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Amphibians and reptiles collected by Moritz Wagner, with a focus on the ZFMK collection

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Abstract. Moritz Wagner (1813–1887) is one of the least poorly-known German explorers, geographers and biologists of the 19th century. Between 1836 and 1860, expeditions led him to Algeria, the Caucasus Region, as well as to North-, Central- and South-America. Beside his important scientific contributions to biology, geography and ethnography he also collected large numbers of plant and animal specimens. The collected material is scattered among several European museums and university collections because Wagner only obtained a permanent position after his last voyage. Prior to this he donated his material to experts, funding societies or the institutions where he was a student or in whose collections he worked. The present article is a first contribution towards a review of the herpetological collections made by Moritz Wagner, which includes type material of several amphibians and reptiles. Most specimens were found in the Zoologische Staatssammlung München and the Göttingen collection, which is now housed at the Museum Koenig in Bonn, but the collections in Berlin, Leiden, Paris and Vienna also hold material collected by Wagner.

Key words. Moritz Wagner, historic collections, type material.

INTRODUCTION

Friedrich Johann Carl Moritz Wagner (1813–1887, Fig. 1) was a German scientist and naturalist, honorary professor of ethnology at the Ludwig-Maximilians University and first curator of the Museum of Ethnology (at this time still named "königlich ethnographische Sammlung" [= the Royal Ethnographic Collection]) in Munich. He was a well-known explorer and many of his books where translated to English, French or even Armenian (see Fig. 2) during his lifetime. As a scientist he worked in different subject areas including geography, botany, zoology, ethnology, geology, politics, and journalism. Wagner produced notable results in many of these fields (Beck 1951, 1953, 1971; M. Wagner 1861, 1862; P. Wagner 2008). For example, he hypothesized the course of the Panama Canal decades before it was formally planned and built (M. Wagner 1861, Beck 1971) and was the discoverer of the western source of the river Euphrates (Beck 1971). As a zoologist, he was one of the first scientists to work in the field of zoogeography, comparing distribution patterns, most importantly, of insects, fishes and mammals, but also of reptiles.

These disciplines are also reflected in Wagner's field collections. During his voyages, he collected large numbers of insects, but only a few vertebrate vouchers, mainly fishes. Parts of these collections were lost during the expeditions or during shipment (see below). Moreover, his collections are not stored in one institution, but were dispersed to various important European natural history museums (e.g., the museums of Berlin, Munich, Paris and Vienna). He often donated his material to taxonomists (e.g., Arnold A. Berthold, Hermann Schlegel, Franz Steindachner) who identified the specimens and sometimes added a chapter to his scientific books (e.g., Schlegel in M. Wagner 1841). Other parts of the collections were sold to museums to finance his travels, or were donated to institutes where he studied or worked. It was only his last voyage to South America that was not privately organized, but rather funded by the Bavarian King Maximilian II. Therefore, the main parts of the zoological collection of this expedition were inventoried in the collections of the Zoologische Staatssammlung in Munich (e.g., at least 72 fishes, Neumann 2006), but partly later exchanged with other institutions (e.g., NMW) or destroyed in the Second World War. Nevertheless, Moritz Wagner had a strong relationship to his brother, Rudolf Wagner, who was Professor and Director of the Institute of Physiology in Göttingen, where Moritz Wagner studied geology and geography. It is, therefore, not surprising that Moritz Wagner donated many specimens from his collections from Algeria and Caucasus to the Institute of Physiology and the Zoological Museum at the University of Göttingen.

1st Expedition: Algeria (1836–38)

In the introduction to his book about Algeria Wagner (1841) mentioned that he visited the North African coast in 1834 before his longer voyage to Algeria two years later. Even though this was a short stay it may be assumed that Wagner collected at least insect material, as he also studied this group before his first longer expedition.

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Fig. 1. Moritz Wagner (1813–1887), portrait from Franz Hanfstaengl about 1860. Courtesy of the Stadtmuseum München.

Wagner travelled (1836–38) to Algeria during the French occupation and war (1830–1847) as member of a scientific group within the French army. This was the same expedition during which Alphonse Guichenot, a well-known herpetologist from the Paris Museum, collected data for his herpetological monograph (Guichenot 1850). The amphibians and reptiles collected by Wagner were later identified by Hermann Schlegel (in M. Wagner 1841), a famous herpetologist of the time who was then the assistant of Coenraad Jacob Temminck, Director of the Rijksmuseum van Natuurlijke Historie [today Naturalis] in Leiden. As a result of Schlegel's involvement many Algerian specimens are now part of the Leiden collection. However, Wagner also donated material from Algeria to the Göttingen collection, as he studied geology and geography at this university after his return from Algeria (see P. Wagner 2008). The most important herpetological results of this journey were a series of specimens of the then poorly-known, *Trogonophis wiegmanni* (Fig. 3) and the description of *Bufo mauritanicus* by Schlegel (in M. Wagner 1841).

2nd Expedition: Caucasia (1842–44)

During this expedition Wagner collected material mainly in the Caucasus region east of the Black Sea, today in the modern countries of Armenia, Azerbaijan, Georgia, northwestern Iran, southern Russia, Ukraine (Crimean Peninsula) and Turkey. Like the material from Algeria, parts of Wagner's Caucasian collection were also examined by specialists. The amphibians and reptiles were identified by Arnold Adolph Berthold (see below, and M. Wagner 1850). Moritz Wagner donated his collected material to the Zoological Museum of the University of Göttingen, but also to the Institute of Physiology at the same university, where his brother, Rudolf Wagner, was director at this time. Rudolf mentioned a human skull collected by his brother with the collection number 507 from Caucasia (R. Wagner 1852). Moreover, the catalogue of the Zoological Museum lists vouchers collected by M. Wagner but obtained from the Institute of Physiology (see species account). Berthold (in M. Wagner 1850) mentioned that Wagner collected 29 amphibian and reptile species representing 18 genera, but Berthold actually listed 30 species in total. However, several taxa (Amphibia: *Hyla viridis*; Sauria: *Lacerta strigata*, *Lacerta viridis*, *Ophiops elegans*, *Anguis fragilis*; Ophidia: *Typhlops vermicularis*, *Coronella collaris*, *Coluber leopardinus*, *Coluber sauromates*, *Vipera berus*) are mentioned by Berthold (in M. Wagner 1850), but these are neither found in the catalogue of the museum nor in the collection. Therefore, most probably Wagner also gave parts of this collection to other institutes, or Berthold exchanged these specimens before they were entered in the catalogue. To date it has not been possible to locate these missing vouchers.

3rd expedition: North- and Central America (1852–55) and 4th expedition: Central- and South America (1857–60)

Between 1852 and 1855 Wagner travelled together with the Austrian Carl Ritter von Scherzer through North America to Central America (e.g. Honduras, Nicaragua, Costa Rica, El Salvador). Scherzer (Anonymus 1856) reported to the Austrian Academy of Science that only a few vertebrates were collected and donated to Austrian institutes and private collections. Only a small number of amphibians or reptiles have been identified in the Vienna collection. Furthermore a donation of material to other specific Austrian collections is not indicated in the publications about their travels (Scherzer & M. Wagner 1857; M. Wagner 1870; M. Wagner and Scherzer 1854, 1856) and, therefore, the whereabouts of other material in Austria remains unresolved. The number of vertebrates collected was additionally reduced because some material was lost due to inadequate preservation during the expedition. Moreover, some material from Central America, held in storage prior to shipping, was destroyed during an earthquake on April 16th 1854 in San Salvador (see M. Wagner, 1870).

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Fig. 2. Left: Lake Sewan and Mount Ararat (above) and an unknown area (below) in Armenia. Figured in the 1851 published Armenian translation of *Reise nach dem Ararat und dem Hochland Armenien* (Wagner 1848). Right: The title page of the Armenian edition (above) and handwritten information about the publisher (below). Courtesy of the Völkerkundemuseum München.

Therefore, major parts of the third expedition , except those specimens he shipped before the earthquake, were destroyed. Later, on his fourth expedition (1858/1859), Wagner travelled alone to Central and northern South America and collected many insects and fishes (see Neumann 2006), but most probably only a small number of amphibians or reptiles. Most of these specimens were inventoried in the collection of the Zoologische Staatssammlung in Munich, because this journey was funded by the Bavarian King, Maximilian II, although later some were exchanged with the museum in Vienna or destroyed in the Second World War (nearly the entire ZSM fish collection and about half of the herpetological collection). Neumann (2006) mentioned that for the fish collected the location "Neu-Granada" was corrected by Wagner (1864) into "Panama" to indicate that he exclusively collected in this area, which was a province of New-Granada until 1903.

Moritz Wagner as biogeographer and darwinist

Besides his relevance as a collector, Moritz Wagner also was a well-reputed biologist with a broad knowledge of many different groups, such as insects, fish and mammals, but also plants. Continuing from his first contributions, Moritz Wagner studied distribution patterns within different groups (e.g., Wagner 1841, mammals, birds, butterflies, beetles, and land mollusks). This predates "The Geographical Distribution of Animals" by Alfred Russell Wallace (1876) which is generally recognized as one of the early contributions to zoogeography. Therefore, Moritz Wagner must be recognized as one of the founders of this field in biology. Moreover, as he studied distribution pattern in detail and firstly described rivers as a geographic barrier between sibling species. Later, he was influenced by e.g., Leopold von Buch and Alexander von Humboldt and therefore biogeography was a part of nearly all of his contributions, but rarely he published works

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exclusively in this field (e.g., Wagner 1866). However, it was the publication of Darwin's epochal work "On the Origin of Species" which stimulated Moritz Wagner to develop his "Migrationstheorie" [= theory on the migration of species]. Here, he first described allopatric (geographic) speciation, which was later adopted by Ernst Mayr. Even though Wagner (e.g., 1868) initially saw his theory as a good argument to support Darwin's work, it was generally recognized by others e.g., Haeckel and Weismann as anti-Darwinian. Moritz Wagner (1868) argued that the geographic isolation of two populations is the most important requirement for speciation. Darwin, on the other hand, at first recognized Wagner's theory, but considered isolation as a less important factor in speciation; later he totally ignored it (P. Wagner 2008).

Remarks on the herpetological collection of the Zoological Museum at the University of Göttingen in respect to material collected by Moritz Wagner

Apart from several historically important private collections (which partly became state museums later on), the Zoological Museum of Göttingen is among the oldest institutional German natural history museum. Since 1773 it had been a department of the Royal (i.e., Kingdom of Hannover) Academic Museum and received its own building in 1793. The first director and curator of the zoological collection was, from 1776 onwards, the famous Johann Friedrich Blumenbach (1752–1840) whose work "Handbuch der Naturgeschichte" [= Treatise of natural history] established his reputation as one of the founders of the modern discipline of comparative anatomy (see Böhme & Bischoff 1984).

After Blumenbach's death Arnold Adolph Berthold (1803–1861) became his successor. His fields of research were especially broad, one focus being the first experimental studies on hormonal effects. However, of relevance for the present paper are his taxonomic works about crustaceans, amphibians and reptiles. In this context, he contributed an important section to Moritz Wagner's book "Reise nach Kolchis" [= Travel to Colchis] where he examined the material donated by M. Wagner to the Zoological Museum in Göttingen. Berthold's connection to M. Wagner was most likely due to Wagner's brother Rudolf Wagner, who was Professor and Director of the Institute of Physiology at the University of Göttingen and may have influenced Moritz to deposit his materials from Colchis as well as other voyages in this museum. After Berthold's death, Wilhelm Moritz Keferstein (1833–1870) was able to continue the herpetological tradition at the Göttingen museum with his work on amphibians from Costa Rica and Australia. But with his early death the phase of active herpetological research ended. Four years later, in 1874, the herpetology section improved when E. Ehlers became the curator and herpetologists like George Albert Boulenger and Franz Werner studied the collection. In addition, important collections from South America, Australia and Asia were accessioned into the collection during this time. As a result, spaces for public exhibitions and scientific collections became limited and probably therefore, some collections were donated to other museums (including a bird collection to Hannover, the fish collection to Hamburg). The herpetology collection was revised twice in Göttingen, in 1968 and 1970, and a third time during the inventory in Bonn, and several specimens must be regarded as lost. Unfortunately, it was not possible to ascertain the reasons of these losses between the time of the inventories and the transfer to the Museum Koenig in Bonn, where the collection is stored today.

It is the aim of this paper to summarize the herpetological collections of Moritz Wagner, with a special focus on the Göttingen material (now stored in Bonn), but also including known material from the museums in Berlin, Leiden, Munich and Vienna.

