

## NOMENCLATURAL NOTES ON LIVING AND FOSSIL AMPHIBIANS

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### ABSTRACT

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A review of extinct and living amphibians known from fossils (Allocaudata, Anura and Caudata) has revealed several cases that require nomenclatural changes in order to stabilize the taxonomy of the group. Nomenclatural changes include homonym replacements, corrections of spelling variants and authorships, name availabilities, and in particular, the proposal of new combinations. These changes will allow the incorporation of some palaeontological taxa to the current evolutionary models of relationship of modern forms based on molecular phylogenies.

Proposed replacement names are: *Rana cadurcorum* for *Rana plicata* Filhol, 1877, *Rana auscitana* for *Rana pygmaea* Lartet, 1851, and *Rana sendoa* for *Rana robusta* Brunner, 1956. *Anchylorana* Taylor, 1942 is considered a new synonym of *Lithobates* Fitzinger, 1843.

New combinations proposed are: *Anaxyrus defensor* for *Bufo defensor* Meylan, 2005; *Anaxyrus hibbardi* for *Bufo hibbardi* Taylor, 1937; *Anaxyrus pliocompactilis* for *Bufo pliocompactilis* Wilson, 1968; *Anaxyrus repentinus* for *Bufo repentinus* Tihen, 1962; *Anaxyrus rexroadensis* for *Bufo rexroadensis* Tihen, 1962; *Anaxyrus spongifrons* for *Bufo spongifrons* Tihen, 1962; *Anaxyrus suspectus* for *Bufo suspectus* Tihen, 1962; *Anaxyrus tiheni* for *Bufo tiheni* Auffenberg, 1957; *Anaxyrus valentinensis* for *Bufo valentinensis* Estes et Tihen, 1964; *Ichthyosaura wintershofi* for *Triturus wintershofi* Lunau, 1950; *Incilius praeivius* for *Bufo praeivius* Tihen, 1951; *Lithobates bucella* for *Rana bucella* Holman, 1965; *Lithobates dubitus* for *Anchylorana dubita* Taylor, 1942; *Lithobates fayeae* for *Rana fayeae* Taylor, 1942; *Lithobates miocenicus* for *Rana miocenica* Holman, 1965; *Lithobates moorei* for *Anchylorana moorei* Taylor, 1942; *Lithobates parvissimus* for *Rana parvissima* Taylor, 1942; *Lithobates rexroadensis* for *Rana rexroadensis* Taylor, 1942; *Lithobates robustocondylus* for *Anchylorana robustocondyla* Taylor, 1942; *Ommatotriton roehrsi* for *Triturus roehrsi* Herre, 1955; *Pelophylax barani* for *Rana barani* Rückert-Ülkümen, 1980; *Pelophylax meriani* for *Rana meriani* Meyer, 1853; *Pelophylax pueyoi* for *Rana pueyoi* Navás, 1922a; *Pelophylax quellenbergi* for *Rana quellenbergi* Navás, 1922; *Phyloria borealis* for *Kyarranus borealis* Tyler, 1991; *Pseudepidalea belogorica* for *Bufo belogoricus* Ratnikov, 1993; *Pseudepidalea plana* for *Bufo planus* Ratnikov, 1993; *Pseudepidalea prisca* for *Bufo prisca* Špinar, Klembara et Meszároš, 1993, and *Pseudepidalea stranensis* for *Bufo stranensis* Němec, 1972.

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The names Geyeriellinae Brame, 1958, Palaeurodelidae Brame, 1958, Prosalamandridae Stefano, 1903, Lipelucidae Huene, 1956, *Rana temporaria fossilis* Stefanov, 1951, Salteniidae Kuhn, 1962, Vieraellidae Reig, 1961, and Voigtiellinae Brame, 1958 are nomenclaturally deemed unavailable. The family name based on *Scapherpeton* Cope, 1876 is Scapherpetidae and not Scapherpetonidae nor Scapherpetontidae.

**Key words:** Nomenclature; Herpetology; Paleontology; Amphibia; Anura; Caudata; Allocaudata.

## RESUMEN

C. Martín, M. A. Alonso-Zarazaga & B. Sanchiz. 2012. Notas nomenclaturales sobre anfibios actuales y fósiles. *Graellsia*, 68(1): 159-180 (in English).

