



***Lacerta varia* – and then there were four: multiple use of the same species name for various lizards (Squamata: Lacertidae, Teiidae, Varanidae)**

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Abstract. The taxon name *Lacerta varia* has been independently coined four times. Such homonymy can result in nomenclatural instability. We show that all but one name are nomina oblita. This way we protect the longstanding name *Lacerta bilineata* DAUDIN, 1802. With respect to the species epithet *varia* in combination with the genus name *Lacerta* only *Lacerta varia* by SHAW in WHITE, 1790 is available for nomenclatural purposes representing *Varanus varius* (SHAW in WHITE, 1790).

Key words. Homonymy, *Varanus varius*, *Lacerta viridis*, *Lacerta bilineata*, *Ameiva ameiva*, *Cnemidophorus lemniscatus*.

Introduction

The International Code of Nomenclature (ICZN 1999; in the following the 'Code') is based on two main principles, namely priority and stability. However, if priority is automatically given precedence it may threaten nomenclatural stability by rejecting long-standing taxon names in favour of obscure earlier names.

Although the principle of priority as prescribed by the 'Code' is meant to preserve the work of an original author, in some cases taxon names were coined (un)intentionally by non-taxonomists in publications where it would not be expected. In one of the cases outlined below this was done in a travel guide (COXE 1789). Application of priority in such cases would deprive taxonomists of their deserved recognition; and – if only discovered hundreds of years later – recognizing a taxon name coined in an obscure work would threaten nomenclatural stability.

In the early days distribution of (zoological) publications among scientists working in the same field was certainly insufficient. Unaware of each others' publications authors assigned identical names (homonyms) to different or sometimes identical taxa. One such long-standing taxon name threatened by senior homonyms is that of the Australian Lace Monitor (*Varanus varius*) which was originally described as *Lacerta varia* by SHAW in WHITE (1790).

Since WHITLEY (1975) it has been known that the name *Lacerta varia* had been coined by WYTTEBACH in 1789 prior to the description of *Varanus varius*. However, the publication, in which it had been published, was never cited nor identified by any subsequent author. The same name in its masculine form (*Lacertus varius americanus*) can also be found, but had been completely overlooked, in a well-known herpetological work by BONNATERRE (1789). More recently DUBOIS & BOUR (2010) coined the taxon name *Lacerta varia* again by referring to it as a new combination for *Seps varius* LAURENTI, 1768. None of these nominal species is represented by a type specimen in a zoological collection.

If any of the aforementioned species were valid then all subsequent publications using the species epithet *varia* in combination with the generic name *Lacerta* would become junior homonyms and unavailable unless the species epithet *varia* of the earlier published name could be shown to be either a nomen nudum or a nomen oblitum.

Under certain circumstances Article 23 of the 'Code' (ICZN 1999) facilitates the reversal of precedence, i.e., rejecting senior homonyms in favour of the prevailing usage of a long-standing taxon name. The application of the Principle of Priority [Art. 23.2] is moderated as follows:

23.9.1. prevailing usage must be maintained when the following conditions are both met:

23.9.1.1. the senior synonym or homonym has not been used as a valid name after 1899, and

23.9.1.2. the junior synonym or homonym has been used for a particular taxon, as its presumed valid name, in at least 25 works, published by at least ten authors in the immediately preceding 50 years and encompassing a span of not less than ten years.

In the following we will protect *Lacerta varia* SHAW in WHITE, 1790 under Art. 23.9 by showing that the earlier homonyms *Lacertus varius americanus* BLOCH in BONNATERRE, 1789, *Lacerta varia* WYTTENBACH in COXE, 1789 as well as the unintentionally coined homonym *Lacerta varia* (LAURENTI, 1768) are nomina oblita.

***Lacerta varia* (LAURENTI, 1768)**

An early post-Linnean taxonomic work by GARSALT (1764) had been completely overlooked by the herpetological community until it was rediscovered by WELTER-SCHULTES et al. (2008) and several nomenclatural implications related to GARSALT'S work were discussed in a subsequent publication by WELTER-SCHULTES & KLUG (2009). In another publication the following year DUBOIS & BOUR (2010) discussed the status of 13 herpetological nomina in detail and here only a short summary is provided regarding nomenclatural implications relevant to the homonymy of *Lacerta varia*.