MATERIAL & METHODS

Species accounts are headed with the current valid name of the identified species. Information of specimen records is referenced with "Material" which lists the specimens with their current collection number, old collection numbers if available, locality data, collector and, if given, the collection date. The "Catalogue name" provides the historical museum catalogue number if the specimen was originally inventoried in a different collection, together with the species name given in the respective catalogue. If a specimen is mentioned in the literature, the "Citation" references the respective publication, accompanied by the mentioned species name and locality (if the locality is different from that given with the specimen or in the museum catalogue). Is there no citation available the section was removed. Other information is provided under "Remarks".

Museum abbreviations used within this publication: NMW, Naturhistorisches Museum, Wien, Austria; RMNH, Naturalis [formerly Rijksmuseum van Natuurlijke Historie], Leiden, Netherlands; ZFMK, Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany; ZMB, Museum für Naturkunde [formerly Zoologisches Museum Berlin], Berlin, Germany; ZMUG, Zoologisches Museum der Universität Göttingen, Göttingen, Germany [sometimes incorrectly referred to as ZIUG= Zoological Institut of the University of Göttingen, which is a different collection]; ZSM, Zoologische Staatssammlung München, Munich, Germany.

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List of extant specimens of amphibians and reptiles collected by Moritz Wagner

Amphibia, Gymnophiona
[Caeciliidae]
***Caecilia albiventris* (Daudin, 1803)**
Material: ZSM 2570/0 from "Ecuador" collected by "M. Wagner".
Catalogue name: "*Caecilia albiventris*".

Amphibia, Caudata
[Ambystomidae]
***Ambystoma maculatum* (Shaw, 1802)**
Material: ZSM 1259/0 [5 ex.] from "Wisconsin," USA collected by "M. Wagner".
Catalogue name: "*Ambystoma maculatum*".

***Ambystoma jeffersonianum* (Green, 1827)**
Material: ZSM 1261/0 [8 ex.] from "Wisconsin," USA collected by "M. Wagner".
Catalogue name: "*Ambystoma jeffersonianum*".
Remarks: This species does not occur in Wisconsin and it needs to be clarified if it is a misidentification or a wrong locality..

[Proteidae]
***Necturus maculosus* Rafinesque, 1818**
Material: ZFMK 27701 [ZMUG 26a] from "Nord Amerika" [=North America, no further locality specified] donated by the "Ph[ysiological] I[nstitute]"; ZFMK 27702 [ZMUG 26c] from "Nord Amerika" [=North America, no further locality specified] collected in 1853.
Catalogue name: "*Necturus maculatus*" [ZMUG].Remarks: There is no collector specified in the ZMUG catalogue but the locality is one collected by Wagner in 1853 and the donation was via the former the Physiological Institute, where Wagner's brother was director. This strongly suggests that it was collected by Moritz Wagner.

[Plethodontidae]
***Bolitoglossa palmata* (Werner, 1897)**
Material: NMW 22862 [lectotype] from "Cordillera," Ecuador collected by "M. Wagler [sic!]."
Catalogue name: "*Spelerpes palmatus*".
Citation: As "*Spelerpes palmatus*" by Werner (1897a); as "*Spelerpes palmatus* Werner" collected by "M. Wagler [sic!]" by Häupl et al. (1994).
Remarks: Werner (1897a) mentioned that the type series consists of three specimens from Ecuador, two of which are housed at the ZSM, and one in the NMW collection. Moreover, he indicated that the specimens are from different collectors ([Ludwig Karl]"Schmarda" [Austrian biogeographer and collector, 1819–1908] and "M. Wagner") and from the original source ["(…) besitzt das zoolog. Museum der Wiener Universität ein junges, die zoolog. Sammlung des Staates in München zwei größere Exemplare, welche alle aus Ecuador stammen (Schmarda bezw. M. Wagner coll.)"] it may be concluded that the Vienna specimen was collected by "Schmarda", while the two Munich specimens by "M. Wagner". In any case, the collector "M. Wagler" mentioned by Häupl et al. (1994) is obviously a misspelling, but refers rather to Moritz Wagner than to "Schmarda". This specimen (NMW 22862 [formerly ZIUW Q43 fide Häupl et al. 1994]) was designated as the lectotype by Brame & Wake (1962: 173).

[Salamandridae]
***Notophthalmus viridescens* (Rafinesque, 1820)**
Material: ZSM 1241/0 [8 ex.], ZSM 1243/0 [6 ex.] from "Wisconsin," USA collected by "M. Wagner".
Catalogue name: "*Triturus viridescens*".

***Ommatotriton ophryticus* (Berthold, 1846)**
Material: ZFMK 27793 [ZMUG 22a] [lectotype] from "Tiflis" [=Tbilisi], Georgia, collected by "M. Wagner" in 1846.
Catalogue name: "*Triton ophriticus*" [sic!] [ZMUG].
Citation: "*Triton ophryticus* n. sp.", from „bei Tiflis" [= near Tbilisi], (Berthold 1846); "*Triton ophryticus* n. sp.", from „aus Grusien [Georgia] und von den Abhängen des Kaukasus," Berthold in M. Wagner (1850, p. 335).
Remarks: Mentioning two specimens, Berthold (in M. Wagner 1850) intended to describe "*Triton ophryticus*" in his checklist of the amphibians and reptiles collected by Moritz Wagner. However, the publishing of this book dragged out and Berthold published the description in advance (Berthold 1846) in identical form to the later-published chapter (in Wagner 1850). One of the two syntypes seems to be lost and therefore ZFMK 27793 was designated as the lectotype by Böhme & Bischoff (1984).

***Triturus karelinii* Strauch, 1870**
Material: ZFMK 27779 [ZMUG 16m, ZMUG 18] from "Tiflis" [=Tbilisi], Georgia, collected by "M. Wagner" in 1846.
Catalogue name: "*Triton cristatus*" [ZMUG 16m]; "*T. vulgaris*" [ZMUG 18].
Remarks: Berthold (in M. Wagner 1850) mentioned three species of the genus *Triturus*: *T. ophryticus*, *T. taeniatus* and *T. nycthemerus*. While the first was collected in "Tiflis", the latter two were collected at the "türkisch-pontischen Küste [southern shore of the Black Sea]" and are therefore not identical with the given locality of this specimens. The first of these species was described by Berthold (1846, in Wagner 1850) and so that obviously this specimen was not mentioned by him (Berthold in Wagner 1850).

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Amphibia, Anura
[Bufonidae]
***Atelopus longirostris* (Cope, 1868)**
Material: ZSM 1017/0 from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Atelopus longirostris*".

***Atelopus varius* (Lichtenstein & von Martens, 1856)**
Material: NMW 3875.1–4 [4 ex., syntypes] from "Costa Rica" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Hylaemorphus pluto*".
Citation: As "*Hylaemorphus pluto*" by Schmidt (1858), Savage (1972).
Remarks: According to Savage (1972), these specimens are the syntypes of *Hylaemorphus pluto* Schmidt, 1858. The type locality "Costa Rica" was later restricted to "Cartago, Cantón Cartago, Provincia Cartago, Costa Rica" by Savage (1974).

***Bufo mauritanicus* Schlegel, 1841**
Material: ZFMK 27979 [ZMUG 56a] from "Algier," Algeria [no further locality specified] collected by "M. Wagner"; RMNH 2122 [holotype] from "Umgebungen von Algier" [=vicinities of Algier] collected by "M.F. Wagner".
Catalogue name: "*Bufo mauritanicus*".
Citation: "*Bufo mauritanicus*," Schlegel (in M. Wagner 1841, part III, 134).
Remarks: Even though this species was described by Schlegel (in M. Wagner 1841) the ZFMK voucher is not a type specimen, because Schlegel clearly mentioned a single voucher ["Das vorliegende Exemplar wurde in den Umgebungen von Algier gefunden.", page 137 in Wagner 1841] and this holotype is present in the herpetology collection of Naturalis in Leiden. However, Schlegel explicitly mentioned that it was not his intention to describe *Bufo mauritanicus* as a new species ("Wenn wir der in Algerien vorkommenden großen Kröte diesen neuen Namen beilegen, so geschieht dies nur, um ihre Herkunft anzudeuten, und wir wollen dieselbe keineswegs schon als neue Art angesehen wissen."), but he gave a detailed description and diagnosis. Therefore according to the International Code of zoological Nomenclature (ICZN 1999) this is a valid description. Schlegel is widely accepted as the sole author, but the entire description is in the plural, giving the impression of more than one author. This was a common style of formal writing at the time, but the intention of the usage of the German 'wir' cannot be finally resolved. Wagner (1841) mentioned that the species is common in the lowlands of Metidscha and rare near Bona.

***Dendrobates tinctorius* (Cuvier, 1797)**
Material: ZSM 1012/0 from "Central Amerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Dendrobates tinctorius*".

[Discoglossidae]
***Discoglossus pictus pictus* Otth, 1837**
Material: ZFMK 27894 [ZMUG 35a] from „Algier," Algeria [no further locality specified] collected by "M. Wagner"; RMNH 1955 from "Algeria" [no further locality specified] collected by "M. F. Wagner".
Catalogue name: "*Discoglossus pictus*" [ZMUG].
Citation: "*Rana picta*," Schlegel (in M. Wagner 1841, part III, 134).
Remarks: Even though Schlegel (in M. Wagner 1841) mentioned the genus *Discoglossus* he did not accept this taxonomic assignation of 'modern authors' and still referred the species to the genus *Rana*.

[Hemiphractidae]
***Gastrotheca marsupiata* (Duméril & Bibron, 1841)**
Material: ZSM 1188/0 [4 ex.] from "Pichincha," Ecuador collected by "M. Wagner".
Catalogue name: "*Gastrotheca marsupiata*".

***Hemiphractus fasciatus* Peters, 1862**
Material: ZSM 36/0 [holotype] from "Catassatal" [sic!] ("Pastassa-Thal an der Ostseite der Anden [=Pastaza valley on the eastern slope of the Andes] in Ecuador" according to the description) collected by "M. Wagner".
Catalogue name: "*Ceratohyla fasciata*".
Citation: As "*Hemiphractus fasciatus*" by Trueb (1974) and Glaw & Franzen (2006).
Remarks: According to Trueb (1974) the locality is erroneous.

[Hylidae]
***Duellmanohyla uranochroa* (Cope, 1875)**
Material: NMW 6175 from "Costa Rica," [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Hyla uranochroa*".

***Hyla meridionalis* Boettger, 1874**
Material: RMNH 1699 from "Algeria" [no further locality specified] collected by M. Wagner.
Catalogue name: "*Hyla arborea*".
Citation: As "*Hyla arborea*" by Schlegel (in M. Wagner 1841, part III, 133).
Remarks: Although Schlegel (in M. Wagner 1841) mentioned several specimens, this is the only known voucher and was, at this time, the first record for Algeria.

***Hyla versicolor* (LeConte, 1825)**
Material: ZSM 1162/0 [3 ex.] from "Wisconsin," USA collected by "M. Wagner".
Catalogue name: "*Hyla versicolor*".

[Ranidae]
***Lithobates catesbeianus* (Shaw, 1802)**
Material: NMW 2926 from "Costa Rica" [no further lo-

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cality specified] collected by "M. Wagner".
Catalogue name: "*Rana pipiens*".
Remarks: This species does not does not occur in Costa Rica and was probably eollected during Wagner's North America travels.

***Pelophylax saharicus* (Boulenger, 1913)**
Material: RMNH 1942 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Rana esculenta*".
Citation: As "*Rana esculenta*" by Schlegel (in M. Wagner 1841, part III, 133).
Remarks: Schlegel (in M. Wagner 1841) mentioned several specimens, but this is the only known surviving voucher of this species from Wagner's travels.

[Strabomantidae]
***Pristimantis unistrigatus* (Günther, 1859)**
Material: ZSM 1052/0 from "Süd Amerika" [South America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Eleutherodactylus unistrigatus*".

Reptilia, Testudinae
[Chelydridae]
***Chelydra rossignoni* (Bocourt, 1868)**
Material: ZMB 125 from "Mittelamerica" [=Central America, no further locality specified] collected by "Wagner".
Catalogue name: "*Chelydra* (*Emysaurus*) *serpentina*".

***Chelydra serpentina* (Linnaeus, 1758)**
Material: ZFMK 73776 [ZMUG 29b] from "Nordamer[ika]" [=North America, no further locality specified] collected by "Mor. Wagner" in 1853.
Catalogue name: "*Cinosternum pennsylvanicum*" [ZMUG].
Remarks: Specimens of the genera *Kinosternon* and *Chelydra* are of course very distinct and specimens were likely mixed up earlier in the Göttingen (ZMUG) collection.

