et al.* (2013)]. It has declined sharply over time, notably as a result of the removal of dead wood from watercourses, river rectification, and water pollution (Gerber, 1993). The species has a very particular ecology and requires oxygen-rich, fast-flowing water with submerged wood. The larvae are saproxylophagous [the species is also included in the French list of saproxylic beetles by Bouget *et al.* (2019)] and live exclusively on partially decomposed wood in the water (Gerber, 1993; Klausnitzer, 1996). The

adults rest directly above or at the water line on dead wood (branches and trunks) that protrudes from the water (Oester *et al.*, 2021). The flow velocity must be relatively high, and slow-flowing sections are avoided (Jäch *et al.*, 2001).

C39) *Augyles* (*Augyles*) *crinitus* (Kiesenwetter, 1850)
Examined material: 1 ♂, Fribourg, Pérolles, 1934, *leg*. Berhaut J., MHNG; 1 ex., Grasburg BE, VI.1958, *leg*. Toumayeff G., det. Mascagni A., MHNG; 2 ♂, 1 ♀, Plasselb FR, 25.V.2024, *leg*. and coll. Chittaro Y.
Comments: This central and western European species is very rare in Switzerland, where it is only known from five specimens from three localities. After several decades without any data, it was rediscovered in 2024 on the natural banks of a dynamic river in the Prealps in the canton of Fribourg. This species is not present in France (Bameul & Queney, 2014) and is only known from a very old record in Germany from the area around Lake Constance (Köhler & Klausnitzer, 1998; Bleich *et al.*, 2016). It has recently been discovered in Poland (Twardy, 2018).

C40) *Augyles* (*Augyles*) *flavidus* (P. Rossi, 1794)
Examined material: 1 ex., St. Légier, 29.VI.1887, *leg*. Gaud A., det. Mascagni A., MZL; 1 ex., Valais, Barges près Vouvry, V.-VII.1985, *leg*. Station fédérale de recherches agronomiques Changins, det. Mascagni A., MHNG; 5 ex., Suisse, Tessin, S. Pietro, Mte Albano, VI.1991, VIII.1991, VII.1992, VIII.1992, *leg*. Station fédérale de recherches agronomiques Changins, det. Mascagni A., MHNG.
Comments: This species is widespread in Europe (mainly in the south), Africa, and the Middle East. In Switzerland, however, its presence is only attested by a few specimens from the southern half of the country. Most were caught using light traps. The species colonizes sandy, muddy shores of streams, ponds, and marshes (Mascagni, 2014).

C41) *Augyles* (*Augyles*) *hispidulus* (Kiesenwetter, 1843)
Examined material: 2 ex., Aegelsee, 28.V., *leg*. and coll. Bugnion E., det. Mascagni A., MZL; 1 ex., Wiedler-See, 10.V.1885, *leg*. Gaud A., det. Mascagni A., MZL.
Published data: [1)]Kant. Thurgau, an der Murg, by Stierlin G. (Stierlin & Gautard, 1867); [1)]Neuchâtel by Coulon (Stierlin, 1883).
Comments: This species is known from a large number of European countries but mainly colonizes coastal regions and is much rarer and sporadic inland, as is the case in France (Bameul & Queney, 2014) and probably also in Switzerland. In Switzerland, its presence is attested by only three specimens collected before 1900 in two locations in northern Switzerland. As the species has not been seen for over a century, it has probably disappeared from Switzerland.

C42) *Augyles* (*Augyles*) *sericans* (Kiesenwetter, 1843)
Examined material: [3,4,8)]1 ex., Aarau, *leg*. and coll. Maerky C., MHNG; 1 ex., Alpes, Tessin, *leg*. Ghidini A., MHNG; 2 ex., Martigny, *leg*. and coll. Favre E., HGSB; 2 ex., Büren, 7.V.1883, VI.1887, coll. Rätzer A., NMBE; 1 ♂, Wallis [Valais], coll. Stierlin G., ETH; 1 ex., Chur, VI.1919, *leg*. and coll. Jörger J. B., NMB; 1 ex., Kt. Bern, Grasburg, VIII.1936, *leg*. and coll. Linder A., det. Mascagni A., ETH; 1 ex., Kt. Bern, Laupen, IX.1948, *leg*. and coll. Linder A., det. Mascagni A., ETH; 1 ex., Kt. Bern, Albligen, IV.1951, *leg*. and coll. Linder A., Mascagni A., ETH; 18 ex., Kt. Freiburg, Heitenried, VI.1961, *leg*. and coll. Linder A., det. Mascagni A., ETH, MHNG and NMBE; 9 ex., Heitenried, 18.V.1962, *leg*. and coll. Allenspach V. and Spälti A., det. Mascagni A., NMB, MHNG and SMNS; 1 ex., CH, VS, Vétroz, 13.VII.1965, *leg*. Anonymous, AGRO; 3 ex., Heitenried, 30.VI.1968, *leg*. Scherler P., det. Mascagni A., NMBE and coll. Allenspach V., NMB; 1 ♂, Helv., Kt. Bern, Burgdorf, VII.1968, *leg*. Kiener S., det. Mascagni A., MHNG; 2 ♂, CH, TI, Meride, San Antonio, 11.VII.1981, *leg*. Reser-Rezbanyai L., NMLU; 1 ♂, Suisse, Valais, Branson, VII.1992, *leg*. Besuchet C., MHNG; 1 ♂, 1 ♀, Suisse, Tessin, S. Pietro, VIII.1994, *leg*. Besuchet C., MHNG.
Published data: [1)]Aarau by Frey-Gessner E. and [1)]St. Legier bei Vevey by Gautard V. (Stierlin & Gautard, 1867); Büren [Büren an der Aare] by Rätzer A. (Rätzer, 1888); Martigny by Favre E. (Favre, 1890); [1)]Schiers (Caflisch, 1894).
Comments: Widespread in Europe and also found in Israel and Syria, this species is only known from around 10 localities scattered in Switzerland. Specimens collected after 1980 were caught with light traps. The species is rare and sporadic in our country, as it is in France (Bameul & Queney, 2014) and in Czechia (Boukal *et al.*, 2012).

C43) *Heterocerus flexuosus* Stephens, 1828
Examined material: 4 ex., Estavayer, *leg*. Forel A. H., coll. Sermet A., MZL; 1 ex., Ragaz, VIII.1885, *leg*. and coll. Gaud A., det Mascagni A., MZL.
Comments: Although widespread throughout the Palaearctic region, this species is included in the Swiss list on the basis of only five historical individuals from two localities. Not found for over 100 years, it has probably disappeared. In France, it is sporadic and mainly colonizes coastal regions (Bameul & Queney, 2014). The species lives at the edge of brackish puddles, in slime and sand near rivers and lakes (Mascagni, 2014).