In particular DUBOIS & BOUR (2010) argued that *Lacertus viridis* GARSALT, 1764 (pl. 669) is a senior secondary homonym of *Lacerta viridis* (LAURENTI, 1768). The species described by GARSALT (1764) is however not identical with *Lacerta viridis* (LAURENTI, 1768) but with *Lacerta bilineata* DAUDIN, 1802 instead as all specimens observed or collected by GARSALT were most probably from the Paris area in France where *L. viridis* does not occur. Consequently, the taxon *Lacerta viridis* would be in need of a substitute name. Acting as first revisers DUBOIS & BOUR (2010) decided that the first junior synonym available for this taxon name is *Seps varius* LAURENTI, 1768 despite a page priority of the species epithets *sericeus* and *terrestris*. As page priority is no longer recognized by the 'Code', the first reviser(s) can decide which name takes precedence. Apparently unaware of other publications using the taxon name *Lacerta varia* DUBOIS & BOUR (2010) unintentionally produced a senior homonym. Interestingly these authors were not the first as MILNE-EDWARDS (1829: 83) already considered *Seps varius* as a senior synonym of *L. viridis* (LAURENTI, 1768) and synonymized *L. viridis* and *L. bilineata* DAUDIN, 1802 with *Lacerta varius* [sic] (LAURENTI, 1768). According to DUBOIS & BOUR (2010) "*Lacerta viridis* should now be known as *Lacerta varia*, and the nomen *Lacerta viridis* should now apply to the species currently known as *Lacerta bilineata*".

Subsequently DUBOIS & BOUR (2010) made use of Article 23.9.1 of the 'Code' and rejected the nomen *Lacertus viridis* GARSALT, 1764 as a nomen oblitum in favour of

its junior homonym *Lacerta viridis* (LAURENTI, 1768) as a nomen protectum. The aforementioned nomenclatural actions were challenged by WELTER-SCHULTES & KLUG (2011) such that DUBOIS & BOUR (2010) had not strictly followed the rules of the 'Code' as they only referred to the bibliography in a book chapter instead of providing the references as prescribed by the 'Code'. This was subsequently corrected by DUBOIS & BOUR (2012) where the required references for *Lacerta viridis* were provided. Unfortunately, the authors referred in their list to *Lacertus terrestris* instead of *Lacertus viridis* GARSALT, 1764. This minor mistake (corrected here to *Lacertus viridis*) does, however, not invalidate their nomenclatural action and the name *Lacerta viridis* (LAURENTI, 1768) should be treated as a nomen protectum. Furthermore, this has to be seen as invalidation of their unintentionally produced senior homonym *Lacerta varia* (LAURENTI, 1768), a name that was never in use.

Consequently the taxon name *Lacertus viridis* GARSALT, 1764 (nomen oblitum) is no longer available for nomenclatural purposes unless decided otherwise by the authority of the ICZN and the long standing usages of *Lacerta viridis* (LAURENTI, 1768) and *Lacerta bilineata* DAUDIN, 1802 can prevail. This could be considered a closed case were it not for subsequent papers published nearly a quarter of a century later using the taxon name *Lacerta varia*.

Lacertus varius americanus

PIERRE JOSEPH BONNATERRE (1752–1804) is recognized for authoring several herpetological taxa in his 'Erpétologie' (1789). However, in many cases BONNATERRE was not the actual author of the original description; that had been BERNARD GERMAIN LACÈPEDE (1756–1825) in his 'Histoire naturelle des quadrupèdes ovipares et des serpens' (1788). Only because LACÈPEDE'S work (1788) was rejected as non-binominal by the ICZN (2005) and BONNATERRE'S work was consistently binominal were several of the taxa described by LACÈPEDE subsequently attributed to BONNATERRE (1789).