Una revisión de anfibios extintos y actuales en estado fósil (Allocaudata, Anura y Caudata) ha permitido detectar diversos casos que precisan cambios nomenclaturales a fin de estabilizar la taxonomía del grupo. Los cambios nomenclaturales incluyen homonimias, correcciones de variantes gramaticales y autorías, disponibilidad de nombres, y en especial la propuesta de nuevas combinaciones, necesarias para ajustar algunos taxones paleontológicos a los modelos de relaciones evolutivas entre formas vivientes, fundamentados en filogenias moleculares.

Los nuevos nombres de reemplazo para homonimias que se proponen son: *Rana cadurcorum* para *Rana plicata* Filhol, 1877, *Rana auscitana* para *Rana pygmaea* Lartet, 1851, y *Rana sendoa* para *Rana robusta* Brunner, 1956. *Anchylorana* Taylor, 1942 se considera nuevo sinónimo de *Lithobates* Fitzinger, 1843.

Las nuevas combinaciones que se proponen son: *Anaxyrus defensor* para *Bufo defensor* Meylan, 2005; *Anaxyrus hibbardi* para *Bufo hibbardi* Taylor, 1937; *Anaxyrus pliocompactilis* para *Bufo pliocompactilis* Wilson, 1968; *Anaxyrus repentinus* para *Bufo repentinus* Tihen, 1962; *Anaxyrus rexroadensis* para *Bufo rexroadensis* Tihen, 1962; *Anaxyrus spongifrons* para *Bufo spongifrons* Tihen, 1962; *Anaxyrus suspectus* para *Bufo suspectus* Tihen, 1962; *Anaxyrus tiheni* para *Bufo tiheni* Auffenberg, 1957; *Anaxyrus valentinensis* para *Bufo valentinensis* Estes et Tihen, 1964; *Ichthyosaura wintershofi* para *Triturus wintershofi* Lunau, 1950; *Incilius praeivius* para *Bufo praeivius* Tihen, 1951; *Lithobates bucella* para *Rana bucella* Holman, 1965; *Lithobates dubitus* para *Anchylorana dubita* Taylor, 1942; *Lithobates fayeae* para *Rana fayeae* Taylor, 1942; *Lithobates miocenicus* para *Rana miocenica* Holman, 1965; *Lithobates moorei* para *Anchylorana moorei* Taylor, 1942; *Lithobates parvissimus* para *Rana parvissima* Taylor, 1942; *Lithobates rexroadensis* para *Rana rexroadensis* Taylor, 1942; *Lithobates robustocondylus* para *Anchylorana robustocondyla* Taylor, 1942; *Ommatotriton roehrsi* para *Triturus roehrsi* Herre, 1955; *Pelophylax barani* para *Rana barani* Rückert-Ülkümen, 1980; *Pelophylax meriani* para *Rana meriani* Meyer, 1853; *Pelophylax pueyoi* para *Rana pueyoi* Navás, 1922a; *Pelophylax quellenbergi* para *Rana quellenbergi* Navás, 1922; *Phyloria borealis* para *Kyarranus borealis* Tyler, 1991; *Pseudepidalea belogorica* para *Bufo belogoricus* Ratnikov, 1993; *Pseudepidalea plana* para *Bufo planus* Ratnikov, 1993; *Pseudepidalea prisca* para *Bufo priscus* Špinar, Klembara et Meszároš, 1993, y *Pseudepidalea stranensis* para *Bufo stranensis* Němec, 1972.

Los nombres Geyeriellinae Brame, 1958, Palaeurodelidae Brame, 1958, Prosalamandridae Stefano, 1903, Lipelucidae Huene, 1956, *Rana temporaria fossilis* Stefanov, 1951, Salteniidae Kuhn, 1962, Vieraellidae Reig, 1961, y Voigtiellinae Brame, 1958 se consideran nomenclaturalmente no disponibles. El nombre de familia basado en *Scapherpeton* Cope, 1876 es Scapherpetidae y no Scapherpetonidae ni Scapherpetontidae.