C44) *Heterocerus fossor* Kiesenwetter, 1843
Published data: [1)]Schweiz (Kiesenwetter, 1851); 2 ♂, 4 ♀, Luzern reg., Emmen, 13.VII.1986, *leg*. Rasse R., det. and coll. Skalický S. (Skalický & Ezer, 2014).
Comments: This species was announced by Skalický & Ezer (2014) as new to Switzerland on the basis of a few specimens from the Lucerne region whereas the mention of Kiesenwetter (1851) is vague. In view of its discovery in the heart of Switzerland and its presence in all neighboring countries and throughout the Palaearctic region, the species must be present in other regions of Switzerland.

C45) *Heterocerus obsoletus* Curtis, 1828
Examined material: 2 ex., Swis., Cortaillod, near Neuchat. [Neuchâtel] Lake, 17.VIII.1996, *leg*. Jonáš L., det. and coll. Skalický S.
Published data: 1 ♂, Luzern reg., Emmen, 13.VII.1986, *leg*. Rasse R., det. and coll. Skalický S. (Skalický & Ezer, 2014).
Comments: This species was announced as new to Switzerland by Skalický & Ezer (2014) based on specimens from the Lucerne region. Two additional specimens from the Neuchâtel region were subsequently identified. Although the species is widespread in the Palaearctic region, it appears to be very rare in Switzerland.

C46) *Micilus murinus* (Kiesenwetter, 1843)
Examined material: 2 ex., Ragatz, *leg*. anonymous, coll. Stierlin G., ETH; 2 ex., U.vaz [Untervaz], VII.1923, *leg*. Mathey A., NMBE; 1 ex., Kt. Graubünden, Chur, IV.1924, *leg*. and coll. Linder A., det. Mascagni A., ETH; 12 ex., Untervaz, IX.1924, *leg*. and coll. Jörger J. B., det. Mascagni A., NMB; 7 ex., Suisse, Tessin, Gudo, VIII.1988, IX.1991, *leg*. Brunetti R., det. Mascagni A., MHNG; 15 ex., Suisse, Tessin, Gudo, VIII.1992, *leg*. Besuchet C., MHNG; 2 ex., Suisse, Valais, Finges, 28.IX.1993, *leg*. Besuchet C., det. Mascagni A., MHNG; 5 ex., Turtmann-Unterems VS, 30.VIII.2019, *leg*. Vogelwarte, coll. Chittaro Y.
Published data: Ragatz am Rheinufer [Bad Ragaz] by Kiesenwetter von H. (Stierlin & Gautard, 1867); Untervaz by Jörger J. B. (Linder, 1967).
Comments: This very small (1.3-1.5 mm) and discreet species is known only from a few European countries (Albania, Austria, Bosnia-Herzegovina, Croatia, France, Germany, Hungary, Italy, Slovenia and Switzerland). It is generally considered to be very rare, and there are often only old records, as is the case in France, where it is recorded only from Isère and Rhône (Bameul & Queney, 2014), and in Germany, where it is known only from an old record from the Land of Bayern (Köhler & Klausnitzer, 1998; Bleich *et al.*, 2016). In Switzerland, the species is rare (it is only known from six localities in the cantons of Grisons, Ticino, and Valais), but was still collected recently. It inhabits sandy river shores (Klausnitzer, 1996). The specimens from Gudo and Turtmann-Unterems were captured using light traps.

C47) *Limnichus incanus* Kiesenwetter, 1851
Examined material: 1 ♂, 2 ex., Genève, London [Allondon], V.1953, *leg*. Toumayeff G., MHNG; 1 ♂, Russin, Allondon, 5.VI.1955, *leg*. Rehfous M., MHNG; 1 ♂, 1 ♀, Suisse, Genève, L'Allondon, 15.VI.1958, *leg*. and coll. Scherler P., NMBE.
Published data: [1)]Schaffhausen by Stierlin G. (Stierlin, 1883); [1)]Chiasso by Fontana P. (Fontana, 1947).
Comments: This species mainly colonizes Southern and Central Europe but has also been recorded in Morocco and "Turkestan". The presence of this species in Switzerland is based on a few male specimens collected along the Allondon River in Geneva. The last collecting event dates from 1958 and the species should be sought out. It is absent from Germany, where its records were in error (Brandstetter & Kapp, 1998), but it is reported from Vorarlberg (Brandstetter & Kapp, 1998) and Northern Italy, which suggests that it could be present in more than just the Geneva region of Switzerland.

C48) *Limnichus pygmaeus* (Sturm, 1807)
Examined material: 1 ♂, 1 ex., Cossonay, *leg*. and coll. Bugnion E., MZL; [3,4,6)]1 ♀, Suisse, La London [Allondon], 6.VI., *leg*. and coll. Maerky C., MHNG; 1 ♂, Pomy, 24.VII.1887, *leg*. and coll. Gaud A., MZL; 5 ♀, Nidau, 10.V.1914, 24.V.1916, 25.V.1918, *leg*. Mathey A., det. Besuchet C., MHNG; 2 ♂, 3 ♀, Bienne, 29.VII.1918, *leg*. Mathey A., NMBE; 1 ♂, 1 ♀, Kt. Bern, Gampelen, *leg*. and coll. Linder A., ETH; 1 ♀, GE, London [Allondon], V.1953, *leg*. Toumayeff G., det. Besuchet C., MHNG; 2 ♀, Russin, Allondon, 5.VI.1958, 4.IV.1959, *leg*. Rehfous M., det. Besuchet C., MHNG; 1 ♂, GE, Sierne, IX.1964, *leg*. Toumayeff G., MHNG; 1 ♀, VD, Yvonand, IV.1967, *leg*. Toumayeff G., det. Besuchet C., MHNG; 1 ♀, Suisse, Genève, Moulin de Vert, fossé, 22.IV.1979, *leg*. and det. Besuchet C., MHNG; 1 ♀, Suisse, Thurg., Pfyn, bord de la Thur, 7.VIII.1979, *leg*. Besuchet C., MHNG; 1 ♀, Helv., VS, Illarsaz, 22.III.1981, *leg*. Marggi W., det. Besuchet C., MHNG; 1 ♀, VD, Orny, V.1987, *leg*. Toumayeff G., det. Besuchet C., MHNG; 1 ♂, 2 ♀, Suisse, Genève, Bois de Jussy, 4.XI.1987, *leg*. Besuchet C. and Scherler P., MHNG and NMBE; 1 ♀, Suisse, Thurgovie, Bischofszell, bord de la Thur, 7.VI.1988, *leg*. and det. Besuchet C., MHNG.
Published data: [1)]Bern by von Ougspurger F. P., [1)]Genf by Chevrier F., [1)]Gotthard by L. and [1)]Pomy by Mellet L. (Heer, 1841); [1)]La London bei Genf by Tournier H., [1)]Thun by de Bonvouloir H. and [1)]Zürich by Dietrich K. (Stierlin & Gautard, 1867); [1)]Rheinthal by Kubli H. (Stierlin, 1883); [1)]Büren [Büren an der Aare] by