The works of LINNAEUS (1758) and LACÈPEDE (1788) formed the basis for BONNATERRE (1789). In particular the concept of the genus *Lacerta* was adopted from these two earlier publications. At the end of his description of *Lacerta ameiva* [= *Ameiva ameiva* (LINNAEUS, 1758)] BONNATERRE (1789: 48) noted that he had received a figure (produced by CHARLES PLUMIER) and a short description of a variety of this species by M. BLOCH (Berlin). The name provided by BLOCH and given in BONNATERRE (1789) was *Lacertus varius americanus*. The name was most probably already provided by PLUMIER in its trinominal form in a manuscript from around 1700 purchased later by BLOCH at an auction. Although this manuscript was entitled 'Zoografia Americana, pisces et volatila' [fishes and "birds"] it also contained illustrations of other animals such as reptiles. PLUMIER'S field notes and illustrations were prepared during his travels to the Caribbean (1687, 1689 and 1694) and formed the basis of the manuscript. Several of his illus-

trations and descriptions were used by BLOCH in his ichthyological work (BLOCH 1782–85, PIETSCH 2017). However, PLUMIER's work dates from pre-Linnean time (around 1700) and therefore he cannot be given authority for providing a nomenclaturally available name. As BONNATERRE only reproduced BLOCH's description and depicted the figure (pl. 6, fig. 5, Le L. Ameiva) provided by BLOCH, we consider BLOCH as the authority for describing the species. In case the name was made available for nomenclatural purposes through BONNATERRE (1789) [but see below] it should be given as *Lacertus varius americanus* BLOCH in BONNATERRE, 1789.

The description of *Lacertus varius americanus* reads as follows [our translation from French]: “The upper side of the body and head are dirty yellow; the sides and the lower part of the tail, up to two thirds of its length, are marbled with a superb celestial blue; the front part of the thighs, the jaws and the neck are variegated with blue and red; the back is of a uniform colour; the top of the tail is only speckled with brown. The finger claws are very long and brownish.” The coloration of the specimen could possibly relate to a very colourful male of *Ameiva ameiva* (LINNAEUS, 1758) but in our opinion could equally point towards *Cnemidophorus lemniscatus* (LINNAEUS, 1758). The situation is further complicated by the fact that PLUMIER most probably never visited a region where either of the two above mentioned species occur, albeit that some historians claim that he may have visited the coast of Brazil (MOTTRAM 2002). PLUMIER's main work was concerned with Saint-Domingue, nowadays Haiti, and some Antillean islands (HRODEJ 1997, PIETSCH 2001). Teiid lizards occurring in this region (*Pholidoscelis* sp.) do not exhibit a colouration matching the description. As such, the taxon name is ambiguous and constitutes a nomen dubium. In both cases (*Ameiva ameiva* and *Cnemidophorus lemniscatus*) the taxon name would only constitute a junior synonym and not threaten the nomenclatural stability of either of the taxa involved. Further to this we could not find any other publication where this name has been used for either of the two species (or any other teiid lizard for that matter). Hence *Lacertus varius americanus* BLOCH in BONNATERRE, 1789 is additionally a nomen oblitum.

However, it is much more likely that the name *Lacertus varius americanus* simply constitutes a descriptive name (the spotted American lizard) coined by PLUMIER (1700). In this case BONNATERRE (1789) and BLOCH in his letter only reproduced PLUMIER's name and did not make it available for nomenclatural purposes. Corroborating this assumption is the fact that BONNATERRE (1789) used the Linnean genus name *Lacerta* in its feminine form throughout his work as did BLOCH (1776) who also used *Lacerta* (not *Lacertus*) in his description of *Lacerta serpens* [= *Lygosoma quadrupes* (LINNAEUS, 1766)]. Further to this, neither BLOCH nor BONNATERRE used trinomial nomenclature. As a purely descriptive name provided in a pre-Linnean work by PLUMIER (1700, unpubl. manuscript, precise year unknown) the name *Lacertus varius americanus* is nomenclaturally unavailable.

Lacerta varia WYTTENBACH in COXE, 1789

In another completely overlooked publication the name *Lacerta varia* was coined for a new species of lizard from Switzerland in a travel guide by COXE (1789). Only SHERBORN (1902: 1032) in his compilation of post-LINNEAN 18th century animal names listed *Lacerta varia* WYTTENBACH in COXE, 1789. Since its original publication the nomen *Lacerta varia* WYTTENBACH in COXE, 1789 has never been used as a synonym of any recognized lacertid lizard.