**Palabras clave:** Nomenclatura; Herpetología; Paleontología; Amphibia; Anura; Caudata; Allocaudata.

## Introduction

The recent development of an internet-based Knowledge Management System for fossil lissamphibians (Buckley, 2011; Martín & Sanchiz, 2012) has required a complete review and standardization

of the nomenclature of the members that have been recorded as fossils of the amphibian orders Allocaudata, Anura, Caudata, Gymnophiona, and Proanura. Living amphibians are relatively rare in the fossil record, and they are seldom studied in comparison with other vertebrates. However, with

the exception of a few allocaudates and proanurans, fossil lissamphibians belong to living orders, and most of them can be ascribed to modern families, genera and even species.

In the last few years, molecular techniques have provided an evolutionary framework of relationships that have substantially changed the taxonomy of amphibians at the family and genus levels (e.g. Frost *et al.*, 2006; Zhang *et al.*, 2008; Vieites *et al.*, 2009; San Mauro, 2010; Pyron & Wiens, 2011). As a consequence, it is necessary to adjust palaeontological usage to reflect the current taxonomic nomenclature of modern forms based on molecular phylogenies. In addition, the standardization process has detected several cases in which some other nomenclatural actions are required, such as homonymy replacement and corrections of spelling variants, among others. The current International Code of Zoological Nomenclature, 4<sup>th</sup> Edition (ICZN; International Commission on Zoological Nomenclature, 1999) does not allow for nomenclatural changes to be performed directly on an internet portal such as *Lisanfos KMS* ([www.lisanfos.mncn.csic.es](http://www.lisanfos.mncn.csic.es)), since an internet publication is not valid for this purpose. Furthermore, some of the proposed nomenclatural changes require historical and technical discussions, which are better treated in specialized taxonomic articles such as the one presented here. The living Amphibia taxonomic standard adopted here is Amphibian Species of the World version 5.5 (Frost, 2011). Historical uppercase letters in species names are not used.

### Museum acronyms

Fossils mentioned in this contribution are housed in the following institutions (in alphabetical order by acronym):

AMNH	American Museum of Natural History, New York, NY (U.S.A.).
BSP	Bayerischen Staatssammlung für Paläontologie und Geologie, Munich (Germany).
FGS	Florida Geological Survey, Tallahassee, Florida (U.S.A.).
FLMNH	Florida Museum of Natural History, Gainesville, Florida (U.S.A.).
FUB	Institut für Geologische Wissenschaften, Freie Universität, Berlin (Germany).
GM-RFWU	Goldfuss Museum, Rheinische Friedrich-Wilhelms-Universität, Bonn (Germany).
GPIG	Institut für Geologie und Paläontologie, Universität Göttingen, Göttingen (Germany).
IGUN	Museo di Paleontologia. Istituto Geologico della Università di Napoli, Naples (Italy).

KUMNH	Kansas University Museum of Natural History, Lawrence, Kansas (U.S.A.).
LNK	Staatliches Museum für Naturkunde, Karlsruhe (Germany).
MAP	Musée d'Anthropologie Préhistorique, Monte Carlo (Monaco).
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts (U.S.A.).
MNB	Museum für Naturkunde, Humboldt Universität, Berlin (Germany).
MNCN	Museo Nacional de Ciencias Naturales, CSIC, Madrid (Spain).
MNHN	Muséum National d'Histoire Naturelle, Paleontological collection, Paris (France).
MPUZ	Museo Paleontológico de la Universidad de Zaragoza, Zaragoza (Spain).
NHM	Naturhistorisches Museum Wien, Vienna (Austria).
NMBA	Naturhistorisches Museum, Basel (Switzerland).
NMPM	Národní Muzeum, Přírodovědecké Museum, Prague (Czech Republic).
PIMUZ	Paläontologisches Institut und Museum der Universität, Zurich (Switzerland).
QM	Queensland Museum, Brisbane (Australia).
SMF	Naturmuseum Senckenberg, Frankfurt am Main (Germany).
SNM	Slovenské Národné múzeum, Prírodovedné múzeum, Bratislava, Slovakia
UCMP	Museum of Paleontology, University of California, Berkeley, California (U.S.A.).
UMMP	University of Michigan Museum of Paleontology, Ann Arbor, Michigan (U.S.A.).
UNSM	University of Nebraska State Museum, Lincoln, Nebraska (U.S.A.).
USNM	National Museum of Natural History, Washington D.C. (U.S.A.).
VGU	Geological Museum, Voronezh University, Voronezh (Russia).