Rätzer A. (Rätzer, 1888); [1)]Jorat, [1)]Schaffhausen and [1)]Wallis (Stierlin, 1900); [1)]Zernez, Gondas, 6.VI.1953, by Handschin E. (Handschin, 1963); [1)]Balgach by Kubli H. and [2)]Bürglen, Hessenreuti, Weinmoos, VI.1964, by Hugentobler H. (Hugentobler, 1966).

Comments: In Switzerland, this species is known only from a few reliable records (following examination of the male's genitalia), distributed mainly in the west of the country, but also isolated in Thurgau. It is found on river banks and in unspoiled areas of large lakes. Widespread in Europe and known in particular from Alsace in France (Callot, 2018), southern Germany (Köhler & Klausnitzer, 1998; Bleich *et al.*, 2016), and Vorarlberg in Austria (Brandstetter & Kapp, 1998), it must be more widespread in northern Switzerland than its sparse records suggest. As it has not been recorded since 1988, it should be sought out to confirm its presence in the country.

C49) [*Ptilodactyla exotica* Chapin, 1927]

Examined material: 2 ex., Zürich, *leg*. Schmidt M., MHNG; 1 ex., Berne, dans appartement, bambou, X.1994, *leg*. Herger P., MHNG; 4 ex., Berne-Ville, appartement, X.1994, *leg*. Anonymous, MHNG; 1 ex., Küsnacht, II.1998, *leg*. Dorn S.; 32 ex., Genève, ds. villa, VI.1999, *leg*. Besuchet C., MHNG; 6 ex., Faulensee BE, VII.2014, *leg*. Schizzi B., NMBE; 1 ex., Basel BS, 3.X.2019, *leg*. Gilgado Hormaechea J., coll. Chittaro Y.; 8 ex., Zürich ZH, VI.2011, *leg*. Schmidt M., NMLU; 1 ex., Neuchâtel NE, 16.I.2022, *leg*. Bénon D., coll. Vallat A.; 1 ex., La Chaux-de-Fonds NE, 13.V.2022, *leg*. and coll. Vallat A.

Published data: Switzerland (Wittenberg *et al.*, 2006).

Comment: This species, which probably originates from Mauritius and Réunion (Aberlenc & Allemand, 1997), has been reported occasionally in Europe since 1970, and its first record in Italy (Nardi *et al.*, 2020). It is now known from Czechia, France, Great Britain, Germany, Italy, Slovakia and Switzerland (Mann, 2006; Köhler, 2011; Hájek, 2016; Nardi *et al.*, 2020). In Switzerland, it has been reported a few times in urban and peri-urban areas over the past 30 years. The larvae develop in moist decaying plant matter (potting soil for plants in flats and greenhouses) (Aberlenc & Allemand, 1997; Wittenberg *et al.*, 2006). It is not possible to know whether the species forms regular indoor populations on Swiss territory or whether each new report is the result of a new introduction. In France, for example, after a local outbreak in a flat in the Lyon region over several years (Aberlenc & Allemand, 1997), the species was no longer found in the country (Aberlenc, 2014). Therefore, we do not consider it as established in Switzerland.

DISCUSSION

This study is the first annotated list focusing on the Swiss Byrrhoidea and Dryopoidea since the publication of Stierlin (1900). According to our results, a total of 78 species of Byrrhoidea (27 species of Byrrhidae) and Dryopoidea (51 species) belong to the Swiss fauna. Among the Dryopoidea, Elmidae is the most diverse family in Switzerland (23 species), followed by Heteroceridae (12), Dryopidae (11), Limnichidae (4), and Psephenidae (1). Three species (*Dryops subincanus*, *Curimopsis monticola* and *Pedilophorus auratus*) are mentioned here for the first time for the country, while nine species mentioned from Switzerland in the past are withdrawn from the species list or considered doubtful. The only species of Ptilodactylidae found in Switzerland is the result of an introduction and is not included in the list of indigenous species. A few more species could still be found in Switzerland, such as *Byrrhus scabripennis* Steffahny, 1842, which is known from Italy and Austria, while the currently doubtful presence of *Dupophilus brevis* (see C25) should be confirmed.

Occurrence maps for the species retained as part of the Swiss fauna are available on the info fauna map server (www.infofauna.ch; https://lepus.infofauna.ch/carto). All the data have been transmitted to GBIF, making this work part of a global understanding of biodiversity. This study is part of a wider project to update our knowledge of the fauna of aquatic beetles in Switzerland, following works on Hydrophiloidea and on Hydradephaga (Cosandey *et al.*, 2023, 2024), but is also a further step toward a complete comprehension of the beetle fauna of Switzerland (e.g., Chittaro *et al.*, 2021; Sanchez & Chittaro, 2022).

Our knowledge of the distribution of Byrrhoidea and Dryopoidea in Switzerland is now based on a solid foundation of data and can be considered good even if these groups have received less attention from entomologists than others. If we look at aquatic groups only, the average number of records per species (all periods combined) is, for example, half as low for the Dryopoidea families (165.8 data per species on average) as for Hydradephaga families (319.6 data per species on average).

While this lack of data is partly the result of less sampling effort, it probably also reflects a more worrying reality and the decline of many species. Thus, 13 species, representing 17% of the native species of Byrrhoidea and Dryopoidea retained for Switzerland, have not been seen in the last 50 years in the country: *Limnius muelleri*, *Riolus illiesi,* and *Simplocaria metallica* (last Swiss observation of these three species before 1900), *Augyles hispidulus* and *Heterocerus flexuosus* (1885), *Riolus sodalis* (1887), *Byrrhus gigas* (1903), *Elmis obscura* (1945), *Limnius intermedius* (1956), *Curimopsis setigera* and *Limnichus incanus* (1958), *Pedilophorus auratus*

(collected with certainty before 1963, the year of transfer of the Strupi collection to the NHMW), and *Curimopsis franzi* (1965). While a few discreet species (e.g., certain Byrrhidae) may have gone unnoticed and need urgently targeted sampling, it is likely that most of them have disappeared. Some families have suffered particularly steep declines. In terms of percentages by family, 25% of Limnichidae, 22% of Elmidae, 17% of Heteroceridae, and 15% of Byrrhidae have not been seen for over 50 years in Switzerland. If we focus on more recent times with a threshold of 30 years without observations, the situation is even more dramatic for the Limnichidae (50% of the species not seen in Switzerland after 1994) for the Heteroceridae (42%) and for the Byrrhidae (29%), while the figure for Elmidae (22%) remains the same.