[Geoemydidae]
***Rhinoclemmys punctularia* (Daudin, 1801)**
Material: ZSM 88/0 from "Centralamerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: *Nicoria punctularia.*

[Kinosternidae]
***Kinosternon subrubrum* Lacépède, 1788**
Material: ZFMK 73778 [ZMUG 29a] from "Nordamer[ika]" [=North America, no further locality specified] collected by "Mor. Wagner" in 1853.
Catalogue name: "*Cinosternum pennsylvanicum*" [ZMUG].

[Testudinidae]
***Testudo graeca graeca* Linnaeus, 1758**
Material: RMNH 3234 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Testudo graeca*".
Citation: As "*Testudo graeca* var. *mauritanica*" by Schlegel (in M. Wagner 1841, part III, 106).
Remarks: Schlegel (in M. Wagner 1841) only mentioned *T. graeca* var. *mauritanica* but obviously the collected series contained more than one species (see next species account). Wagner (1841) mentioned that he found this species at all localities he visited in Algeria, and refers to areas with the Mediterranean dwarf Palm (*Chamaerops humilis*) as typical habitat where the specimens hide under leaves of this palm.

***Testudo graeca* Linnaeus, 1758**
Material: ZFMK 73732-733 [ZMUG 2e] from "Algier," [=Algeria, no further locality specified] collected by "M. Wagner", donated by "Phys[iologisches] Inst[itut]".
Catalogue name: "*Testudo ibera*" [ZMUG].
Citation: As "*Testudo graeca* var. *mauritanica*" by Schlegel (in M. Wagner 1841, part III, 106).
Remarks: The specimens were donated to the Zoological Museum in Göttingen from the Institute of Physiology of the same university. The head of the institute at this time was Rudolf Wagner, the older brother of Moritz Wagner. M. Wagner thus gave material directly to his brother as well as to the museum and its director, A. Berthold.

Reptilia, Amphisbaenia
[Trogonophiidae]
***Trogonophis wiegmanni* Kaup, 1830**
Material: RMNH 3584 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Amphisbaena wiegmannii*".
Citation: As "*Amphisbaena wiegmannii*" by Schlegel (in M. Wagner 1841, part III, 122, tab. VI).
Remarks: Schlegel (in M. Wagner 1841) mentioned that Wagner collected several specimens but to date this is the single known preserved specimen in a reference collection. He gave a very detailed description and figured the at this time largest specimen of the series (see Fig. 2). Moritz Wagner (1841) mentioned it as a rare species with a disjunct distribution and even restricted to small areas in the habitats. He collected three specimens in March 1837 at "Cap Matifu" ("eight hours" east of Algiers) under stones and mentioned this locality as the easternmost in Algeria. In May 1838 he collected a series under stones near Mostaganem and mentioned that this is the sole locality in Algeria where the species is common. He described the habitat as a vegetationless sandy area and mentioned May as mating season.

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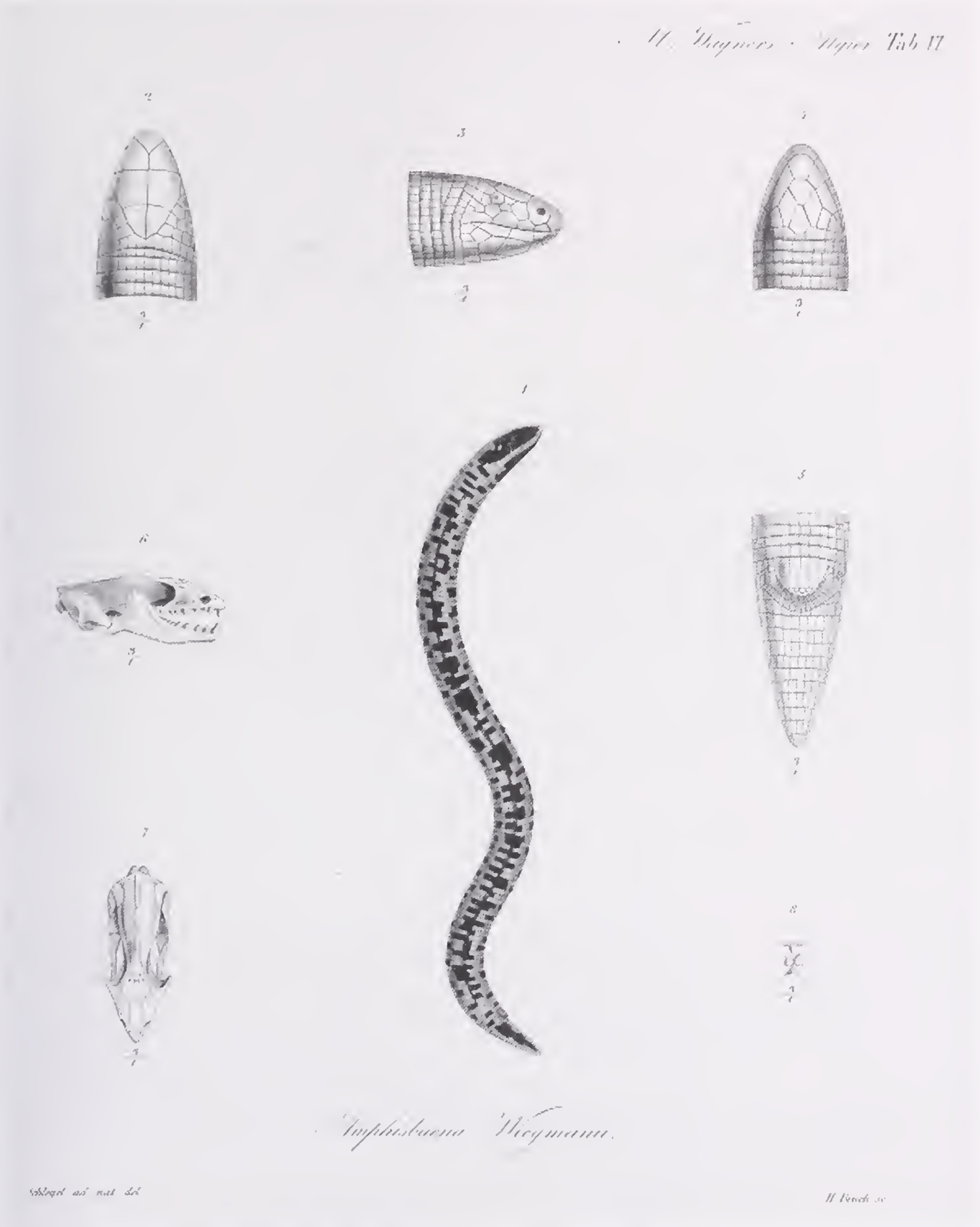

Fig. 3. The specimen of *Trogonophis wiegmanni* Kaup, 1830 figured in the rare atlas volume of Wagner (1841).

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Reptilia, Sauria
[Agamidae]
***Paralaudakia caucasia* (Eichwald, 1831)**
Material: ZFMK 20840-841 [ZMUG 414c] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846.
Catalogue name:"*Agama stellio*"[ZMUG].
Citation: As "*Stellio caucasius* Eichwald" from "aus Grusien [Georgia] und von den Abhängen des Kaukasus [and the mounatin slopes of the Caucasus]," by Berthold (in M. Wagner 1850, p. 329).
Remarks: Surprisingly, Berthold's (in M. Wagner 1850) diagnosis of the voucher was initially right but later ignored in the ZMUG catalogue and inventoried there as *A. stellio*. Berthold (in M. Wagner 1850) also only mentioned one voucher, whereas there are two specimens with the same locality in the collection. After 1890 the vouchers were stored in formalin and lost coloration, but Berthold (in M. Wagner 1850) described the relatively freshly preserved specimens as having a ground color of dirty green to yellow with a yellow vertebral stripe, head gray and belly olive-green. Lateral parts of the body with black markings.

***Phrynocephalus persicus* De Filippi, 1863**
Material: ZFMK 26381 [ZMUG 154a] from "Urmia", Iran collected by "M. Wagner" in 1846.
Catalogue name: "*Phrynocephalus helioscopus*" [ZMUG].
Citation: As "*Phrynocephalus helioscopus* Kaup" from "aus Grusien [Georgia] und von den Abhängen des Kaukasus" by Berthold (in M. Wagner 1850, p. 330).
Remarks: Berthold (in M. Wagner 1850) mentioned two collected specimens with the remark that the species is very widespread along the coast of the Caspian Sea.

[Anguidae]
***Pseudopus apodus* (Pallas, 1775)**
Material: ZFMK 26394 [ZMUG 36d] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846.
Catalogue name: "*Ophisaurus apus*" [ZMUG].
Citation: As "*Pseudopus serpentinus* Merrem" from "aus Grusien [Georgia] und von den Abhängen des Kaukasus" by Berthold (in M. Wagner 1850, p. 331).
Remarks: Berthold (in M. Wagner 1850) mentioned two vouchers of ‚*Pseudopus serpentinus* Merrem' and assigned a juvenile specimen to ‚*Pseudopus fischeri* Ménét.'.

[Chamaeleonidae]
***Chamaeleo chamaeleon* (Linnaeus, 1758)**
Material: RMNH 2990 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Chamaeleon africanus*".
Citation: As "*Chamaeleo africanus*" by Schlegel (in M. Wagner 1841, part III, 111).
Remarks: Wagner (1841) mentioned that he found the chameleon only in the vicinities of Algiers, in the western parts of the country, where it is common in Arzew, Mostaganem and Oran, and in inland places (Mascara, Tlemsan). In the lowlands of Metidscha he found the species on shrubs, mainly on oleander (*Nerium oleander*).

[Corytophanidae]
***Basiliscus basiliscus* (Linnaeus, 1758)**
Material: ZSM 494/0 from "Mittelamerika" [=Central America, no further locality specified] collected by "M. Wagner"; ZSM 495/0 from "Mittelamerika" [=Central America, no further locality specified] collected by "M. Wagner"; ZSM 507/0 from "Panama" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Basiliscus mitratus*" [ZSM 494/0]; "*Basiliscus americanus*" [ZSM 495/0; ZSM 507/0].

***Basiliscus vittatus* Wiegmann, 1828**
Material: ZSM 496/0 [3 ex.] from "Central-Amerika" [=Central America, no further locality specified] collected by "? M. Wagner".
Catalogue name: "*Basiliscus vittatus*".
Remarks: Even though the collector is mentioned as questionable, the locality is consistent with other ZSM material collected by M. Wagner.

[Dactyloidae]
***Anolis auratus* (Daudin, 1802)**
Material: ZSM 484/0 from "Chiriqui," Panama collected by "M. Wagner"; ZSM 485/0 from "Mittelamerika" [= Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Norops auratus*".

***Anolis carolinensis* Voigt, 1832**
Material: ZSM 467/0 [2 ex.], ZSM 468/0 [5 ex.], ZSM 469/0 [14 ex.] from "Louisiana," USA collected by "M. Wagner".
Catalogue name: "*Anolis carolinensis*".

***Anolis porcatus* Gray, 1840**
Material: ZMB 517 [3 ex.] from "Centralam[erca]" [= Central America, no further locality specified] collected by "Moritz Wagner".
Catalogue name: "*Anolis porcatus*".
Remarks: This is a Cuban endemic species and not found in Central America. However, on their sea passage back from Honduras to New York, Wagner and Scherzer travelled via Jamaica, Haiti, Puerto Rico, St. Thomas and Havana. Therefore, it seems obvious that the locality mentioned in the catalogue is incorrect.

***Anolis sagrei* Duméril & Bibron, 1837**
Material: NMW 12714 from "Costa Rica" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Anolis sagrei*".

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[Gymnophthalmidae]

***Bachia heteropa* (Lichtenstein & von Martens, 1856)**
Material: ZMB 52679 [formerly ZMB 1175, paralectotype] from "Palmas de St. Matias" [=San Matias, Antioquia, Colombia? fide Bauer & Günther 1994] (label on the jar only reads "Venezuela") collected by "Wagner".
Catalogue name: "*Chalcides heteropus*", "*Cophias heteropus*".
Citation: As "*Chalcides heteropus*" by Lichtenstein & von Martens (1856).

***Pholidobolus affinis* (Peters, 1863)**
Material: ZSM 644/0/1 [holotype] from "Pichincha," Ecuador, collected by "M. Wagner"; ZSM 644/0/2-5 [3 adults, 1 subadult, ?paratypes], all with the same data as the holotype.
Catalogue name: "*Ecpleopus affinis* (Ptrs.) – *aspidolaemus* Pet.".
Citation: As "*Ecpleopus affinis*" by Peters (1863).
Remarks: According to Franzen & Glaw (2007) ZSM 644/0/1 agrees with Peters' description of *Ecpleopus affinis* and is without doubt the holotype. The complete series consists of five specimens (see above) and Franzen & Glaw (2007) recognized these specimens as questionable paratypes.