### ALLOCAUDATA Fox & Naylor, 1982

#### Albanerpetontidae Fox & Naylor, 1982

##### *“Albanerpeton krebsi”*

Wiechmann (2003) included in his doctoral thesis the proposal of a new species of *Albanerpeton* Estes & Hoffstetter 1976, based on a frontal fragment (‘holotype’, Uña A1) deposited in the collection of the Institut für Geologische Wissenschaften, Freie Universität Berlin (FUB). The material comes from the Lower Cretaceous (Barremian) of Uña (Spain). Wiechmann’s thesis is freely available online; however, the new species proposal has never been published otherwise, and thus, according to the ICZN, it does not meet the criteria for a valid nomenclatural published work (Arts. 8 & 9). To our knowledge, *‘Albanerpeton krebsi’* has only been quoted by an internet databa-

se (Böhme & Ilg, 2003). Therefore, the name remains unavailable.

#### “*Celtenham guimarotae*”

“*Celtenham guimarotae*”, another albanerpetonid species proposed in the doctoral thesis of Wiechmann (2003), was placed in the genus *Celtenham* McGowan & Evans, 1995, and it has as ‘holotype’ a frontal fragment (Gui A20; FUB Berlin) from the Upper Jurassic (Kimmeridgian) of Guimarota (Portugal). The nomenclatural situation of ‘*Celtenham guimarotae*’ is analogous to the situation described above for ‘*Albanerpeton krebsi*’. Thus, the name remains unavailable.

#### ANURA Fischer von Waldheim, 1813

##### *Bufo servatus* Filhol, 1877a

Filhol (1877a) named a calcium phosphate external natural cast from an unknown site within the Phosphorites du Quercy complex (Eocene-Oligocene; France), now housed in the MNHN Paris Paleontological collection, as *Bufo serratus*. Shortly later, Filhol (1877b, 1877c) mentioned the same specimen using the spelling *Bufo servatus*. It is clear from the different Filhol publications that the original nomenclatural act was done in the 1877a work. Although both spellings have been used historically (Martín & Sanchiz, 2012), the variant *Bufo servatus* should be considered a subsequent spelling. However, it is in prevailing usage (about 80 %) and must be considered the correct original spelling in application of Art. 33.3.1 of the Code.

#### “*Lipelucidae*”

Huene (1956) listed the genera *Montsechobatrachus* [sic] and *Eobatrachus* Marsh, 1887 in a new family level taxon named *Lipelucidae*. *Montsechobatrachus* was a frequently used unjustified emendation for *Monsechobatrachus* Fejérváry, 1921 (Sanchiz, 1998a). However, Huene (1956) did not describe this taxon, and there is no genus from which the family name could have been derived. As a consequence, this name is nomenclaturally unavailable. To our knowledge, the taxon *Lipelucidae* has never been mentioned after Huene (1956).

##### *Lutetiobatrachus gracilis* Wuttke in Sanchiz, 1998a

The *Lutetiobatrachus* genus is comprised of a single species, *Lutetiobatrachus gracilis*. This

species is an incertae sedis anuran from the Middle Eocene of Messel (holotype by monotypy SMF Frankfurt Me 476, skeleton on a slab). Its nomenclatural history is similar to the one detailed below for *Messelobatrachus tobieni*. The taxon, extensively described by Wuttke (1988d, p. 184-203) in thesis format, was not made nomenclaturally available until a review monograph by Sanchiz (1998a) provided a descriptive diagnosis and holotype reference for this fossil, thus making the name nomenclaturally available. The book chapter by Wuttke (1988a) also did not meet the criteria to be considered the original nomenclatural work because no diagnostic characters were given. However, Sanchiz (1998a, page 97) did explicitly credit the Wuttke thesis (1988d) for morphological information included in the diagnosis. Consequently, the proper complete authorship for this genus and monotypic species is *Lutetiobatrachus gracilis* Wuttke in Sanchiz, 1998a. This taxon should not be considered nomen nudum as proposed by Morlo *et al.* (2004).