Human activities are the main cause of this loss, with the most significant factor the destruction of habitats. Since 1850, more than 90 % of the floodplains of Swiss rivers disappeared, and with them, the associated biodiversity has declined (Müller-Wenk *et al.*, 2004). The extensive regulation of streams and the often associated lowering of the groundwater level leads to the loss of riparian habitats, such as washed-out shorelines with submerged roots or small temporal side waters. An example of a species affected by these processes is *Elmis obscura*, which is bound to submerged deadwood and roots in undercut banks (Jäch *et al.*, 2005). Many species of Dryopidae, Heteroceridae, and Limnichidae are strictly dependent on distinct sand- and gravel banks in lowlands. By retaining the sediment and prohibiting the natural stream dynamics, regulation constructions and hydroelectric facilities lead to the loss of such habitat structures. The list of detrimental human impacts on freshwater habitats could be extended at will. Further impacts are hydropeaking (Schmutz *et al.*, 2013) and residual flow sections (Hayes *et al.*, 2018) from hydroelectric facilities, pollution of water, or removal of deadwood.

Unlike for other aquatic beetle groups such as the Hydradephaga (Brancucci, 1994), there is no Dryopoidea red list for Switzerland (nor for Byrrhoidea). There is, however, an urgent need for an assessment of the degree of threat to the species that still exist in Switzerland so that precise and effective conservation measures can be put in place. The elaboration of a red list based on historical data provided by our study, as well as recent and prospective data would be a good way to reach this goal.

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REFERENCES

Aberlenc H.P. 2014. Ptilodactylidae (p. 419). *In:* Tronquet M. (ed). *Catalogue des Coléoptères de France.* Association Roussillonnaise d'Entomologie, Perpignan, 1052 pp.

Aberlenc H.P. & Allemand R. 1997. Acclimatation en France de *Ptilodactyla exotica*, espèce à mœurs anthropophiles (Coleoptera, Ptilodactylidae). *Bulletin de la Société entomologique de France* 102: 93-102.

Allemand R. 1989. Variabilité morphologique et répartition des espèces françaises de *Byrrhus* (Col. Byrrhidae). *Bulletin de la Société entomologique de France* 94 (5-6): 169-180.

Allemand R. 1991. Les espèces françaises de *Curimopsis* du groupe *austriaca* Franz (Col. Byrrhidae). *Bulletin de la Société entomologique de France* 96 (3): 267-270.

Allemand R. 2014. Byrrhidae (pp. 410-412). *In:* Tronquet M. (ed). *Catalogue des Coléoptères de France.* Association Roussillonnaise d'Entomologie, Perpignan, 1052 pp.

Allenspach V. 1965. Über das Vorkommen der Helmintinae (Fam. Dryopidae, Col.) im Kanton Graubünden. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 37 (3): 180.

Babbi M., Krüsi B.O. & Robinson C. 2014. Ein neuer Hakenkäfer für die Schweiz: *Dryops anglicanus* Edwards, 1909 (Coleoptera, Dryopidae) in der Agglomeration von Zürich. *Entomo Helvetica* 14: 29-39.

Bameul F. & Queney P. 2014. Elmidae, Dryopidae, Limnichidae, Heteroceridae, Psephenidae (pp. 412-419). *In:* Tronquet M. (ed). *Catalogue des Coléoptères de France.* Association Roussillonnaise d'Entomologie, Perpignan, 1052 pp.

Beier M. 1950. Zur Kenntnis der Larve von *Eubria palustris* L. (Col. Dascillidae). *Eos* 28: 59-85.

Beutel R.G. & Leschen R.A.B. (eds). 2016. 19. Byrrhoidea Latreille, 1804 (pp. 553-654). *In: Handbook of Zoology.* Arthropoda: Insecta. Coleoptera, Beetles. Morphology and Systematics. Archostemata, Adephaga, Myxophaga, and Polyphaga partim, Volume 1, 2nd edition. Walter de Gruyter, Berlin.

Bleich O., Gürlich S. & Köhler F. 2016. *Verzeichnis und Verbreitungsatlas der Käfer Deutschlands.* http://www.colkat.de/de/fhl/

Bonadona P. 1975. Les *Byrrhus* (*sensu lato*) de France (Col. Byrrhidae). *L'Entomologiste* 31: 193-209.

Bouchard P., Bousquet Y., Davies A., Alonso-Zarazaga M., Lawrence J., Lyal C., Newton A., Reid C., Schmitt M., Slipinski A. & Smith A. 2011. Family-group names in Coleoptera (Insecta). *ZooKeys* 88: 1-972. https://doi.org/10.3897/zookeys.88.807

Bouget C., Brustel H., Noblecourt T. & Zagatti P. 2019. *Les Coléoptères saproxyliques de France. Catalogue écologique illustré.* Muséum national d'histoire naturelle, Paris, 744 pp.

Boukal M. 2013. *Icones Insectorum Europae Centralis.* Coleoptera: Byrrhidae. *Folia Heyrovskyana*, Series B, Vol. 16, 16 pp.

Boukal M. 2017. *Beetles of the family Haliplidae of Central Europe & Beetles of the family Byrrhidae of Central Europe*. Academia, Prague, 388 pp.

Boukal D.S., Boukal M., Fikáček M., Hájek J., Klečka J., Skalický S., Šťastný J. & Trávníček D. 2007. Catalogue of water beetles of the Czech Republic (Coleoptera: Sphaeriusidae, Gyrinidae, Haliplidae, Noteridae, Hygrobiidae, Dytiscidae, Helophoridae, Georissidae, Hydrochidae, Spercheidae, Hydrophilidae, Hydraenidae, Scirtidae, Elmidae, Dryopidae, Limnichidae, Heteroceridae, Psephenidae). *Klapalekiana* 43 (Supplementum): 1-289.