[Hoplocercidae]

***Enyalioides laticeps* (Guichenot, 1855)**
Material: ZSM 499/0 from "Pastassathal" [=Pastaza valley], Ecuador collected by "M. Wagner".
Catalogue name: "*Enyalioides laticeps*".

***Enyalioides praestabilis* (O'Shaughnessy, 1881)**
Material: ZSM 500/0 from "Pastassathal Tal" [=Pastaza valley], Ecuador collected by "M. Wagner".
Catalogue name: "*Enyalioides praestabilis*".

[Iguanidae]

***Ctenosaura similis* (Gray, 1831)**
Material: NMW 13090 from "Nicoya, Costa Rica" collected by "M. Wagner".
Catalogue name: "*Ctenosaura similis*".

***Iguana iguana* (Linnaeus, 1758)**
Material: ZSM 539/0 from "Panama" [no further locality specified] collected by "M. Wagner"; ZSM 541/0 from "Mittelamerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Iguana tuberculata*".

[Lacertidae]

***Acanthodactylus savignyi* Audouin, 1809**
Material: RMNH 3496 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Lacerta savignyi*".
Citation: None.
Remarks: This species is not mentioned by Schlegel (in Wagner 1841), but the specimen probably refer to the mentioned "*Lacerta pardalis* Lichtenstein 1823". Especially as Schlegel (in Wagner 1841, page 115) mentioned that he had many problems to identify this species and refer to it only because of its uncertain identidy. However, Schlegel (in Wagner 1841) also mentioned a series of specimens collected by Moritz Wagner but the whereabouts of other specimens remains unclear.

***Darevskia praticola* (Eversmann, 1834)**
Material: ZFMK 21330 [ZMUG 21f] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1847.
Catalogue name: "*Lacerta muralis* var. *chalybdea*" [ZMUG].
Citation: As "*Lacerta muralis* Latr." from "aus Grusien [Georgia] und von den Abhängen des Kaukasus" by Berthold (in M. Wagner 1850, p. 331).
Remarks: Berthold (in M. Wagner 1850) specified two specimens of the species but did not recognize a subspecific level. Most probably this is one of the mentioned vouchers. There are only two other "*Lacerta*" species mentioned: "*Lacerta oxycephala*" (see below) and *Lacerta strigata*, which are very different from *Darevskia*.

***Mesalina guttulata* (Lichtenstein, 1823)**
Material: RMNH 3436 from "Oran, Algeria" collected by "M. Wagner".
Catalogue name: "*Lacerta guttata*".
Citation: As "*Lacerta guttulata*" by Schlegel (in M. Wagner 1841, part III, 113).
Remarks: Schlegel (in M. Wagner 1841) mentioned two specimens collected by Wagner which was the first record of this species for Algeria. The other specimen could be the Göttingen specimen, which is apparently lost (see below).

***Parvilacerta parva* (Boulenger, 1887)**
Material: ZFMK 21229 [ZMUG 21g] from "Urmia," Iran collected by "M. Wagner" in 1847.
Catalogue name: "*Lacerta muralis*" [ZMUG].
Citation: As "*Lacerta muralis* Latr." from "aus Grusien [Georgia] und von den Abhängen des Kaukasus" by Berthold (in M. Wagner 1850, p. 331).
Remarks: Berthold (in M. Wagner 1850) mentioned two vouchers, but only one was located by us (see also remarks in *Darevskia praticola*). However, this species is not known from Lake Urmia today, but occurs in the Ararat region in Armenia which was also visited by Wagner.

***Podarcis tauricus* (Pallas, 1814)**
Material: ZFMK 26521 [ZMUG 239a], ZFMK 21225 [ZMUG 21b], ZFMK 26522 [ZMUG 247d] from "Constantinople" [=Istanbul], Turkey collected by "M. Wag-

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ner" collected by "M. Wagner" in "1847 [ZFMK 21225, ZFMK 26522]".
Catalogue name: "*Lacerta taurica*" [ZMUG 239a]; "*Lacerta muralis*" [ZMUG 21b]; "*Lacerta oxycephala*" [ZMUG 247d].
Citation: As "*Lacerta oxycephala* Schlegel" from "aus Grusien [Georgia] und von den Abhängen des Kaukasus" by Berthold (in Wagner 1850, p. 331); As "*Lacerta taurica* Pallas" from "von der türkisch-pontischen Küste" by Berthold (in Wagner 1850, p. 339).
Remarks: Berthold (in Wagner 1850) mentioned two vouchers of this species from the 'türkisch-pontischer Küste' (= southern coastal parts of the Black Sea), which likely resemble these specimens. Berthold (in Wagner 1850) pointed out that the voucher of *L. oxycephala* is a juvenile specimen with a snout-vent length of "3.6 zoll" [=inch] and a tail length of "2.4 zoll".

***Podarcis vaucheri* (Boulenger, 1905)**
Material: RMNH 3465 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Lacerta muralis*".
Citation: As "*Lacerta muralis*" by Schlegel (in M. Wagner 1841, part III, 113).
Remarks: Schlegel (in M. Wagner 1841) mentioned the species as common in coastal areas, but Wagner also encountered it in inland Algeria.

***Scelarcis perspicillata* (Duméril & Bibron, 1839)**
Material: RMNH 3827 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Lacerta perspicillata*".
Remarks: This species is not mentioned by Schlegel (in M. Wagner 1841).

***Timon pater* (Lataste, 1880)**
Material: RMNH 3501 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Lacerta ocellata*".
Citation: As "*Lacerta ocellata*" by Schlegel (in M. Wagner 1841, part III, 112).
Remarks: Wagner (1841) mentioned "*Lacerta ocellata*" as common along the coast between Oran and Bona, but also mentioned it from Belida, Constantine and Mascara in inland Algeria.

[Phrynosomatidae]
***Sceloporus acanthinus* Bocourt, 1873**
Material: ZSM 551/0 from "Mittel-Amerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Sceloporus acanthinus*".

***Sceloporus grammicus* Wiegmann, 1828**
Material: ZFMK 26788 [ZMUG 107a] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1853.
Catalogue name: "*Sceloporus grammicus*" [ZMUG].

***Sceloporus undulatus* (Bosc & Daudin, 1801)**
Material: ZSM 554/0 [2 ex.] from "Louisiana," USA collected by "M. Wagner".
Catalogue name: "*Sceloporus undulatus*".

[Phyllodactylidae]
***Tarentola mauritanica* (Linnaeus, 1758)**
Material: RMNH 2742 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Platydactylus fascicularis*".
Citation: As "*Platydactylus fascicularis*" by Schlegel (in M. Wagner 1841, part III, 108).
Remarks: Wagner (1841) mentioned the gecko as common between Bona and Oran. He describes olive trees as the preferred habitat where the specimens are found on the bark of old trees.

[Scincidae]
***Chalcides ocellatus* (Forsskål, 1775)**
Material: RMNH 2500 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Scincus ocellatus*".
Citation: As "*Scincus ocellatus*" by Schlegel (in M. Wagner 1841, part III, 120).
Remarks: Wagner (1841) mentioned the species was common in coastal areas between Bona and Oran (most commonly in the area around Mostaganem), but he found the specimens only between April and October. He described the habitat as a sandy area and found the specimens under stones and rocks.

***Chalcides chalcides* (Linnaeus, 1758)**
Material: RMNH 3667 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Scincus chalcides*".
Citation: As "*Seps chalcides*" by Schlegel (in M. Wagner 1841, part III, 121).
Remarks: Wagner (1841) mentioned the species as common in the vicinities of Algier, Bona and Oran, where he found the individuals in hollows but not under stones.

***Plestiodon fasciatus* (Linnaeus, 1758)**
Material: ZSM 831/0 [5 ex.] from "Louisiana," USA collected by "M. Wagner"; ZSM 2564/0 from "Florida," USA collected by "M. Wagner".
Catalogue name: "*Eumeces fasciatus*".

***Scincella lateralis* (Say, 1823)**
Material: ZSM 805/0 [4 ex.] from "Florida," USA collected by "Wagner".
Catalogue name: "*Leiolepisma laterale*".

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[Tropiduridae]
***Stenocercus guentheri* (Boulenger, 1885)**
Material: ZSM 522/0 [3 ex.] from "Pichincha" [=Pichincha Mountain near Quito], Ecuador collected by "M. Wagner".
Catalogue name: "*Liocephalus guentheri*".

Reptilia, Serpentes
[Boidae]
***Corallus hortulanus* (Linnaeus, 1758)**
Material: ZSM 1362/0 from "Mittel-Amerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: „*Corallus cookei*"

[Colubridae]
***Atractus guentheri* (Wucherer, 1861)**
Material: ZSM 1949/0 from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: „*Atractus guentheri*"

***Coluber constrictor* Linnaeus, 1758**
Material: ZFMK 31702 [ZMUG 110b] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1854.
Catalogue name: "*Zamenis constrictor*" [ZMUG].
Remarks: In contrast to the other material of Wagner from North America, this voucher was collected or catalogued in 1854.

***Coluber flagellum* Shaw, 1802**
Material: NMW 26579 from "Costa Rica" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Masticophis flagellum*".
Remarks: If the specimen is correctly identified, it would be the first record for Costa Rica, which is very unlikely. Therefore, the specimen should re-identified.

***Coniophanes fissidens* (Günther, 1858)**
Material: NMW 27357 from "Costa Rica" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Coniophanes fissidens*".

***Dendrophidion dendrophis* (Schlegel, 1837)**
Material: ZSM 1616/0 [2 ex.] from "Ecuador" [no further locality specified] collected by "M. Wagner"..
Catalogue name: „*Ischnognathus occipitomaculatus*"

***Diaphorolepis wagneri* Jan, 1863**
Material: ZSM 2708/0 [holotype] from "Andes de l'Ecuador" [= Andes in Ecuador, no further locality specified] without further data.
Catalogue name: "*Diaphorolepis wagneri*".
Citation: As "*Diaphorolepis wagneri*" by Jan (1863, p. 98).
Remarks: Even that no collector is indicated, the locality and the fact that the species is named after Moritz Wagner suggest he was the collector.

***Dipsas andiana* (Boulenger, 1896)**
Material: ZSM 2278/0 from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: „*Sibynomorphus variegatus*".

***Eirenis modestus* Martin, 1838**
Material: ZFMK 31625 [ZMUG 234a] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846.
Catalogue name: "*Ablabes modestus*" [ZMUG].
Citation: As "*Coronella collaris* Berth." from "aus Grusien [Georgia] und von den Abhängen des Kaukasus" by Berthold (in M. Wagner 1850, p. 332).
Remarks: Berthold (in M. Wagner 1850) was the first author who assigned ‚*Coluber collaris*' as a species of the genus *Coronella*, but nevertheless, his identification of the specimen was wrong. He emended his own identification in the catalogue where the specimen is inventoried as *Ablabes modestus*. He described the pholidosis of the voucher as having 17 rows of rhomboidal smooth scales around midbody. Originally it was a series of three specimens but two of them are now lost.

***Farancia abacura* (Holbrook, 1836)**
Material: ZMB 1778 from "Centralamer[ika]" [Central America, no further locality specified] collected by "Wagener" [sic!].
Catalogue name: "*Calopisma abacurum*".
Remarks: According to the ZMB catalogue this specimen was collected by "Wagener", but the locality and the time of the inventory suggests that this refers to Moritz Wagner, whose name was apparently misspelled. The locality does not match the currently known distribution (eastern USA) of the species but probably Wagner recognized eastern Texas rather as Central America than as North America and therefore the locality could be correct and can be restricted to this region.

***Farancia erythrogramma* (Palissot de Beauvois, 1802)**
Material: ZSM 1905/0 from "Süd-Carolina [= South Carolina]," USA collected by "M. Wagner".
Catalogue name: „*Abastor erythrogrammus*".

***Hemorrhois hippocrepis* (Linnaeus, 1758)**
Material: RMNH 471 [2 ex.] from "Algeria" [no further locality specified] collected by "M. Wagner" in 1839.
Catalogue name: "*Coluber hippocrepis*".
Citation: As "*Coluber hippocrepis*" by Schlegel (in M. Wagner 1841, part III, 130).
Remarks: According to Wagner (1841) the species is common in southern Algeria where it is often found in houses.

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***Imantodes cenchoa* (Linnaeus, 1758)**
Material: ZSM 30/0 from "Mittelamerika" [=Central America, no further locality specified] collected by "M. Wagner"; ZSM 2000/0 from "Pastassathal [=Pataza valley]," Ecuador collected by "M. Wagner".
Catalogue name: "*Elaps ancoralis*" [ZSM 30/0]; „*Imantodes chenchoa*" [sic!] [ZSM 2000/0].