The title of COXE (1789) is probably the main reason why contemporary zoologists and later authors did not consider this work as relevant to taxonomy. His three volume work carried the title “Travels in Switzerland in a series of letters to William Melmoth, Esq.” without any mentioning of natural history on the front page. However, Volume 3 of COXE (1789) contains a chapter named 'Faunula Helvetica' that comprises a catalogue of animals known to occur in Switzerland. It should be noted that there exists another two volume edition of COXE's travels (COXE 1789a) published in Dublin later in the same year. Here we refer to the original three volume London edition (COXE 1789).

Under “Class III. Amphibia. Ordo I. Reptiles. Lacerta. LIN.[NAEUS] 359.” COXE (1789: 375) gave the following account: “*L. Varia*. Cauda verticillata longa, subter lutea, supra viridi cinerea, ex nigro, albo, caeruleque varia. Nova.” [Tail long with whorls, underside yellow, above green-gray, variegated [with] black, white and blue; our translation]. “This [*Lacerta varia*] is nearly allied to the *agilis*, and will be described also in the abovementioned work by Count Razoumofsky.”

The Latin term 'nova' clearly identifies the species as new and from the closing sentence in English it can be implied that COXE's publication predated that of Razoumowsky [correct spelling]. The forthcoming publication COXE refers to is RAZOUMOWSKY's 'Histoire naturelle du Jorat'. The only new description under *Lacerta* that can be found in RAZOUMOWSKY (1789: 111) is that of a new, namely *Lacerta paradoxa* s. *helvetica* [non *Lacerta paradoxa* BEDRIAGA, 1886 = *Lacerta agilis grusinica* PETERS, 1960 fide BISCHOFF (1984)] which is nowadays classified as *Lissotriton helveticus* (RAZOUMOWSKY, 1789). A detailed account of the discovery and description is given in GROSSENBACHER (1990). With respect to lizards RAZOUMOWSKY (1789) provided descriptions of what he considered to be varieties of *Lacerta agilis*, but did not coin a new name or mark either of the descriptions as new. Therefore COXE (1789) could be considered the original publisher of the taxon name *Lacerta varia*.

WILLIAM COXE (1748–1828) was an English priest and historian with a keen interest in natural history. As a travel companion to English nobility he had visited Switzerland several times. During one of his visits he became acquainted with JACOB SAMUEL WYTTENBACH (1748–1830), a Swiss priest and naturalist who in 1786 cofounded the Berner Naturforschende Gesellschaft, in 1788 the Botanical Garden in Bern and in 1815 the Schweizer Naturforschende Gesellschaft. He had a large private collection of

minerals and natural history items. COXE visited WYTTEBACH in Bern as he gave a description of the content of “the [Wytttenbach’s] curious cabinet, principally relating to the natural history of Switzerland, and of the canton of Berne in particular” (see COXE 1789, Vol. 2, Letter 59).

In the introduction to his 'Faunula Helvetica' COXE (1789: 333) noted the following: “The industry, however, and ingenuity of several naturalist, have of late been employed in accurate investigations of the respective parts of Switzerland regarding the animal kingdom; and their kindness has enabled me to lay before the English naturalist the following 'Faunula Helvetica'”. With respect to reptiles and amphibians COXE (1789: 334) further stated: “On a subsequent expedition to Switzerland in 1786, I endeavoured to obtain a catalogue of the quadrupeds and amphibia, for the purpose of forming a 'Faunula Helvetica', a great desideratum in the natural history of Switzerland” and on the same page “From Rev. Mr. Wytttenbach ... I received a list of quadrupeds and amphibia”. Taking these statements into account it can be concluded that the original description of *Lacerta varia* was not drawn up by COXE but was provided by WYTTEBACH instead. This finding corroborates SHERBORN’s (1902) entry into the list of animal names as *Lacerta varia* WYTTEBACH in COXE, 1789.