Boukal D.S., Fikáček M., Hájek J., Konvička O., Křivan V., Sejkora R., Skalický S., Straka M., Sychra J. & Trávníček D. 2012. New and interesting records of water beetles from the Czech Republic (Coleoptera: Sphaeriusidae, Dytiscidae, Helophoridae, Hydrophilidae, Georissidae, Hydraenidae, Scirtidae, Elmidae, Dryopidae, Limnichidae, Heteroceridae). *Klapalekiana* 48: 1-21.

Brancucci M. 1994. Liste rouge des hydradéphages menacés de Suisse (pp. 60-63). *In:* Duelli P. (ed). *Listes rouges des espèces animales menacées de Suisse.* Office fédéral de l'environnement, des forêts et du paysage, Berne, 97 pp.

Brandstetter C.M. & Kapp A. 1998. *Käferinventar von Vorarlberg und Liechtenstein. Insecta: Coleoptera.* Eigenverlag des Ersten Vorarlberger Coleopterologischen Vereins, Bürs, 92 pp.

Burakowski B., Mroczkowski M. & Stefańska J. 1983. *Katalog fauny Polski. Catalogus faunae Poloniae.* Część 23, tom 9. Chrząszcze – Coleoptera. Scarabaeoidea, Dascilloidea, Byrrhoidea i Parnoidea. Państwowe Wydawnictwo Naukowe, Warszawa, 294 pp.

Caflisch J.L. 1894. Beiträge zu einem Verzeichnisse der Insecten-Fauna Graubündens von Dr. E. Killias. IV: Coleopteren. *Supplement/Beilage zu Jahresbericht der Naturforschenden Gesellschaft Graubündens,* 275 pp.

Cai C., Tihelka E., Giacomelli M., Lawrence J.F., Ślipiński A., Kundrata R., Yamamoto S., Thayer M.K., Newton A.F., Leschen R.A.B., Gimmel M.L., Lü L., Engel M.S., Bouchard P., Huang D., Pisani D. & Donoghue P.C.J. 2022. Integrated phylogenomics and fossil data illuminate the evolution of beetles. *Royal Society Open Science* 9(3) : 211771. https://doi.org/10.1098/rsos.211771

Callot H. 2018. *Liste de référence des Coléoptères d'Alsace.* Société Alsacienne d'Entomologie, 107 pp. http://soc.als.entomo.free.fr [version du 30-IX-2018]

Carron G. 2009. *Cartes de distribution des Coléoptères aquatiques rhéophiles de la région genevoise.* Rapport d'expertise intermédiaire, LEBA, Genève, 26 pp.

Chittaro Y., Sanchez A. & Geiser M. 2021. An updated checklist of the Cantharidae and Lycidae of Switzerland (Coleoptera: Elateroidea). *Alpine Entomology* 5 : 77-94. https://doi.org/10.3897/alpento.5.67808

Cosandey V. 2023. Bilan de trois années de captures de Coléoptères aquatiques dans le canton de Genève. *Entomo Helvetica* 16: 107-121.

Cosandey V., Chittaro Y. & Sanchez A. 2023. Annotated checklist of the Hydrophiloidea of Switzerland (Coleoptera). *Alpine Entomology* 7: 167-184. https://doi.org/10.3897/alpento.7.111147

Cosandey V., Chittaro Y. & Sanchez A. 2024. An updated checklist of the Hydradephaga of Switzerland (Coleoptera). *Alpine Entomology* 8: 87-119. https://doi.org/10.3897/alpento.8.124813

Denux O. & Zagatti P. 2010. Coleoptera families other than Cerambycidae, Curculionidae *sensu lato*, Chrysomelidae *sensu lato* and Coccinellidae. Chapter 8.5. *BioRisk* 4(1): 315-406. https://doi.org/10.3897/biorisk.4.61

Dietrich K. 1865. Beitrag zur Kenntniss der Insekten-Fauna des Kantons Zürich. Käfer. *Neue Denkschriften der allgemeinen schweizerischen Gesellschaft für die gesamten Naturwissenschaften* 21: 1-240.

Dodelin B. 2020. *Curimopsis cyclolepidia* présent en Vanoise. *EntomoData*. https://entomodata.fr/2020/07/19/curimopsis-cyclolepidia-present-en-vanoise/comment-page-1/

Dodelin B. 2024. Il y a bien deux espèces de *Cytilus* en Europe. *EntomoData.* https://entomodata.fr/2024/10/17/il-y-a-bien-deux-especes-de-cytilus-en-europe/

Drechsel U. 1979. Familie: Heteroceridae (pp. 296-304). *In:* Freude H., Harde K.W. & Lohse G.A. (eds). *Die Käfer Mitteleuropas.* Band 6. Diversicornia. Goecke & Evers, Krefeld, 367 pp.

Fabbri R.A. 1996. Ritrovamento di *Byrrhus* (*Byrrhus*) *geminatus* Le Conte, 1854 (Insecta, Coleoptera, Byrrhidae) nelle Alpi centrali ed annotazione di ulteriori dati corologici. *Il Naturalista Valtellinese, Atti del Museo civico di Storia naturale di Morbegno* 7: 87-93.

Favre E. 1890. *Faune des coléoptères du Valais et des régions limitrophes.* Zürcher et Furrer, Zürich, 448 pp.

Flach K.L. 1889. Zur Kenntniss der Elmiden. *Stettiner Entomologische Zeitung* 50: 137-140.

Focarile A. 1989. Ricerche Ecologico-Faunistiche sui Coleotteri delle Bolle di Magadino (Ticino, Svizzera). Campagna 1986-1988. *Bollettino della Società ticinese di scienza naturali* 77: 75-121.

Focarile A. 2003. *Ecologia e faunistica degli insetti (particolarmente Coleotteri) nell'ecosistema alluviale della Val Bavona (Ticino, Svizzera)*. Rapporto Fondazione Valle Bavona, Cavergno, 85 pp.

Focarile A. 2004. Dati preliminari sull'ecologia e faunistica (invertebrati) del bosco di *Quercus petraea* "La Motela" in comune di Mesocco. Unpublished report.

Fontana P. 1922. Contribuzione alla Fauna coleotterologica ticinese. *Bolletino della Società ticinese di scienza naturali* 19: 35-48.

Fontana P. 1947. Contribuzione alla Fauna coleotterologica ticinese. *Bollettino della Società ticinese di scienza naturali* 42: 16-94.

Franz H. 1967. Revision der Gattung *Syncalypta* Steph. (Coleopt., Byrrhidae). *Annalen des Naturhistorischen Museums in Wien* 70: 139-158.