#### “*Opisthocoelorum*”

- 1941 “*Opisthocoelorum*”. — Kuhn (1941). Latin expression not intended to become a taxonomic name [p. 369: “gen. nov. *Opisthocoelorum*”], i.e. an unnamed new genus within the suborder *Opisthocoela*, [p. 370: “Aus dieser Beschreibung läßt sich wohl eine generische Verschiedenheit von *Opisthocoellus* entnehmen, sie genügt andererseits zu näheren Vergleichen oder gar zu einer Benennung nicht. Die Unterschiede gegenüber der anderen Gattung aus dem Geiseltal liegen in der Wirbellänge und dem Schädelumriß”]. In p. 371: “gen. nov. *Opisthocoelorum*, Wirbel sehr gestreckt, nicht näher bekannte Form.”. The same word was also used for an unnamed new family [p. 373: “fam. *Opisthocoelorum* nov.”] to include *Eoxenopoides* Haughton, 1931. This name being a Latin genitive plural and treated so in the original description, it is unavailable under Art. 11.8 and also under 13.3 for a genus-group name and it is also unavailable under Art. 13.2 for a family-group name.
- 1954 “*Opisthocoelorum*”. — Papp & Thenius (1954) used it as a genus name [p. 43] within *Discoglossidae*, without providing a description, and referred to Kuhn (1941). This name being a Latin genitive plural, it is unavailable under Art. 11.8, and also under 13.1 and 13.3.
- 1959 “*Opisthocoelorum*”. — Krumbiegel (1959) used it as generic in an unnamed new family [p. 109].
- 1960 “*Opisthocoelorum*”. — Friant (1960) used it as a genus credited to Kuhn (1941) in a new unnamed family within *Opisthocoela* [p. 120]. Unavailable, it does not meet the requirements of Art. 13.1 and 13.3.
- 1960 “*Opisthocoelorum*”. — Hecht (1960) considered it as a genus of unknown relationships [p. 2]. Unavailable, it does not meet the requirements of Art. 13.1 and 13.3.

- 1961 "*Opisthocoelorum*". — Casamiquela (1961) considered it too incomplete to be informative [p. 98: "es demasiado incompleto para ser tomado en cuenta."]. Unavailable, it does not meet the requirements of Art. 13.1 and 13.3.
- 1964 "*Opisthocoellorum*". — Tatarinov (1964) placed it as a genus in the family Opisthocoelidae [p. 129].
- 1976 "*Opisthocoelorum*". — Špinar (1976b) considered it as a synonym of *Opisthocoellus* Kuhn, 1941 [p. 54] within Bombinidae. Later use of an unavailable name is invalid in synonymy (Art. 11.6).
- 1981 "*Opisthocoelorum*". — Haubold (1981) placed it in Anura indet. [p. 16].
- 1984 "*Opisthocoelorum*". — Haubold & Krumbiegel (1984) ascribed to the taxon the specimen GM Halle CeIII-6760 in the type catalog for Geiseltal taxa [p. 6], perhaps in Discoglossidae.
- 1998 "*Opisthocoelorum*", "*Opisthocoelorum*". — Sanchiz (1998a) considered all as nomina nuda [p. 142].

In his monograph on the anurans from the Middle Eocene of Geiseltal (Germany), Kuhn (1941) introduced a paragraph entitled "15. gen. nov. *Opisthocoelorum*" in which he described forms that could not be included in other members of the suborder Opisthocoela. "*Opisthocoelorum*" was used by Kuhn (1941) merely as an academic Latin expression in genitive plural ("of the *Opisthocoela*"), and not intended to become a taxonomic name. Unfortunately, this word has been subsequently used as a genus name several times, under different variant spellings (see historical list above). In spite of having no type species, one specimen has been referred to this taxon (Haubold & Krumbiegel, 1984). As a taxonomic entity, it should be credited to Papp & Thenius (1954) and considered an unavailable name of the genus group. Later users have not achieved availability either.