***Imantodes gemmistratus* (Cope, 1861)**
Material: NMW 25528 from "Costa Rica" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Imantodes gemmistratus*".

***Lampropeltis getula* (Linnaeus, 1766)**
Material: ZSM 1839/0 from "Florida," USA collected by "M. Wagner".
Catalogue name: „*Lampropeltis getula* var. *sayi*".

***Lampropeltis holbrooki* Stejneger, 1902**
Material: ZFMK 36445 [ZMUG 96c] from "Nord Amerika" [North America, no further locality specified] collected by "M. Wagner" in 1853.
Catalogue name: "*Coronella getula*" [ZMUG].
Remarks: The species is only recognized from west of the Mississippi which restricts the locality to this area of North America..

***Lampropeltis triangulum* Lacépède, 1789**
Material: ZFMK 36837 [ZMUG 89b] from "Tennessee," USA collected in 1853.
Catalogue name: "*Coronella triangulum*" [ZMUG].

***Leptodeira annulata* (Linnaeus, 1758)**
Material: ZSM 2017/0, ZSM 2024/0 [4 ex.], ZSM 2025/0 from "Mittel-Amerika [= Central America, no further locality specified]" collected by "M. Wagner".
Catalogue name: "*Leptodeira annulata albofusca*" [ZSM 2017/0]; „*Leptodeira annulata personata*" [ZSM 2024/0, ZSM 2025/0].

***Macroprotodon cucullatus* (Geoffroy de St-Hilaire, 1827)**
Material: RMNH 212 [2 ex.] from "Alges" [=Algeria, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Coronella mauritanica*".
Citation: ? As "*Coronella laevis*" by Schlegel (in M. Wagner 1841, part III, 129).
Remarks: The only *Coronella* which is mentioned by Schlegel (in M. Wagner 1841) is *C. laevis* from Algier, Bona and Constantine. Therefore, these specimens could be identical with the cited ones.

***Mastigodryas boddaerti* (Seetzen, 1796)**
Material: NMW 18744 from "Costa Rica" [no further locality specified] collected by "M. Wagner"; ZSM 83/0 from "Mittelamerika" [= Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Mastigodryas boddaerti*" [NMW 18744]; "*Drymobius boddaerti*" [ZSM 83/0].

***Nerodia erythrogaster* Forster, 1771**
Material: ZFMK 33472 [ZMUG 75d] from "Nord Amerika [North America], Georgia", USA collected in 1853.
Catalogue name: "*Tropidonotus fasciatus* var. *erythrogaster*" [ZMUG].
Remarks: No collector specified but the year and locality are consistent with Moritz Wagner being the collector.

***Nerodia fasciata* (Linnaeus, 1766)**
Material: ZFMK 33474-478 [ZMUG 75a, 75b] from "Nord America" [=North America, no further locality specified] collected by "M. Wagner" in 1853; ZFMK 33479 [ZMUG 75c] from "Nord Amerika, Tennessee," USA collected in 1853.
Catalogue name: "*Tropidonotus fasciatus*" [ZMUG 75a, 75b]; "*Tropidonotus fasciatus*" [ZMUG 75c].
Remarks: No collector is specified with the specimen ZFMK 33479 but the year and locality are consistent with Moritz Wagner being the collector.

***Nerodia taxispilota* (Holbrook, 1838)**
Material: ZSM 1475/0 from "Florida," USA collected by "M. Wagner"..
Catalogue name: „*Natrix taxispilotus*"

***Oxybelis aeneus* (Wagler, 1824)**
Material: NMW 27266 from "Costa Rica" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Oxybelis aeneus*".

***Opheodrys aestivus* (Linnaeus, 1766)**
Material: ZSM 1919/0 from "Süd-Carolina [= South Carolina]," USA collected by "M. Wagner".
Catalogue name: „*Contia aestiva*", „*Opheodrys aestiva*".

***Pituophis catenifer sayi* (Schlegel, 1837)**
Material: ZMB 2087 from "Nordamerika" [North America, no further locality specified] collected by "Wagener" [sic!].
Catalogue name: "*Coronella sayi*".
Remarks: According to the ZMB catalogue this specimen was collected by "Wagener", but the locality and the time of the inventory suggests that this refers to Moritz Wagner, whose name was apparently misspelled.

***Platyceps* sp.**
Material: ZFMK 31706 [ZMUG 104e] from "Tiflis" [=Tbilissi] collected by "M. Wagner" in 1846.
Catalogue name:"*Zamenis gemonensis*" [ZMUG].
Citation: As "*Coluber viridiflavus* Lacépède" from "aus

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Grusien [Georgia] und von den Abhängen des Kaukasus" by Berthold (in M. Wagner 1850, p. 334).
Remarks: Berthold (in M. Wagner 1850) mentioned a juvenile ‚*Coluber viridiflavus*', which is most probably identical with the specimen *Zamenis gemonensis* in the catalogue of the Zoologisches Museum (ZMUG). He described his voucher as having 15 rows of smooth scales around midbody, 171 ventralia and 102 subcaudalia. It has so far not been possible to identify this specimen at the species level, but it is most similar and probably identical with *P. najadum*.

***Regina regida* (Say, 1825)**
Material: ZSM 1471/0 from "Florida, Amerika [=USA]" collected by "M. Wagner".
Catalogue name: „*Natrix rigidus*"

***Regina septemvittata* (Say, 1825)**
Material: ZFMK 33468 [ZMUG 77] from "Nord Amerika [=North America], Georgia", USA collected in 1853; ZSM 1470/0 from "Florida, Amerika [=USA]" collected by "M. Wagner".
Catalogue name: "*Tropidonotus septemvittatus*" [ZMUG 77], „*Natrix septemvittatus*" [ZSM 1470/0].
Remarks: In the ZFMK specimen no collector is specified but the year and locality are consistent with Moritz Wagner being the collector.

***Storeria dekayi* (Holbrook, 1836)**
Material: ZSM 1530/0 from "Florida," USA collected by "M. Wagner"; ZFMK 33518 [ZMUG 76] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1853.
Catalogue name: „*Ischnognathus dekayi*" [ZSM]; "*Tropidonotus cyclopium* [sic!]" [ZMUG].

***Telescopus fallax iberus* Eichwald, 1831**
Material: ZFMK 31731 [ZMUG 47a] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846.
Catalogue name: "*Tarbophis savignyi*" [ZMUG].
Citation: As "*Dipsas fallax* Schlegel" from "Tiflis" by Berthold (in M. Wagner 1850, p. 334); as "*Trigonophis iberus* Eichwald" from "Tiflis" by Berthold (in M. Wagner 1850, p. 334).
Remarks: Berthold (in M. Wagner 1850) specified the voucher as '*Dipsas fallax* Schlegel' but also mentioned ‚*Trigonophis iberus*' as synonym. It can be assumed that this voucher is identical with the one described by Berthold. As pholidosis he mentioned 13 rows of smooth scales around midbody, 235 ventral- and 66 subcaudal scales. Additionally he described the voucher as: body depressed; head broader than neck; pupil vertical; head scales short; occiput scales rounded and short; two postocular and no praeocular scale; body scales lanceolate, small and smooth. The coloration was cinereous with dark oblique markings, bordered upwards by pale dots, belly marbled blue.

***Thamnophis sauritus* (Linnaeus, 1758)**
Material: ZSM 1416/0 [3 ex.], ZSM 2596/0 from "Florida," USA collected by "M. Wagner".
Catalogue name: „*Tropidonotus saurita*" [ZSM 1416/0]; „*Thamnophis sauritus sackenii*" [ZSM 2596/0].

***Tropidodipsas fasciata* Günther, 1858**
Material: NMW 19872 from "Nicaragua" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Sibon fasciata*".

***Xenodon rabdocephalus* (Wied, 1824)**
Material: ZSM 1818/0 from "Mittel-Amerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: „*Xenodon colubrinus*".

[Elapidae]
***Micrurus latifasciatus* Schmidt, 1933**
Material: ZSM 2263/0 [paratype] from "Nordamerika" [=North America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Micrurus latifasciatus*".
Citation: As "*Micrurus latifasciatus*" by Schmidt (1933).
Remarks: The locality is mentioned as erroneous in Franzen & Glaw 2007.

***Micrurus multifasciatus hertwigi* (Werner, 1897)**
Material: ZSM 2268/0 [holotype] from "Mittelamerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Elaps hertwigii.*"
Citation: As "*Elaps hertwigii*" by Werner (1897b).

***Pelamis platura* (Linnaeus, 1766)**
Material: ZSM 2191/0 from "Panama" [no further locality specified] collected by "M. Wagner".
Catalogue name: „*Hydrus platurus*"

[Psammophiidae]
***Malpolon monspessulanus* (Herrman, 1804)**
Material: RMNH 730 from "Algeria" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Psammophis lacertina*".
Citation: As "*Psammophis lacertina*" by Schlegel (in M. Wagner 1841, part III, 131).

[Viperidae]
***Agkistrodon contortrix* (Linnaeus, 1766)**
Material: ZFMK 32527-528 [ZMUG 219c] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1853.
Catalogue name: "*Ancistrodon lebetina*" [ZMUG].

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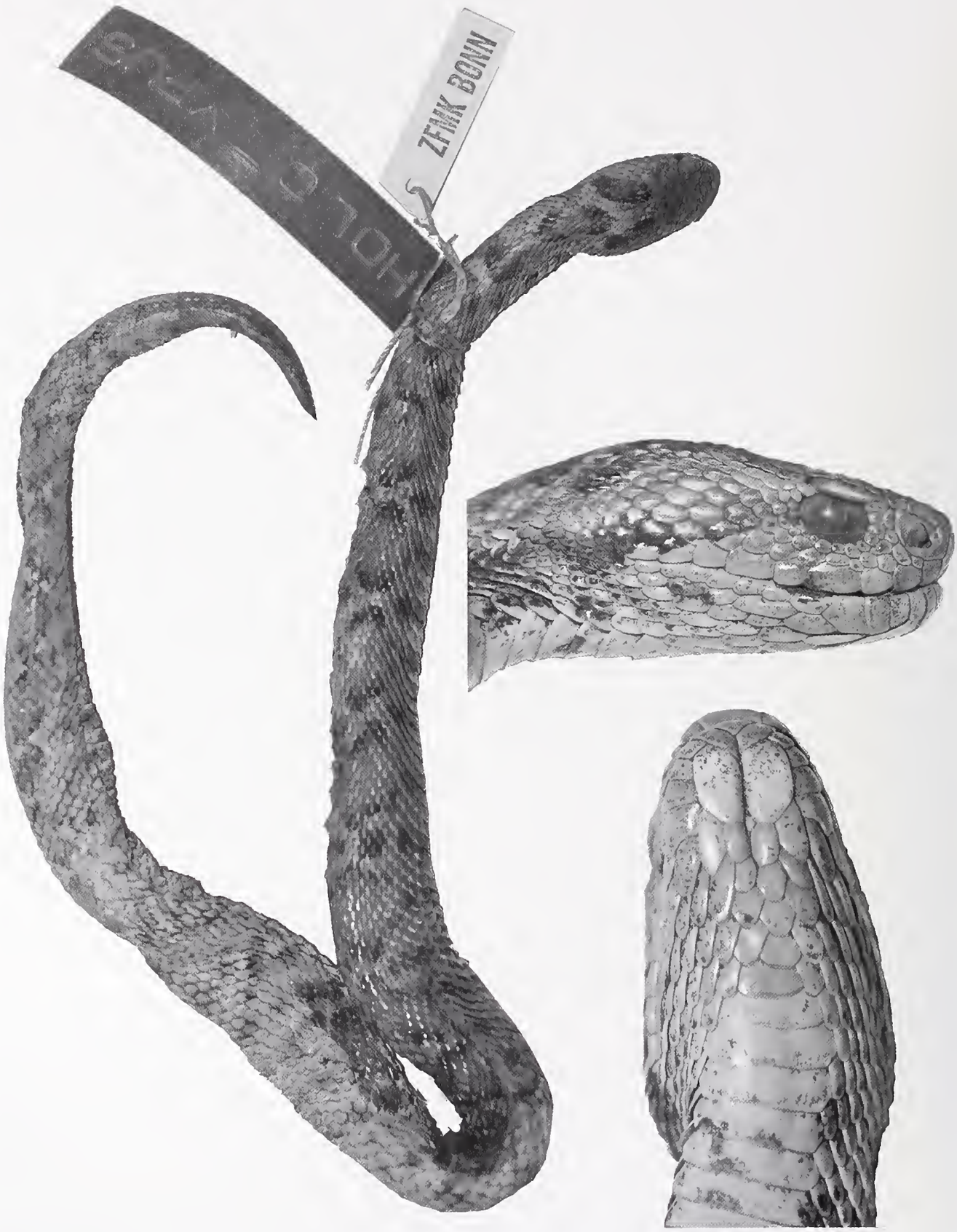

Fig. 4. Holotype of *Vipera wagneri* Nilson & Andrén, 1984 collected by Moritz Wagner.