The actual description (see above) given in COXE clearly points to a lacertid lizard, but it cannot be unambiguously assigned to a currently recognized species. It either constitutes a junior synonym of *Lacerta viridis* (LAURENTI, 1768) or it predates *Lacerta bilineata* DAUDIN, 1802. Although WYTTEBACH’s description of *Lacerta varia* is slightly ambiguous and could be applied to any (sub)species of the *Lacerta bilineata/viridis* complex, its publication within a list of Swiss reptiles restricts the type locality to that country. As *Lacerta viridis* does not occur in Switzerland we therefore conclude that *L. varia* WYTTEBACH, 1789 actually represents *L. bilineata* DAUDIN, 1802. Consequently the latter would become a junior synonym to which the species name *varia* would normally have to be applied. This conclusion constitutes the opposite outcome to that of DUBOIS & BOUR (2010) where *Lacerta varia* would be applied to *Lacerta viridis* instead of *L. bilineata*.

However, the senior synonym *L. varia* WYTTEBACH, 1789 (= *L. bilineata*) has not been in use at all as it had been overlooked by subsequent authors. Only SHERBORN’s mentioning of the name in 1902 would possibly qualify as usage after 1899 (Art. 23.9.1.1) but this work is not concerned with taxonomy or nomenclature and rather constitutes a compilation of names that had been coined between 1758 and 1800. In contrast the name *L. bilineata* has been in wide use since DAUDIN (1802) and the provisions of the current 'Code's Art. 23.9.1.2. are met. A list of references supporting our opinion is provided in Appendix 1. We therefore consider *Lacerta varia* WYTTEBACH in COXE, 1789 a nomen oblitum unavailable for nomenclatural purposes under the provisions of Arts. 23.9.1 and 23.9.2 unless decided otherwise by the authority of the ICZN and consider the younger name *Lacerta bilineata* DAUDIN, 1802 to be a nomen protectum.

Lacerta varia SHAW in WHITE, 1790

In 1789 several ships of the First Fleet returned from Australia and among their haulage were natural history items that had been collected on the continent. The English botanist and zoologist GEORGE SHAW (1751–1813) was in charge of describing the reptiles and frogs. In 1788 SHAW had co-founded the Linnean Society and later in 1791 became assistant keeper of the natural history department of the British Museum. Among the reptiles collected in Australia were lizards unknown to SHAW who consequently prepared their description. One large species was named *Lacerta varia*. The description of *Lacerta varia* was published in WHITE (1790: 253) and accompanied by an unnumbered plate 'The Variegated Lizard' on the preceding unnumbered page that clearly depicted a monitor lizard. Although the description was not attributed to SHAW in WHITE’s book, its description and that of other biological species referred to WHITE in the third person. It is now widely accepted that all reptile descriptions in WHITE (1790) were based on SHAW’s manuscripts that are still available in the manuscript department of the Natural History Museum in London. Consequently, SHAW should be given original authorship. Taxonomically the lizard described by SHAW belonged to the family Varanidae and should be referred to as *Varanus varius* (SHAW in WHITE, 1790).

WHITLEY (1975: 26) in his account of the early history of Australian zoology was the first to note “preocc.[upied]” next to *Lacerta varia* and “invalid name” after *Varanus varius* presumably based on SHERBORN (1902). Consequently COGGER et al. (1983) considered *Lacerta varia* WYTTEBACH as a senior primary homonym of *Lacerta varia* WHITE, 1790 and treated it as a nomen oblitum. The original text under *Varanus varius* in COGGER et al. (1983) reads as follows:

“*Lacerta varia* White, J. (1790)...[ex Shaw ms; junior primary homonym of *Lacerta varia* Wytttenbach, 1789, itself a nom. oblit.;]”

This has been erroneously interpreted by subsequent authors (e.g., WEAVERS 2004, SCHMIDA 2017, SCHOLZ 2020) to imply that SHAW mentioned WYTTEBACH’s description in his unpublished manuscript and that WYTTEBACH was therefore the original describer of *Varanus varius*.

Referring to COGGER et al. (1983) WEAVERS (2004: 488) stated that “apparently *Lacerta varia* was mentioned the previous year (1789) by SHAW in an unpublished manuscript”. Further down the same page he wrote: “Shaw’s use of the name was not actually the first description [of *Lacerta varia*], but a junior homonym”. He assigned the original description of *Lacerta varia* – in his view identical with *Varanus varius* – to WYTTEBACH but stated that the “name became forgotten” (nomen oblitum) and is therefore not available for nomenclatural purposes unless decided otherwise by the authority of the ICZN. WEAVERS (2004) did not provide a reference for WYTTEBACH but only referred to the unpublished manuscript of SHAW instead.