### ***Rana plicata* Filhol, 1877a**

Filhol (1877a) assigned the name *Rana plicata* to a calcium phosphate external natural cast (MNHN Paris) from an unknown site within the Phosphorites du Quercy complex (Eocene-Oligocene, France). This binomen is a primary junior homonym of the living *Rana plicata* Daudin, 1802, which is a junior synonym of the currently accepted *Pelodytes punctatus* (Daudin, 1802) (Pelodytidae Bonaparte, 1850). Being an external cast, the Quercy specimen is not osteologically comparable to any other fossil anuran (except perhaps *Bufo servatus* and *Bombinator meridionalis* O.G. Costa, 1864), and to our knowledge, it has never been synonymized. In order to replace this junior homonym, a substitute name becomes neces-

sary. We propose the species replacement name of *Rana cadurcorum*, after the Cadurci, a celtic gaul tribe that inhabited the Quercy region. *Rana cadurcorum* has the same holotype as *Rana plicata* Filhol, 1877a. Future tomographic studies might allow for osteological analysis and thus a reliable generic assignment.

### ***Rana pygmaea* Lartet, 1851**

Lartet (1851) briefly described, but did not figure, some maxillar bones from the Middle Miocene of Sansan (France), which he named *Rana pygmaea*. However, this binomen has been used two other times for living species: *Rana pygmaea* Spix, 1824, currently *Leptodactylus latrans* (Steffen, 1815) (Leptodactylidae Werner, 1896), and *Rana pygmaea* Günther, 1876, currently *Nyctibatrachus deccanensis* Dubois, 1984 (Nyctibatrachidae Blommers-Schlösser, 1993), which is a replacement name that Dubois (1984) proposed in order to solve the homonymy situation between these two living species.

According to the latest Sansan study (Rage & Hossini, 2000), the original material of *Rana pygmaea* Lartet, 1851 was lost, and the species was considered by them a nomen dubium. This species has no synonyms. Consequently, following the ICZN guidelines for homonym replacement, we propose *Rana auscitana* as a substitute name for the taxon, in reference to the town of Auch, which is close to the fossil site. As the original type material is lost, a neotype should be designated to clarify the identity of the taxon now named *Rana auscitana*.

### **"*Vieraellidae*"**

- 1961 "*Vieraellidae*". — Reig (1961). Ambiguous taxonomic proposal: [p. 77: "No es, sin embargo, descartable que este nuevo género pueda referirse al suborden Amphicoela, constituyendo una familia Vieraellidae ad hoc. Pero es igualmente posible que *Vieraella* deba referirse al suborden Archaeobatrachia."]. Unavailable as a family-group name, not meeting the requirements of Arts. 13.1 and 15.1
- 1962 Fam. nov. — Kuhn (1962) considered a new monotypic family [p. 331: "Hierher nur *Vieraella* Reig, 1961"].
- 1963 "*Vieraellidae*". — Hecht (1963) merely mentioned the family name in figure 7 [p. 32]. Unavailable under Art. 13.1.
- 1965 "*Vieraellidae*". — Casamiquela (1965) interpreted the text in Reig (1961): [p. 266: "dejando constancia de la posibilidad de que incluso pudiera tratarse del representante de una nueva familia Vieraellidae"]. Later, he concluded that: [p. 281: "no se justificaría la creación de una familia Vieraellidae ad hoc, como postulara aquel

- autor a título de alternativa”]. This is a later use of an unavailable name
- 1973 “Vieraellidae”. — Estes & Reig (1973) stated that: [p. 16: “Reig (1961) suggested the possibility that *Vieraella* could be considered as the only member of a new family Vieraellidae”, and later: [p. 18: “At present we do not believe that a separate family Vieraellidae is justified”]. This is a later use of an unavailable name
- 1981 “Vieraellidae”. — Nesov (1981). No authorship indicated [p. 82]. This is a later use of an unavailable name
- 1986 “Vieraellidae” Hecht, 1963 — Mones (1986) was the first to assign an authorship to this taxon [p. 48], which he credited to Hecht (1963). This is a later use of an unavailable name
- 1994 “Vieraellidae” Reig, 1961. — Milner (1994) assigned authorship to Reig stating on *Vieraella*: [p. 17: “It has variously been made the type of the Vieraellidae (Reig, 1961), ...”]. This is a later use of an unavailable name
- 1998 “Vieraellidae”. — Sanchiz (1998a) commented that some authors considered naming a new family for *Vieraella*, but that no formal proposal was submitted [p. 100]. This is a later use of an unavailable name
- 2001 “Vieraellidae” Reig, 1961. — Gao & Wang (2001) commented that: [p. 469: “Reig (1961) suggested the possibility of naming a monotypic family Vieraellidae”], and later indicated that: [p. 470: “Although a family name Vieraellidae (Reig, 1961) has been coined, we see no need to use it at this point because of its redundancy in relation to the generic name”]. This is a later use of an unavailable name