Ganglbauer L. 1904. *Die Käfer von Mitteleuropa.* Die Käfer der österreichisch-ungarischen Monarchie, Deutschlands, der Schweiz, sowie des französichen und italienischen

Alpengebietes. Vierte Band, erste Hälfte. Dermestidae, Byrrhidae, Nosodendridae, Georyssidae, Dryopidae, Heteroceridae, Hydrophilidae. Carl Gerold's Sohn, Wien, 286 pp.

Gaud A. 1913. Dispersion de quelques espèces; nouvelles stations. *Bulletin de la Murithienne* 38: 44-49.

Gerber J. 1993. Über den Wiederfund des verschollenen Wasserkäfers *Potamophilus acuminatus* (Fabricius) (Coleoptera: Elmidae) und Beobachtungen zu seiner Bionomie. *Lauterbornia* 13: 89-99.

Hájek J. 2016. Ptilodactylidae (pp. 621-623). *In:* Löbl I. & Löbl D. (eds). *Catalogue of Palaearctic Coleoptera.* Volume 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Revised and Updated Edition. Brill, Leiden, Boston, 983 pp.

Handschin E. 1963. *Die Coleopteren des schweizerischen Nationalparkes und seiner Umgebung.* Ergebnisse der wissenschaftlichen Untersuchungen im schweizerischen Nationalpark. Band VIII. Lüdin, Liestal, 302 pp.

Hayes D.S., Brändle J.M., Seliger C., Zeiringer B., Ferreira T. & Schmutz S. 2018. Advancing towards functional environmental flows for temperate floodplain rivers. *Science of The Total Environment* 633: 1089-1104. https://doi.org/10.1016/j.scitotenv.2018.03.221.

Heer O. 1841. *Die Kaefer der Schweiz. Mit besonderer Berücksichtigung ihrer geographischen Verbreitung.* Erster Theil. Dritte Lieferung. Petitpierre, Neuchâtel, 79 pp.

Hernando C. & Ribera I. 2016 Limnichidae (pp. 607-610). *In:* Löbl I. & Löbl D. (eds). *Catalogue of Palaearctic Coleoptera.* Volume 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Revised and Updated Edition. Brill, Leiden, Boston, 983 pp.

Hugentobler H. 1966. *Beitrag zur Kenntnis der Käfer der Nordostschweiz.* St. Gallischen Naturwissenschaftlichen Gesellschaft, St. Gallen, 248 pp.

Hunt H., Bergsten J., Levkanicova Z., Papadopoulou A., St. John O., Wild R., Hammond P.M., Ahrens D., Balke M., Caterino M.S., Gómez-Zurita J., Ribera I., Barraclough T.G., Bocáková M., Bocák L. & Vogler A.P. 2007. A comprehensive phylogeny of beetles reveals the evolutionary origins of a superradiation. *Science* 318: 1913-1916. https://doi.org/10.1126/science.1146954.

Jäch M.A. 1992a. Familie: Dryopidae (pp. 67-69). *In:* Lohse G.A. & Lucht W.H. (eds). *Die Käfer Mitteleuropas.* Band 13. 2. Supplementband mit Katalogteil. Goecke & Evers, Krefeld, 376 pp.

Jäch M.A. 1992b. Familie: Elmidae (pp. 69-82). *In:* Lohse G.A. & Lucht W.H. (eds). *Die Käfer Mitteleuropas.* Band 13. 2. Supplementband mit Katalogteil. Goecke & Evers, Krefeld, 376 pp.

Jäch M.A., Kodada J. 2016. Elmidae (pp. 591-603). *In:* Löbl I. & Löbl D. (eds). *Catalogue of Palaearctic Coleoptera.* Volume 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Revised and Updated Edition. Brill, Leiden, Boston, 983 pp.

Jäch M.A., Brojer M., Bruvo Mađarić B., Litovkin S.V., Kovalev A.V., Prokin A.A. & Sazhnev A.S. 2024. Faunistic and taxonomic notes on the Central Asian species of *Stenelmis* Dufour, 1835. *Koleopterologische Rundschau* 94: 133-150.

Jäch M.A., Komarek A., Schillhammer H., Schuh R. & Rössler G. 2001. Bemerkenswerte Käferfunde aus Österreich (X) (Coleoptera). *Koleopterologische Rundschau* 71: 217-223.

Jäch M.A., Dietrich F. & Raunig B. 2005. Rote Liste der Zwergwasserkäfer (Hydraenidae) und Krallenkäfer (Elmidae) Österreichs (Insecta: Coleoptera) (pp. 211-284). *In:* Zulka K.P. (ed). *Rote Listen gefährdeter Tiere Österreichs. Checklisten, Gefährdungsanalyse, Handlungs-bedarf.* Part 1: Säugetiere, Vögel, Heuschrecken, Wasserkäfer, Netzflügler, Schnabelfliegen, Tagfalter (Grüne Reihe des Lebensministeriums, Vol. 14(1). Bundesministerium für Land und Forstwirtschaft, Umwelt und Wirtschaft, Wien, 406 pp.

Jäch M., Brojer M., Schuh R., Holzer E., Plonski I.S., Mehlmauer P., Eckelt A. & Gebhardt H. 2013. Bemerkenswerte Käferfunde aus Österreich (XIX) (Coleoptera). *Koleopterologische Rundschau* 83: 283-292.

Jäch M.A., Kodada J., Brojer M., Shepard W.D. & Čiampor F. Jr. 2016. *Coleoptera: Elmidae and Protelmidae. World Catalogue of Insects,* Volume 14. Brill, Leiden, Boston, 318 pp.

Jäger O. & Pütz A. 2016. Byrrhidae (pp. 574-591). *In:* Löbl I. & Löbl D. (eds). *Catalogue of Palaearctic Coleoptera.* Volume 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Revised and Updated Edition. Brill, Leiden, Boston, 983 pp.

Kahlen M. & Hellrigl K. 1996. Ordnung Coleoptera-Käfer (pp. 393-511). *In:* Hellrigl K. (ed.). *Die Tierwelt Südtirols.* Naturmuseum Südtirol, Bozen, 831 pp.

Kiesenwetter E.A.H. von. 1851. Revision der Käfergattung *Heterocerus*. *Linnaea Entomologica* 5: 281-300.

Klausnitzer B. 1996. *Käfer im und am Wasser.* Die neue Brehm Bücherei, Westarp Wissenschaften, 200 pp.

Koch K. 1989. *Die Käfer Mitteleuropas.* Ökologie. Band 2. Goecke & Evers, Krefeld, 382 pp.