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***Agkistrodon piscivorus* (Lacépède, 1789)**
Material: ZSM 2327/0 from "Florida," USA collected by "M. Wagner".
Catalogue name: „*Agkistrodon piscivorus*"

***Bothriechis schlegelii* (Berthold, 1846)**
Material: NMW 28002 from "Costa Rica" [no further locality specified] collected by "M. Wagner"; ZSM 2363/0 from "Panama" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Bothriechis schlegelii*" [NMW 28002]; „*Bothrops schegeli*" [ZMS 2363/0].

***Bothrops lanceolatus* (Bonnaterre, 1790)**
Material: ZSM 2339/0 from "Mittel-Amerika [= Central America, no further locality specified],"collected by "M. Wagner".
Catalogue name: „*Bothrops lanceolatus*".

***Montivipera wagneri* (Nilson & Andrén, 1984)**
Material: ZFMK 32495 [ZMUG 233a] [holotype], "Urmia," Iran collected by "M. Wagner" in 1846.
Catalogue name: "*Vipera lebetina*" [ZMUG].
Citation: As "*Vipera aspis* Merr[em] (Varietas: *V. ocellata*, Latr[eile])" from "von der armenisch-persischen Grenze" [= from the border between Armenia and Iran] by Berthold (in M. Wagner 1850, p. 337); as "*Vipera xanthina*" by Strauch (1869); as "*Vipera wagneri*" by Nilson & Andrén (1984).
Remarks: As mentioned above, Berthold (in M. Wagner 1850: 337) mentioned this specimen as variety *ocellata* of *Vipera aspis*, but later, he inventoried it as *V. lebetina*. It was later seen by Strauch (1869) and who cited it as if Berthold was the author of the taxonomic name *ocellata*, and identified it as synonym of *V. xanthina*. Nilson & Andren (1984) were therefore correct to describe it as a new species, *Vipera wagneri*, closely related to *V. xanthina*. Later, this group was accommodated in its own genus *Montivipera* (Nilson et al. 1999). Nevertheless, the description of the pholidosis by Berthold (in M. Wagner 1850) is not identical with the description of the holotype (Fig. 4), but it must be assumed that the mentioned specimens are identical. From the recent distribution of the species it seems obvious that "Urmia" as the locality mentioned in the catalogue is incorrect and the locality published by Berthold (in M. Wagner 1850) "von der armenisch-persischen Grenze" seems to be more likely.

***Porthidium lansbergi* (Schlegel, 1841)**
Material: NMW 28392 from "Costa Rica" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Porthidium lansbergi*".
Citation: None.

***Porthidium nasutum* (Bocourt, 1868)**
Material: NMW 28398 from "Costa Rica," [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Porthidium nasutum*".

Material lost or apparently lost at the ZSM & ZMUG collections
Specimens are listed under their current name based on the last catalogue entry. In many cases the mentioned material must be recognized as lost, but some material, particularly from the ZSM collection, may still be extant and this should be clarified in the future. The reason for the loss of specimens in the ZMUG collection is unknown but was documented during two inventories of the collection in the 1960s and 1970s. The material in the ZSM collection was lost because of bombing during the Second World War, but it is possible that some of the specimens are still available.

Amphibia

Amphibia, Caudata
[Ambystomidae]

***Ambystoma jeffersonianum* (Green, 1827)**
Material: ZMUG 41a [lost] from "Nord Amerika" [=North America, no further locality specified] collected in 1856.
Catalogue name: "*Ambystoma jeffersonianum*".
Remarks: At the second inventory of the ZMUG collection in 1970 the specimen was present but it seems to have been lost subsequently.

***Ambystoma tigrinum* (Green, 1825)**
Material: ZMUG 11b, 11g [2 ex.] [lost] from "Nord Amerika" [=North America, no further locality specified] collected in 1856.
Catalogue name: "*Ambystoma tigrinum*".
Remarks: For neither voucher is a collector mentioned but the date and locality are consistent with M. Wagner. At the second inventory of the ZMUG collection in 1970 the specimen was still present but it is now apparently lost.

[Plethodontidae]

***Bolitoglossa palmata* (Werner, 1897)**
Material: ZSM 1272/0 [2 ex, paralectotypes] [lost] from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Oedipus palmatus*"
Citation: As "*Spelerpes palmatus*" by Werner (1897b).
Remarks: NMW 22862 was designated as lectotype by Brame & Wake (1962: 173).

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***Eurycea longicauda* (Green, 1818)**
Material: ZMUG 4a [lost] from "Tennessee, North America" collected in 1853.
Catalogue name: "*Spelerpes longicauda*".
Remarks: In the catalogue determined without a collector but date and locality are consistent with other material collected by M. Wagner.

***Plethodon cinereus* (Green, 1818)**
Material: ZSM 1276/0 [8 ex., apparently lost] from "Wisconsin," USA collected by "M. Wagner".
Catalogue name: "*Plethodon erythronotus*"; "*Plethodon cinereus*".

***Pseudotriton montanus* Baird, 1850**
Material: ZMUG 7d [lost] from "Tennessee," USA collected in 1853.
Catalogue name: "*Spelerpes ruber* var. *montana*".
Remarks: In the catalogue no collector is added but date and place refer to M. Wagner. At the time of the second inventory of the collection in 1970 the voucher was still present but it has been lost subsequently.

***Pseudotriton ruber* (Sonnini de Manoncourt and Latreille, 1801)**
Material: ZSM 1264/0 [apparently lost] from "Nord-Amerika" [= North America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Pseudotriton ruber*".

[Salamandridae]
***Notophthalmus viridescens* (Rafinesque, 1820)**
Material: ZSM 1239/0 [4 ex, lost], from "Wisconsin," USA collected by "M. Wagner".
Catalogue name: "*Triturus viridescens*".

***Triturus karelini* Strauch, 1870**
Material: ZMUG 16d [lost] from "Constantinopel" [=Istanbul], Turkey collected by "M. Wagner".
Catalogue name: "*Triturus cristatus*".
Remarks: Berthold (in Wagner 1850) reported '*Triton taeniatus*' and ‚*Triton nycthemerus*' from the 'türkisch-pontischen Küste' (southern coastal parts of the Black Sea). However, no vouchers are preserved and it is not possible to determine if this was additional material or a correct identified voucher. But 'cf. Woltersdorff [sic!] 1907' is noted handwritten in the catalogue, so it is most probably a eorrectly identified specimen. At the time of the second inventory of the ZMUG collection in 1970 the voucher was still present but it has since been lost.

Amphibia, Anura
***Hylodes* spec.**
Material: ZSM 1048/0 [status unclear] from "Pastassathal [Pastaza valley]," Ecuador" collected by "M. Wagner".
Catalogue name: "*Hylodes* spec.".
Citation: None.
Remarks: Today the genus *Hylodes* Fitzinger 1826 includes 24 species, but non of them occur in Ecuador. Therefore, the specimen identity remain unclear.

[Bufonidae]
***Atelopus ignescens* (Cornalia, 1849)**
Material: ZSM 1014/0 [7 ex., apparently lost] from "Pichincha," Ecuador collected by "M. Wagner".
Catalogue name: "*Atelopus laevis*".

***Atelopus longirostris* (Cope, 1868)**
Material: ZSM 1018/0 [apparently lost] from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Atelopus longirostris*".

***Atelopus varius* (Lichtenstein & Martens, 1856)**
Material: ZSM 1016/0 [apparently lost] from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Atelopus varius*".

***Bufo variabilis* Pallas, 1769**
Material: ZMUG 65ba [lost] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846.
Catalogue name: "*Bufo viridis*".
Remarks: Berthold (in M. Wagner 1850) indeed mentioned one juvenile voucher of this taxon but with the locality 'türkisch-pontischer Küste' (= southern coastal parts of the Black Sea), but as recognized from present vouchers, the catalogue locality is often more precise than the locality given by Berthold (in M. Wagner 1850).

***Rhinella crucifer* (Wied-Neuwied, 1821)**
Material: ZSM 2653/0 [apparently lost] from "Mittel-Amerika [=Central America, no further locality specified]," collected by "M. Wagner".
Catalogue name: "*Bufo crucifer*".

[Dendrobatidae]
***Dendrobates tinctorius* (Cuvier, 1797)**
Material: ZSM 1010/0 [apparently lost] from "Chiriqui, Central Am[erika] [=Panama]" collected by "M. Wagner".
Catalogue name: "*Dendrobates tinctorius*".

[Hemiphractidae]
***Gastrotheca marsupiata* (Duméril & Bibron, 1841)**
Material: ZSM 1187/0 [3 ex., apparently lost] from "Pichincha," Ecuador collected by "M. Wagner".
Catalogue name: "*Gastrotheca marsupiata*".

[Hylidae]
***Hyla arborea* (Linnaeus, 1758)**
Material: ZMUG 88a [lost] from "Algier," [=Algeria, no further locality specified] collected by "M. Wagner".

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Catalogue name: "*Hyla arborea*".
Citation: As "*Hyla arborea*" by Schlegel (in M. Wagner 1841, p. III, 133).

***Hyla cinerea* (Schneider, 1799)**
Material: ZSM 1165/0 [apparently lost] from "Louisiana," USA collected by "M. Wagner".
Catalogue name: "*Hyla carolinensis*".

***Hypsiboas albomarginatus* (Spix, 1824)**
Material: ZSM 2500/0 [apparently lost] from "Pastassathal [Pastaza valley]," Ecuador collected by "M. Wagner".
Catalogue name: "*Hyla albomarginata*".

***Hypsiboas geographicus* (Spix, 1824)**
Material: ZSM 1154/0 [apparently lost] from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: "*Hyla* aff. *cryptomelas*".

***Trachycephalus typhonius* (Linnaeus, 1758)**
Material: ZSM 1148/0 [apparently lost] from "Ecuador" [no further locality specified] collected by "M. Wagner"; ZSM 2492/0 [3 ex., ? apparently lost] from "Panama" collected by "M. Wagner".
Catalogue name: "*Bufo typhonius*".

[Leptodactylidae]
***Leptodactylus wagneri* (Peters, 1862)**
Material: ZSM 1080/0 [holotype] [lost] from "Pastassathal" [=Pastaza valley], Ecuador collected by "M. Wagner".
Catalogue name: "*Plectromantis wagneri*"
Citation: As "*Plectromantis wagneri*" by Peters (1862).
Remarks: According to the original description, the type locality is "an der Westseite der Anden in Ecuador" [= on the western side of the Andes in Ecuador].

[Microhylidae]
***Gastrophryne carolinensis* (Holbrook, 1835)**
Material: ZSM 1024/0 [apparently lost] from "Wisconsin," USA collected by "M. Wagner".
Catalogue name: "*Engystoma carolinense*".
Remarks: This species does not occur in Wisconsin.

[Ranidae]
***Lithobates pipiens* (Schreber, 1782)**
Material: ZSM 984/0 [2 ex., apparently lost] from "Wisconsin," USA collected by "M. Wagner".
Catalogue name: "*Rana halecina brachycephala*"; "*Rana pipiens*"

***Pelophylax* kl. *esculentus* (Linnaeus, 1758)**
Material: ZMUG 13c [lost] from "Urmia," Iran collected by "M. Wagner" in 1846.
Catalogue name: "*Rana esculenta*".
Citation: As "*Rana esculenta* Linnaeus" by Berthold (in M. Wagner 1850, p. 337); as "*Rana tigrina* Eichwald non *R. tigrina* Daudin" by Berthold (in M. Wagner 1850, p. 337).
Remarks: Berthold (in M. Wagner 1850) gives a detailed description of the voucher and mentioned that, apart from the coloration, the specimen was typical of *Rana esculenta*. At the same time he synoymized *Rana caucasica* Pallas, 1814 [currently a synonym of *Pelophylax ridibundus* (Pallas, 1771)] with *Rana esculenta* and noted that this taxon is a *Rana* s. str. and not a taxon within the genus *Bufo* as mentioned by Ménétriés (1832) and Eichwald (1831). At the second inventory of the ZMUG collection in 1970 the voucher was still present but it was subsequently lost.