As detailed above, the proposal by Reig (1961) was ambiguous (conditional), because in his work, naming a new family was an alternative (discussed in his text) to the incorporation of *Vieraella* to a known family within Reig’s suborder Archaeobatrachia. That is, if we interpret Reig (1961) correctly, it was his opinion that if future discoveries and research could establish the affiliation of *Vieraella* to the suborder Amphicoela, then a new family would have to be made, as this genus could not be incorporated into any of the existing Amphicoela families based on known characters.

If we consider that Vieraellidae was a conditional proposal in Reig (1961), the ICZN (Art. 15) establishes that, having been published after 1960, the name is not available. The authorship for such a family should be assigned to a publication in which the name of the family and an explicit description are included. However, none of the publications in which this name has been mentioned (see taxonomic history) meets such requirements, and therefore Vieraellidae is presently not an available name for taxonomic use.

### Alytidae Fitzinger, 1843

#### *Eodiscoglossus santonjae* Villalta, 1954

*Eodiscoglossus santonjae* is based on an alytid articulated skeleton (part and counterpart, MNCN Madrid PV-4723 and ex-collection Ferrer, current repository unknown) from the Lower Cretaceous (Berriasian or Valanginian) lithographic limestones at Santa María de Meià (Spain). An early mention of this name was given, without any other information, by Bataller *et al.* (1953) as “*Eodiscoglossus santonjae* Ferrer, 1954”; however, no reference to the work of Ferrer appears in the literature, and we think that it was never published. A photograph of the specimen, named “*Eodiscoglossus santonjae* Vill.” in a figure explanation, was included in the Spanish translation and adaptation of Leonardi (1957) made by B. Meléndez. This translation has been taken as the original nomenclatural publication many times, with the added complication that this book was credited to B. Meléndez instead of to P. Leonardi (see taxonomic history in Martín & Sanchiz, 2012). On only one occasion (Groessens Van Dyck, 1981) was this publication implicitly questioned as a valid species proposal, and taxon authorship (without a year) was credited to M. Hecht, who made the first detailed descriptions (Hecht, 1963, 1970). In summary, the authorship attributed to Villalta in 1957 does not meet the ICZN requirements to be an available name: it was only a figure, and there was no indication of being a nomenclatural proposal. In this sense, it becomes a good sociological example of ‘taxonomic uncritical inertia’, by which an erroneous nomenclature, that concerns one of the most important fossil anurans, has lasted many years and has been cited more than 135 times in the scientific literature (Martín & Sanchiz, 2012).

However, Villalta (1954) explicitly described this specimen as a new genus and species under the name *Eodiscoglossus santonjae*. This publication had a reduced number of copies, and we have confirmed in the archives of the Museum Miquel Crusafont of the Institut Català de Paleontologia (ICP) that it was distributed in 1954 and not in 1956, as dated by Sanchiz (1998a) and others. This publication went unnoticed by earlier authors, including the first detailed and influential review of the material (Hecht, 1970). The work of Villalta (1954) was published and distributed by an official institution and was printed using mimeography, thus meeting all the criteria to be considered a valid

publication according to the ICZN (including Art. 8.4), and we consider it as the proper source for the genus and the species names. Digital copies of Villalta (1954) and Leonardi (1957) can now be downloaded from Martín & Sanchiz (2012).