SCHMIDA (2017: 20) stated: “It was the first Australian monitor described by science and the naming itself is

somewhat confusing. The original name, *Lacerta varia*, was given by WYTTENBACH in 1789. The name was used by Shaw in an unpublished manuscript later in the same year. As WYTTENBACH's description was forgotten, SHAW was considered to be the author for some time. However, with WYTTENBACH forgotten and SHAW only quoting him, WHITE is now considered to be the author, because he used the name again in his 1790 "Journal of a journey to New South Wales" and therefore described it anew (COGGER et al., 1983)."

In a more recent publication SCHOLZ (2020) wrote that "the name *Lacerta varia* goes back originally to WYTTENBACH who already assigned it in the previous year, i.e. 1789, to the Lace Monitor" and that "he [WYTTENBACH] regrettably ... cannot serve as the name provider" [our translation]. Again, no reference to a publication of WYTTENBACH is given, but WEAVERS (2004), SCHMIDA (2017) and COGGER et al. (1983) are referenced to support this claim.

As indicated above, these later interpretations of the record given in COGGER et al. (1983) are, however, incorrect. SHAW did not refer to WYTTENBACH in his manuscript and he was clearly unaware of WYTTENBACH's or BONNATERRE's descriptions of a *Lacerta varia* / *Lacertus varius* the previous year. Had he been aware he would certainly have realized that his Australian lizard was not conspecific with a lacertid lizard comparable to *Lacerta agilis* or a teiid lizard (*Ameiva* or *Cnemidophorus*, respectively).

As the WYTTENBACH name was never in use as a synonym of any recognized species COGGER et al. (1983) decided to treat *Lacerta varia* WYTTENBACH, 1789 as a nomen oblitum in accordance with the then operative 'Code' of the ICZN (1964, Second Edition). Further to this the authors suggested that under Art. 23(b)(i–iii) "the conservation of *Lacerta varia* SHAW will require use of the Plenary powers of the International Commission on Zoological Nomenclature". This application was never made; but by rejecting *Lacerta varia* WYTTENBACH, 1789 as a nomen oblitum and therefore making it unavailable for nomenclatural purposes this action was not necessary for the conservation of the prevailing usage of *Varanus varius* (SHAW in WHITE, 1790). Consequently, we consider *Lacerta varia* SHAW in WHITE, 1790 as an available name.

Conclusion

The species epithet *varia* in conjunction with the genus *Lacerta* has been independently applied to four different taxa:

Lacerta varia (LAURENTI, 1768) (nomen oblitum fide DUBOIS & BOUR 2010) = *Lacerta viridis* LAURENTI, 1768 (nomen protectum).

Lacertus varius americanus (descriptive pre-Linnean name by PLUMIER (1700) unavailable for nomenclatural purposes).

Lacertus varius americanus BLOCH in BONNATERRE, 1789 (nomen oblitum et dubium, junior synonym) = *Amei-*

va ameiva (LINNAEUS, 1758) or *Cnemidophorus lemniscatus* (LINNAEUS, 1758).

Lacerta varia WYTTENBACH, 1789 (nomen oblitum) = *Lacerta bilineata* DAUDIN, 1802 (nomen protectum).

Lacerta varia SHAW in WHITE, 1790 = *Varanus varius* (SHAW in WHITE, 1790).

As all nomina of *Lacerta varia* prior to *Lacerta varia* SHAW in WHITE, 1790 are rejected as nomina oblita (COGGER et al. 1983, DUBOIS & BOUR 2010, this work) these names can only be made available by the specific authority of the ICZN. Therefore *Lacerta varia* SHAW in WHITE, 1790 is the only valid name and, in accordance with Article 23.9.1 of the 4th edition of the International Code of Zoological Nomenclature (ICZN 1999), its prevailing usage as *Varanus varius* (SHAW in WHITE, 1790) is conserved.

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Appendix 1

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