Kodada J. & Jäch M.A. 2005. 18.3. Dryopidae Bilberg, 1820 (1817) (pp. 496-508). *In:* Beutel R.G. & Leschen R.A.B. (eds). *Handbook of Zoology,* Vol. IV (Part 38), Coleoptera, Beetles, Vol. 1: Morphology and Systematics (Archostemata, Adephaga, Myxophaga, Polyphaga partim). Walter de Gruyter, Berlin, 701 pp.

Kodada J. & Jäch M.A. 2016. Dryopidae (pp. 603-607). *In:* Löbl I. & Löbl D. (eds). *Catalogue of Palaearctic Coleoptera*. Volume 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Revised and Updated Edition. Brill, Leiden, Boston, 983 pp.

Köhler F. 2000. Erster Nachtrag zum Verzeichnis der Käfer Deutschlands. *Entomologische Nachrichten und Berichte, Dresden* 44(1): 60-84.

Köhler F. 2011. 2. Nachtrag zum „Verzeichnis der Käfer Deutschlands" (Köhler & Klausnitzer 1998) (Coleoptera). *Entomologische Nachrichten und Berichte, Dresden* 55: 109-174.

Köhler F. & Klausnitzer B. 1998. Entomofauna Germanica. Verzeichnis der Käfer Deutschlands. *Entomologische Nachrichten und Berichte, Dresden* 4: 1-185.

Kundrata R., Jäch M.A. & Bocak L. 2017. Molecular phylogeny of the Byrrhoidea–Buprestoidea complex (Coleoptera, Elateriformia). *Zoologica Scripta* 46 (2): 150-164. https://doi.org/10.1111/zsc.12196

Lawrence J.F. & Newton A.F. 1995. Families and subfamilies of Coleoptera (with selected genera, notes, references and data on family-group names) (pp. 634-797). *In:* Pakaluk J. & Ślipiński S.A. (eds). *Biology, Phylogeny, and*

Classification of Coleoptera. Papers Celebrating the 80th Birthday of Roy A. Crowson. Muzeum i Instytut Zoologii PAN, Warszawa, 1092 pp.

Lee C.-F. 2016. Psephenidae (pp. 616-621). *In:* Löbl I. & Löbl D. (eds). *Catalogue of Palaearctic Coleoptera.* Volume 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Revised and Updated Edition. Brill, Leiden, Boston, 983 pp.

Linder A. 1967. Nachtrag zum Verzeichnis der Bündner Coleopteren von Dr. E. Killias. *Jahresbericht der Naturforschenden Gesellschaft Graubünden* 93: 78-108.

Löbl I. & Löbl D. (eds). 2016. *Catalogue of Palaearctic Coleoptera.* Volume 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Revised and Updated Edition. Brill, Leiden, Boston, 983 pp.

Lohse G.A. 1979. Eubriinae (p. 250). *In:* Freude H., Harde K.W. & Lohse G.A. (eds). *Die Käfer Mitteleuropas.* Band 6. Diversicornia. Goecke & Evers, Krefeld, 376 pp.

Mann D.J. 2006. *Ptilodactyla exotica* Chapin, 1927 (Coleoptera: Ptilodactylidae: Ptilodactylinae) established breeding under glass in Britain, with a brief discussion on the family Ptilodactylidae. *Entomologist's Monthly Magazine* 142: 67-79.

Mascagni A. 2014. The variegated mud-loving beetles of Europe (first part) (Coleoptera: Heteroceridae). *Onychium* 10: 78-118.

Mascagni A. 2016. Heteroceridae (pp. 610-621). *In:* Löbl I. & Löbl D. (eds). *Catalogue of Palaearctic Coleoptera.* Volume 3. Scarabaeoidea – Scirtoidea – Dascilloidea – Buprestoidea – Byrrhoidea. Revised and Updated Edition. Brill, Leiden, Boston, 983 pp.

McKenna D.D., Shin S., Ahrens D., Balke M., Beza-Beza C., Clarke D.J., Donath A., Escalona H.E., Friedrich F., Letsch H., Liu S., Maddison D., Mayer C., Misof B., Murin P.J., Niehuis O., Peters R.S., Podsiadlowski L., Pohl H., Scully E.D., Yan E.V., Zhou X., Slipinski A. & Beutel R.G. 2019. The evolution and genomic basis of beetle diversity. *Proceedings of the National Academy of Sciences of the United States of America* 116 (49): 24729-24737. https://doi.org/10.1073/pnas.1909655116

Messner B. 1973. Zur Biologie einheimischer Käferfamilien. 11. Heteroceridae. *Entomologische Berichte* 16: 1-4.

Monnerat C., Chittaro Y., Sanchez A. & Gonseth Y. 2015. Critères et procédure d'élaboration de listes taxonomiques nationales: le cas des Buprestidae, Cerambycidae, Lucanidae et Cetoniidae (Coleoptera) de Suisse. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 88: 155-172.

Mulhauser G., Pronini P., Werffeli B., Aeby P. & Mulhauser B. 1987. Les Arthropodes de la mouille de la Vraconnaz. *Bulletin romand d'Entomologie* 5: 61-91.

Müller J.A. 1904. 3. Beitrag zur Coleopteren-Fauna der Kantone St. Gallen und Appenzell. *Bericht über die Tätigkeit der St. Gallischen naturwissenschaftlichen Gesellschaft*: 201-218.

Müller-Wenk R., Huber F., Kuhn N. & Peter A. 2004. *Riverine floodplain use and environmental damage.* Environmental Series no. 361. Swiss Agency for the Environment, Forests and Landscape, Bern, 76 pp.

Mulsant E. & Rey C. 1872. *Histoire naturelle des coléoptères de France. Improsternés - Uncifères - Diversicornes - Spinipèdes*. Paris, Deyrolle, [5] + 18 + 58 + 40 + 57 pp.

Nardi G., Bocci M. & Poggi R. 2020. *Ptilodactyla exotica* Chapin, 1927 in Italy (Coleoptera: Ptilodactylidae). *Zootaxa* 4861 (1): 63-70. https://doi.org/10.11646/zootaxa.4861.1.4

Novaković B., Marković V., Mesaroš G. & Živić I. 2020. The riffle beetle *Macronychus quadrituberculatus* Müller, 1806 (Coleoptera: Elmidae): recent findings in Serbia with ecological notes. *Biologia* 75: 1891-1897.

Oester R., Frei A. & Birnstiel E. 2021. Erstfund von *Potamophilus acuminatus* (Fabricius, 1792) für die Schweiz (Coleoptera, Elmidae). *Entomo Helvetica* 14: 141-144.

Olmi M. 1976. *Fauna d'Italia* XII. Coleoptera Dryopidae, Elminthidae. Edizioni Calderini, Bologna, 280 pp.