[Scaphiopodidae]
***Scaphiopus holbrookii* Harlan, 1835**
Material: ZMUG 39a [lost] from "Georgia," USA collected in 1853.
Catalogue name: "*Scaphiopus solitarius*".
Remarks: In the ZMUG catalogue no collector is listed, but the date and locality are consistent with other material collected by M. Wagner.

[Strabomantidae]
***Pristimantis chalceus* (Peters, 1873)**
Material: ZSM 1045/0 [2 ex., syntypes] [lost] from "Pastassathal [=Pastaza valley, Ecuador]" collected by "M. Wagner".
Catalogue name: "*Phyllobatus chalceus*".
Citation: As "*Phyllobates chalceus*" by Peters (1873); as "*Eleutherodactylus chalceus*" by Glaw & Franzen (2006).
Remarks: In the original description three (type) specimens are mentioned, but according to Glaw & Franzen (2006) only two are listed in the ZSM catalogue. The third specimen is extant in Berlin as ZMB 7814 (Bauer et al. 1995: 46).

Reptilia, Testudinae
[Emydidae]
***Malaclemys terrapin pileata* (Wied, 1865)**
Material: ZSM 2508/0 [apparently lost] from "Nord-Amerika" [= North America, no further locality specified] collected by "M. Wagner".
Catalogue name: „*Malaclemys pileata*"

[Kinosternidae]
***Kinosternon subrubrum* (Bonnaterre, 1789)**
Material: ZMUG 29c [lost] from "Nordamer[ika]" [=North America, no further locality specified] collected in 1853; ZSM 2376/0 [? apparently lost] from "Nord-Amerika" [= North America, no further locality specified] collected by "M. Wagner".
Catalogue name: "*Cinosternum pennsylvanicum*" [ZMUG 29c]; „*Nicoria punctularia*" [ZSM 2376/0].

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Remarks: The ZMUG specimen is an apparently lost stuffed voucher. The fluid collection only was transferred from Göttingen to Bonn and therefore this specimen could still be present in the public exhibition of the Zoological Museum in Göttingen, but this needs to be clarified.

[Geoemydidae]
***Mauremys caspica* (Gmelin, 1774)**
Material: ZMUG 16a [lost] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846.
Catalogue name: „ *Clemmys caspia*".
Remarks: Berthold (in M. Wagner 1850) referred to two individuals with 'sehr schönen Flammenlinien'. However, the catalogue of the museum lists only one voucher.

***Rhinoclemmys punctularia* (Daudin, 1801)**
Material: ZSM 88/0 [apparently lost] from "Centralamerika" [= Central America, without further locality] collected by "M. Wagner".
Catalogue name: „*Nicoria punctularia*".

Reptilia, Sauria
[Agamidae]
***Trapelus sanguinolentus* (Pallas, 1814)**
Material: ZMUG 151a [lost] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846.
Catalogue name: „ *Agama sanguinolenta*".
Citation: As "*Trapelus sanguinolutus* Eichwald" from "aus Grusien und von den Abhängen des Kaukasus" by Berthold (in Wagner 1850, p. 330).
Remarks: Berthold (in Wagner 1850) indicated two individuals of which only one has the characteristic striped throat of the species. At the first inventory of the ZMUG collection in 1968 the voucher was still present but it has apparently been lost.

[Dactyloidae]
***Anolis carolinensis* Voigt, 1832**
Material: ZMUG 99a–c [3 ex., lost] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1853; ZSM 470/0 [many ex.; ? apparently lost] from "Louisiana" collected by "M. Wagner".
Catalogue name: "*Anolis carolinensis*".
Remarks: At the time of the inventory of the collection in 1968 all vouchers were still present but they were subsequently lost.

[Lacertidae]
***Mesalina guttulata* (Lichtenstein, 1823)**
Material: ZMUG 29°, ZMUG 29b [2 ex., lost] from „Algerien" [= Algeria, no further locality specified] donated by the „Zool[ogisches] Inst[itut]".
Catalogue name: "*Eremias guttata*".
Citation: As "*Lacerta guttulata*" by Schlegel (in M. Wagner 1841, part III, 113).
Remarks: No collector or date is specified with this specimen, but the locality and the circumstance that it was a donation of the Zoological Institute (where Rudolf Wagner was the head) points to Moritz Wagner.

[Scincidae]
***Plestiodon fasciatus* (Linnaeus, 1758)**
Material: ZMUG 66c [lost] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1853.
Catalogue name: "*Eumeces quinquelineatus*".

***Scincella lateralis* (Say, 1823)**
Material: ZSM 806/0 [4 ex., apparently lost] from "Wisconsin," USA collected by "Wagner".
Catalogue name: "*Lygosoma* (*Leiolepisma*) *laterale*".
Remarks: This species does not occur in Wisconsin.

[Teiidae]
***Ameiva praesignis* (Baird & Girard, 1852)**
Material: ZSM 1930/0 [apparently lost] from "Mittel-Amerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: „*Ameiva ameiva praesignis*"

***Aspidoscelis sexlineata* (Linnaeus, 1766)**
Material: ZMUG 17a [lost] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1853.
Catalogue name: „ *Cnemidophorus sexlineatus*".
Remarks: At the time of the inventory of the collection in 1968 the voucher was still present but it is considered to have been lost since that time.

Reptilia, Serpentes
[Colubridae]
***Atractus occipitoalbus* (Jan, 1863)**
Material: ZSM 1375/0 [holotype] [lost] from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: „ *Atractus occipitoalbus*".
Remarks: According to the original description the type locality is "Andes de l'Ecuador, 4000 ft." [=Andes of Ecuador, 4000 ft.].

***Clelia clelia* (Daudin, 1803)**
Material: ZSM 2664/0 [2 ex., apparently lost] from "Ecuador" [no further locality specified] collected by "M. Wagner"..
Catalogue name: „*Pseudoboa clelia*"

***Coluber constrictor* Linnaeus, 1758**
Material: ZMUG 110a [lost] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1854.
Catalogue name: „*Zamenis constrictor*".

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Remarks: In contrast to the other North American material of the Wagner collection this voucher was collected in 1854.

***Coronella austriaca* Laurenti, 1768**
Material: ZMUG 50d [lost] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846, and later "ded. Strauch".
Catalogue name: „*Coronella austriaca*".
Citation: As "*Coronella laevis* Boie" from "aus Grusien und von den Abhängen des Kaukasus" by Berthold (in M. Wagner 1850, p. 332).
Remarks: Berthold (in M. Wagner 1850) refers to two specimens of '*Coronella laevis*' but mentioned that they rather should be determined as ‚*Coronella cupreus*'. He specified 13 scale rows around midbody, 171 ventral body and 50 ventral paired tail scales. The coloration was greenish-gray to copper, with a metallic glossiness. He mentioned a small stripe between eye and neck and a dark blotch, followed by dark sports behind every occiput scale.

***Dipsas catesbyi* (Sentzen, 1796)**
Material: ZSM 2279/0 [apparently lost] from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: „*Sibynomorphus catesbyi*".

***Elaphe guttata* (Linnaeus, 1766)**
Material: ZMUG 88b [lost] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1853.
Catalogue name: „ *Coluber guttatus*".

***Imantodes gemmistratus* (Cope, 1861)**
Material: ZSM 30/0 [holotype] [lost] from "Mittel-Amerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: „*Himantodes cenchoa* var. *elegans*"
Citation: As „*Himantodes cenchoa* var. *elegans*" from "Amérique central" by Jan and Sordelli (1871).
Remarks: This is the holotype of *Himantodes cenchoa* var. *elegans* Jan in Jan & Sordelli, 1871, which is today recognized as a synonym of *I. gemmistratus*.

***Leptophis ahaetulla occidentalis* (Günther, 1859)**
Material: ZSM 1795/0 [apparently lost] from "Mittel-Amerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: „*Leptophis occidentalis*"

***Liophis epinephelus* (Cope, 1862)**
Material: ZSM 1783/0 [2 ex., apparently lost] from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: „*Leimadophis albiventris*"

***Mastigodryas boddaerti* (Sentzen, 1796)**
Material: ZSM 83/0 [apparently lost] from "Mittelamerika" [=Central America, no further locality specified] collected by "M. Wagner".
Catalogue name: „*Drymobius boddaerti* (Sentz)"

***Natrix natrix persa* Pallas, 1814**
Material: ZMUG 67k [lost] from "Urmia," Iran collected by "M. Wagner" in 1846.
Catalogue name: „ *Tropidonotus natrix* var. *persa*".
Citation: As „*Tropidonotus natrix* Kuhl" from "von der armenisch-persischen Grenze" by Berthold (in M. Wagner 1850, p. 337).
Remarks: Berthold (in M. Wagner 1850) described this specimen in detail and used this voucher to downgrade ‚*Tropidonotus persa*', viewed as a full species by Eichwald (1831), to a subspecies of *Natrix natrix*.

***Natrix tessellata* (Laurenti, 1768)**
Material: ZMUG 69c [lost] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846.
Catalogue name: „ *Tropidonotus tessellates*".
Citation: As "*Tropidonotus tessellatus* Boje" from "aus Grusien [Georgia] und von den Abhängen des Kaukasus [and the mounatin slopes of the Caucasus]" by Berthold (in M. Wagner 1850, p. 335).
Remarks: Berthold (in Wagner 1850) mentioned one voucher of this taxon with 17 keeled scale rows around midbody, 175 ventral body and 60 ventral tail scales. The coloration was described as leaf green on the upper side and yellow and black on the ventral side. This voucher is most probably the specimen mentioned by Berthold. Nevertheless, it has apparently been lost since 1968.

***Nerodia cyclopion* (Duméril, Bibron & Duméril, 1854)**
Material: ZMUG 76 [lost] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner" in 1853.
Catalogue name: „ *Thamnophis cyclopium*".

***Opheodrys vernalis* (Harlan, 1827)**
Material: ZSM 1913/0 [apparently lost] from "Florida," USA collected by "M. Wagner".
Catalogue name: „*Contia vernalis*".

***Oxyrhopus petolarius* (Linnaeus, 1758)**
Material: ZSM 2060/0 [apparently lost] from "Ecuador" [no further locality specified] collected by "M. Wagner"; ZSM 2063/0 [apparently lost]; ZSM 2065/0 [apparently lost] from "Mittel-Amerika [Central America, no further locality specified]" collected by "M. Wagner"; ZSM 2673/0 [apparently lost] from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: „*Clelia petola*" [ZSM 2060/0, ZSM 2063/0, ZSM 2065/0]; „*Pseudoboa petola*" [ZSM 2063/0, ZSM 2065/0]; „*Pseudoboa petola*" [ZSM 2673/0].

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***Sibon nebulata* (Linnaeus, 1758)**
Material: ZSM 2606/0 [2 ex., apparently lost] from "Mittel-Amerika [= Central America, no further locality specified]" collected by "M. Wagner".
Catalogue name: „*Petalognathus nebulosus*"

***Sistrurus miliarius* Linnaeus, 1766**
Material: ZMUG 216a, ZMUG 216b [2 ex., lost] from "Nord Amerika" [=North America, no further locality specified] collected in 1854.
Catalogue name: „*Sistrurus miliarius*"
Remarks: In the old catalogue the collector is not named, but locality and date agree with Moritz Wagner.

***Storeria occipitomaculata* (Storer, 1839)**
Material: ZSM 1538/0 [apparently lost] from "Florida," USA collected by "M. Wagner"..
Catalogue name: „*Ischnognathus occipitomaculatus*"

***Tantilla melanocephala* (Linnaeus, 1758)**
Material: ZSM 2172/0 [apparently lost] from "Mittel-Amerika [= Central America, no further locality specified]" collected by "M. Wagner".
Catalogue name: „*Tantilla melanocephala*"

***Thamnophis sauritus* (Linnaeus, 1758)**
Material: ZSM 81/0 [apparently lost] from "Florida," USA collected by "M. Wagner".
Catalogue name: „*Tropidonotus saurita*".

***Thamnophis sirtalis* (Linnaeus, 1758)**
Material: ZMUG 82c–e [3 ex., lost] from "Nord Amerika" [=North America, no further locality specified] collected by "M. Wagner [see remarks]" in 1853; ZSM 86/0 [apparently lost] from "Südcarolina" [= South Carolina], USA collected by "M. Wagner".
Catalogue name: "*Thamnophis ordinatus*" [ZMUG 82c–e]; „*Tropidonotus ordinates* var. *sirtalis*" [ZSM 86/0]
Remarks: In the ZMUG catalogue the collector's name for voucher 82c is lacking but date and locality indicate M. Wagner as collector. Specimen ZMUG 82e was recognized by a student in Göttingen in 1968, but it has been missing since that time. *Thamnophis ordinatus* was described by Linnaeus in 1766 as *Coluber ordinatus*, but later recognized as subspecies of *T. sirtalis* by Cope (1900) and by subsequent authors as a color phase (e.g., Rossman 1965)

***Xenodon rabdocephalus* (Wied-Neuwied, 1824)**
Material: ZSM 1824/0 [apparently lost] from "Pastassa [=Pastaza valley]," Ecuador collected by "M. Wagner".
Catalogue name: „*Xenodon rabdocephalus*".

***Zamenis longissimus* (Laurenti, 1768)**
Material: ZMUG 86c [lost] from "Tiflis" [=Tbilissi], Georgia collected by "M. Wagner" in 1846.
Catalogue name: „*Coluber longissimus* ".
Citation: As "*Coluber aesculapii* Shaw" from "aus Grisien und von den Abhängen des Kaukasus" by Berthold (in M. Wagner 1850, p. 333).
Remarks: Berthold (in M. Wagner 1850) mentioned '*Coluber aesculapii*' with 21 scale rows around midbody, 206 ventral body and 78 ventral tail scales. This voucher has apparently been lost since 1968.

[Elapidae]
***Micrurus ancoralis* (Jan in Jan & Sordelli, 1872)**
Material: ZSM 210/0 [holotype] [lost] from "Ecuador" [no further locality specified] collected by "M. Wagner".
Catalogue name: "(*Elaps*) *ancoralis*".
Citation: As "*Elaps Maregravii* var. *ancoralis*" by Jan and Sordelli (1872).

***Micrurus fulvius* (Linnaeus, 1766)**
Material: ZSM 2263/0 [apparently lost] from "Nord Amerika [= North America, no further locality specified]", ZSM 2266/0 [apparently lost] from "Florida," USA collected by "M. Wagner".
Catalogue name: „*Micrurus fulvius nigrocinctus*" [ZSM 2263/0]; "*Micrurus fulvius*" [ZSM 2266/0]

Questionable Material
There is some doubtful material available from the ZSM collection. In most of the material a collector is not specified and locality is not mentioned in other catalogue entries together with Moritz Wagner as collector, but the catalogue entry is together within a series of entries of material collected by M. Wagner or immediately following such a series. Furthermore, this material was collected at localities which usually refer to Wagner material, or it is from localities Wagner visited during his travels. If the material is not lost (as indicated in the material section), further examination is needed to clarify the status of this material.

[Plethodontidae] *Plethodon cinereus* (Green, 1818)
Material: ZSM 1277/0 from "Philadelphia," Pennsylvania, USA; ZSM 1278/0 [8 ex., apparently lost] from "New York," USA; ZSM 1279/0 [apparently lost] from "Nord-Amerika" [= North America, without further locality].
Catalogue name: "*Plethodon erythronotus*"; "*Plethodon cinereus*".

[Plethodontidae] *Pseudotriton ruber* (Sonnini de Manoncourt and Latreille, 1801)
Material: ZSM 1266/0 [Status unclear] from "Nord-Amerika" [= North America, without further locality]; ZSM 1265/0 [4 ex., apparently lost], ZSM 1267/0 [2 ex.] from "Philadelphia," Pennsylvania, USA.
Catalogue name: "*Pseudotriton ruber*".

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Remarks: Both series, ZSM 1265 and ZSM 1266, have been exchanged with "Dr. [Goreslan?]".

[Salamandridae] *Notophthalmus viridescens* (Rafinesque, 1820)
Material: ZSM 1040/0 from "Nord-Amerika" [=North America]; ZSM 1042/0 [2 ex, apparently lost] from "Philadelphia," Pennsylvania, USA.
Catalogue name: "*Triturus viridescens*".

[Bufonidae] *Atelopus ignescens* (Cornalia, 1849)
Material: ZSM 1015/0 [2 ex., apparently lost] from "Süd Amerika" [= South America]".
Catalogue name: "*Atelopus laevis*".

[Lacertidae] *Mesalina rubropunctata* (Cope, 1861)
Material: ZSM 753 [2 ex.] from "Suez," Egypt collected by "Wagner".
Catalogue name: „*Eremias rubropunctata*"
Remarks: The collector Moritz Wagner is usually indicated as "M. Wagner" in the ZSM catalogue, while here the entry only refers to "Wagner". Even that only the family name is used in some other entries which clearly refer to Moritz Wagner, here the locality "Suez" was, according to our knowledge today, never visited by Wagner. Therefore, it remains questionable if he probably visited Egypt during one of his many shorter travels, or got these specimens in exchange.

[Scincidae] *Plestiodon fasciatus* (Linnaeus, 1758)
Material: ZSM 832/0 [2 ex.] from "Philadelphia," Pennsylvania; ZSM 833/0 [2 ex.] from "Nordamerika" [= North America, without further locality].
Catalogue name: "*Eumeces fasciatus*".

[Boidae] *Boa constrictor* (Linnaeus, 1758)
Material: ZSM 1376/0, ZSM 1377/0 from "Süd-Amerika" [=South America, no further locality specified].
Catalogue name: „*Boa constrictor*"

[Colubridae] *Cubophis cantherigerus* (Bibron, 1843)
Material: ZSM 1786/0 [? Status unclear] from "Süd-Amerika" [=South America, without further locality].
Catalogue name: „*Leimadophis angulifer* (Bibr.)"

[Colubridae] *Lampropeltis nigra* (Yarrow, 1882)
Material: ZSM 1840/0 from "Tenesee [Tennessee], USA".
Catalogue name: „*Lampropeltis getula nigra*".

[Colubridae] *Lampropeltis triangulum* (Lacépède, 1789)
Material: ZSM 1841/0 [4 ex.] from "New York," USA.
Catalogue name: „*Lampropeltis getula triangulum*".

[Colubridae] *Lygophis lineatus* (Linnaeus, 1758)
Material: ZSM 1784/0 [status unclear], ZSM 1785/0 [2 ex., status unclear] from "Süd-Amerika" [= South America, without further locality].
Catalogue name: „*Leimadophis triscalis*", „*Lygophis lineatus*" [ZSM 1784/0]; "*Dromicus lineatus*" [ZSM 1785/0]

[Colubridae] *Nerodia sipedon* (Linnaeus, 1758)
Material: ZSM 1472/0 [status unclear], ZSM 1473/0 [status unclear] from "New York," USA; ZSM 1474/0 [status unclear] from "Florida," USA.
Catalogue name: „*Natrix sipiton* [sic!]"

DISCUSSION

This "checklist" encompasses 321 (207 extant, 114 lost or apparently lost; see also Table 1 for details) herpetological specimens collected by Moritz Wagner and present in the collections of the NMW, RMNH, ZFMK, ZMB, or ZSM. However, it is possible that more material will be discovered in other collections, e.g., the Paris collection to which Wagner probably donated some of the Algerian material. In particular, the Zoological Museum of the Friedrich-Alexander-University Erlangen-Nürnberg [=Nuremberg] possibly also holds material collected from Algeria (especially from his short stay in 1834) or shorter travels in Europe, e.g. southern France. His brother, Rudolf Wagner, being appointed as professor of Zoology, became the head of the zoological collection when the museum was separated into distinct collections on January 18th 1833. Up to 1840, when Rudolf Wagner left the university upon accepting a position in Göttingen, he enlarged the collection which became one of the most important zoological collections in Germany at this time. During this time, Moritz Wagner often visited Erlangen and the university awarded him with a doctoral degree. Therefore, it can be presumed that Wagner also donated material to the collection, but nevertheless, as in Göttingen, space for collections is limited at the university and the collection has not been accessible since 1985 and parts remain inaccessible today. The Museum Koenig in Bonn probably houses the largest number of herpetological vouchers collected by M. Wagner (see Table 1) from this time. He donated a large amount of specimens from North America to both the ZMUG and the ZSM collection, but no material from Central America was donated to the Göttingen collection, probably due to his emerging affiliation to Munich and the Bavarian king after the voyage to North and Central America. Nearly all material from his last voyage to Central- and South America was donated to the Munich collection (ZSM). However, as collection dates are lacking in the ZSM catalogue, it is often not possible to reconstruct if the material was collected during his first or the second expedition to Central America.

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Table 1. Number of speeimens collected by Moritz Wagner, referring to his five general collecting areas and the investigated collections.

Collection	Algeria	Caucasus	North America	Central America	South America
NMW				18	1
RMNH	20				
ZMB			1	5	1
ZMUG	(3)	(9)	(20)		
ZFMK	4	15	19		
ZSM			75 (39)	24 (12)	24 (31)
Total	**27**	**24**	**154**	**59**	**57**

Table 2. Currently identified type material collected by Moritz Wagner.

Original name	Current name	Type(s)
Bufo mauritanicus Schlegel, 1841	*Bufo mauritanicus*	Holotype RMNH 2122
Chalcides heteropus Wiegmann, 1856	*Bachia heteropa*	Paralectotype ZMB 52679
Diaphorolepis wagneri Jan, 1863	*Diaphorolepis wagneri*	Holotype ZSM 2708/0
Ecpleopus affinis Peters, 1863	*Pholidobolus affinis*	Holotype ZSM 644/0/1
Elaps hertwigii Werner, 1897	*Micrurus multifasciatus hertwigi*	Holotype ZSM 2268/0
Elaps macgravii var. *ancoralis* Jan, 1872	*Micrurus ancoralis*	Holotype ZSM 210/0 [lost]
Hemiphractus fasciatus Peters, 1862	*Hemiphractus fasciatus*	Holotype ZSM 36/0
Himantodes cenchoa var. *elegans* Jan, 1871	*Imantodes gemmistratus*	Holotype ZSM 30/0 [lost]
Hylaemorphus Pluto Schmidt, 1858	*Atelopus varius*	Syntypes NMW 3875.1–4
Micrurus latifasciatus Schmidt, 1933	*Micrurus latifasciatus*	Paralectotype ZSM 2263/0
Micrurus latifasciatus Sehmidt, 1933	*Micrurus latifasciatus*	Paratype ZSM 2263/0
Phyllobates chalceus Peters, 1873	*Pristimantis chalceus*	Syntypes ZSM 1045/0 [2.ex]
Plectromantis wagneri Peters, 1862	*Leptodactylus wagneri*	Holotype ZSM 1080/0
Rhabdosoma occipitoalbum Jan, 1862	*Atractus occipitoalbus*	Holotype ZSM 1395/0 [lost]
Spelerpes palmatus Werner, 1897	*Bolitoglossa palmata*	Paralectotypes ZSM 1272/0 [2 ex, lost]
Spelerpes palmatus Werner, 1897*	*Bolitoglossa palmata*	Leetotype NMW 22862
Triton ophryticus Berthold, 1846	*Ommatotriton ophryticus*	Leetotype ZFMK 27793
Vipera wagneri Nilson & Andrén, 1984	*Montivipera wagneri*	Holotype ZFMK 32495

*= for discussion of this specimen see species account.

Moritz Wagner never worked as a herpetologist and only his first books about his travels have a separate chapter about amphibians and reptiles (Wagner 1841, 1850). However, he collected some important material, e.g., the type material of *Ommatotriton ophryticus* (Berthold, 1846), *Montivipera wagneri* (Nilson & Andrén, 1984), *Diaphorolepis wagneri* Jan, 1863 and *Leptodactylus wagneri* (Peters, 1862) (see also Table 2 for details). Altogether, 23 of the 149 herein recognized specimens were later used as the basis to describe new species. However, in his several publications about zoogeography and speciation (e.g. M. Wagner 1889), Wagner often referred to reptiles. One dubious taxon is mentioned several times. Wagner (1868, 1880) mentioned a pygmy *Crotalus* which he collected on the plateau of Costa Rica and which was, according to Wagner (1868, 1880) described as a new species by Leopold Fitzinger. However, Wagner never mentioned the name of the new species or the citation of the description or the collection of the type specimen. Moreover, there is no *Crotalus* taxon described by

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Fitzinger and no *Crotalus* specimen was found within the Wagner collection. Only two Crotalinae collected by Wagner in Costa Rica were found. *Bothriechis schlegelii* (NMW 28002) and *Porthidium lansbergi* (NMW 28392), but both were never recognized in the genus *Crotalus* nor as closely related to *C. horridus* as mentioned by Wagner (1868, 1880).

The same problem exists with a putative *Alligator* species. Wagner (1880) mentioned that after an examination of his material by Carl Theodor von Siebold and Leopold Fitzinger one specimens from western Panama was recognized as a new species. Again, Wagner (1880) did not provide any further data and no corresponding specimen was found.

Even though type material of several species was collected by Moritz Wagner, his material is mainly of historic interest. However, especially the case of *Montivipera wagneri* shows that even historical material can provide new insights, especially if it was collected in poorly known geographic regions.

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