Olmi M. 1978. *Guide per il riconoscimento delle specie animali delle acque interne italiane.* 2. Driopidi, Elmintidi (Coleoptera Dryopidae, Elminthidae). Consiglio Nazionale delle Ricerche, Roma, 76 pp.

Paulus H.F. 1979. Familie: Byrrhidae (pp. 328-350). *In:* Freude H., Harde K.W. & Lohse G.A. (eds). *Die Käfer Mitteleuropas.* Band 6. Diversicornia. Goecke & Evers, Krefeld, 376 pp.

Queney P. 2018. Coléoptères aquatiques du massif du Mercantour: données complémentaires pour Barcelonnette (Alpes-de-Haute-Provence, France). *Le Coléoptériste* 21(1): 10-14.

Rätzer A. 1888. Nachträge zur Fauna coleopterorum Helvetiae besonderes aus dem Gebiete des berner Seelandes, des Jura und der Walliseralpen. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 8: 20-42.

Rehfous M. 1955. Contribution à l'étude des Insectes des Champignons. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 28: 1-106.

Ruta R., Kubisz D. & Buczyński P. 2011. On the occurrence of *Eubria palustris* (Germar, 1818) (Coleoptera: Psephenidae) in Poland. *Wiadomości Entomologiczne* 30(1): 37-46.

Sanchez A. & Chittaro Y. 2022. Annotated checklist of the Coccinellidae (Coleoptera, Coccinelloidea) of Switzerland. *Alpine Entomology* 6: 111-127. https://doi.org/10.3897/alpento.6.89476

Schmutz S., Fohler N., Friedrich T., Fuhrmann M., Graf W., Greimel F., Höller N., Jungwirth M., Leitner P., Moog O., Melcher A., Müllner K., Ochsenhofer G., Salcher G., Steidl C., Unfer G. & Zeiringer B. 2013. S*chwallproblematik an Österreichs Fließgewässern – Ökologische Folgen und Sanierungsmöglichkeiten.* BMFLUW, Wien, 188 pp.

Schöll F. 2002. Das Makrozoobenthos des Rheins 2000. 68. Plenarsitzung – 2./3. Juli 2002 – Luxemburg (Bericht Nr. 128-d). Internationale Kommission zum Schutz des Rheins, Koblenz: 49 pp.

Schulte H. 1989. Beiträge zur Ökologie und Taxonomie der Gattung *Elmis* Latreille (Insecta: Coleoptera, Elmidae) unter besonderer Berücksichtigung niederbayerischer Vorkommen. *Lauterbornia* 1: 23-37.

Skalický S. & Ezer E. 2014. *Icones Insectorum Europae Centralis*. Coleoptera: Heteroceridae. *Folia Heyrovskyana,* Series B, Vol. 18, 12 pp.

Spitzenberg D., Schöne A., Klausnitzer B. & Malchau W. 2021. *Die wasserbewohnenden Käfer Sachsen-Anhalts.* Landesamt für Umweltschutz Sachsen-Anhalt, Rangsdorf, 772 pp.

Spitzenberg D., Sondermann W., Hendrich L., Hess M. & Heckes U. 2016. Rote Liste und Gesamtartenliste der wasserbewohnenden Käfer (Coleoptera aquatica) Deutschlands (pp. 207-246). *In:* Gruttke H., Balzer S.,

Binot-Hafke M., Haupt H., Hofbauer N., Ludwig G., Matzke-Hajek G. & Ries M. (eds). *Rote Liste gefährdeter Tiere, Pflanzen und Pilze Deutschlands*, Band 4: Wirbellose Tiere (Teil 2), Naturschutz und Biologische Vielfalt 70 (4). Landwirtschaftsverlag, Münster, 598 pp.

Sprecher E., Luka H., Germann C., Luka A., Klausnitzer B. & Graff P. 2008. Käfer (pp. 308-331). *In:* Baur B., Billen W. & Burckhardt D. (eds). Vielfalt zwischen den Gehegen: wildlebende Tiere und Pflanzen im Zoo Basel. *Monographien der Entomologischen Gesellschaft Basel* 3: 462 pp.

Steffan A.W. 1979. Familie: Dryopidae (pp. 265-294). *In:* Freude H., Harde K.W. & Lohse G.A. (eds). *Die Käfer Mitteleuropas.* Band 6. Diversicornia. Goecke & Evers, Krefeld, 376 pp.

Stierlin G. 1883. Zweiter Nachtrag zur Fauna coleopterorum helvetica. *Neue Denkschriften der schweizerischen Gesellschaft für die gesammten Naturwissenschaften* 8 (3): 1-98.

Stierlin G. 1900. *Fauna coleopterorum helvetica. Die Käfer-Fauna der Schweiz nach der analytischen Methode.* I. Theil. Bolli & Böcherer, Schaffhausen, 667 pp.

Stierlin G. & Gautard V.V. 1867. *Fauna coleopterorum helvetica. Die Käfer-Fauna der Schweiz.* Schaffhausen, Vevey, 372 pp.

Tamutis V., Tamute B. & Ferenca R. 2011. A catalogue of Lithuanian beetles (Insecta, Coleoptera). *ZooKeys* 121: 1-494.

Täschler M. 1872. Beitrag zur Coleopteren-Fauna der Kantone St. Gallen und Appenzell. *Berichte der Tätigkeiten der St. Galler Naturwissenschaftlichen Gesellschaft*, 209 pp.

Twardy D. 2018. Pierwsze stwierdzenie *Augyles* (*Augyles*) *crinitus* (Kiesenwetter, 1850) (Coleoptera: Heteroceridae) w Polsce. [First record of *Augyles* (*Augyles*) *crinitus* (Kiesenwetter, 1850) (Coleoptera: Heteroceridae) in Poland]. *Wiadomości Entomologiczne* 37(2): 115-119.

Vorst O., van Ee G., Huijbregts H. & van Nieuwenhuijzen A. 2007. On some smaller Latvian Coleoptera. *Latvijas entomologs* 44: 15-25.

Wittenberg R., Kenis M., Blick T., Hanggi A., Gassmann A. & Weber E. 2006. *Invasive alien species in Switzerland: an inventory of alien species and their threat to biodiversity and economy in Switzerland*. Federal Office for the Environment (FOEN), Switzerland, Bern, 155 pp.

Zhang S.Q., Che L.H., Li Y., Liang D., Pang H., Ślipiński A. & Zhang P. 2018. Evolutionary history of Coleoptera revealed by extensive sampling of genes and species. *Nature Communications* 9: 205. https://doi.org/10.1038/s41467-017-02644-4