#### **“*Miopelobates kolebabi*”**

Špinar (1978) described in detail the discoglossine species *Latonia kolebabi* (Alytidae) from the Lower Pliocene karstic sediments of Ivanovce (Slovakia). However, the species name was made nomenclaturally available in Špinar (1976a); in this publication, the name (with the indication “n. sp.”), holotype designation, fossil site, and diagnosis are given (p. 287). The binomen *Miopelobates kolebabi* is also used in Špinar (1976a, p. 289) stating: “... and the hitherto undescribed form *Miopelobates kolebabi*.” We consider this combination a lapsus calami, because the new species is clearly assigned to the genus *Latonia* Meyer, 1843, and it is even suggested (p. 287, fig. 3) that the genus *Miopelobates* Wettstein-Westersheimb, 1955 is a synonym of *Latonia*.

#### ***Rana troscheli* Meyer, 1852**

Meyer (1852) named *Rana troscheli* based on an articulated skeleton on a slab from the classic fossil bearing lignites of Rott near Bonn (Germany); this name was most likely dedicated to Franz Hermann Troschel, who was a professor of Zoology at Bonn University. This species has been placed in several genera (*Alytes* Wagler, 1830, *Discoglossus* Otth, 1837, and *Rana* Linnaeus, 1758). Boulenger (1891) proposed the new combination *Discoglossus troscheli*, which subsequently received wide acceptance. However, historically, both spelling variants “*troscheli*” and “*troscheli*” have been equally used in the literature. The original variant “*troscheli*” should be maintained in all the previously mentioned combinations (Art. 33.4).

#### ***Wealdenbatrachus jucarensis* Fey, 1988**

*Wealdenbatrachus jucarensis* Fey, 1988 is an alytid species based on a partially disarticulated skeleton (101-U 70 Platte V, FUB Berlin) from the Lower Cretaceous (Barremian) of Uña (Spain). Named after the Júcar river basin (Fey, 1988), the variant spellings *W. jucarensis* and *W. jucarense* have been used, with the latter being incorrect as “*batrachus*” is of masculine gender. A new combination, *Eodiscoglossus jucarensis*, appeared in the

index of the monograph by Sanchiz (1998a), but it was neither used nor discussed in this work; it was only referenced to the article “Sanchiz (in press)”. This article was never published, and this combination has not been used again since Sanchiz (1998a).

#### **Bombinatoridae Gray, 1825**

##### ***Bombinator meridionalis* O.G. Costa, 1864**

O.G. Costa (1864) described and figured an anuran external cast embedded in a presumably Holocene hydrothermal nodule from the Island of Ischia (Italy). In this work, the fossil specimen was identified as *Bombinator meridionalis*, a new species name that O.G. Costa (1864) declared he had made elsewhere for the living *Bombinator* species in the area. However, the only literature reference provided by Costa (1864) is from a manuscript written by himself that we have not been able to find. If this work was indeed published, it would have been after his 1864 work. Therefore, *Bombinator meridionalis* O.G. Costa, 1864 becomes a valid taxon proposal, having as holotype the single fossil described and figured, which may now be stored in an unknown to us repository institution. If properly identified, this fossil Holocene species is most likely a junior synonym of *Bombina pachypus* (Bonaparte, 1838) (Bombinatoridae), the only living yellow-bellied toad in southern Italy. The specific name of the latter species is a noun in apposition and cannot be declined for gender agreement.

##### ***Pelophilus agassizii* Tschudi, 1838**

Agassiz (1835) mentioned the name *Bombinator oeningensis*, without any description, figure or type designation, for a fossil specimen from the Middle Miocene beds in Oehningen (Germany). Therefore, this name is currently considered a nomen nudum (Sanchiz, 1998a). Tschudi (1838) proposed *Pelophilus agassizii*, after Louis Agassiz, the author of the previously mentioned name, as a new combination for this same taxon in his new genus *Pelophilus*. Another combination used for this taxon (Sanchiz, 1998a) has been *Bombina agassizii*. In all cases, the spelling has fluctuated between “*agassizii*” and “*agassizi*”, but only the former is correct under Art. 33.4 of the Code.

Špinar (1976b) used the binomen *Pelophilus oeningensis* (also spelt as *Pelophylus* due to a lapsus) because he considered that Agassiz (1835) made an earlier available species description.

However, as the name mentioned by Agassiz (1835) is a clear nomen nudum, it is not an available name. Priority does not apply to such names, so it does not threaten the proposal by Tschudi (1838).

## **Bufonidae Gray, 1825**

### ***Bufo* Garsault, 1764**

Molecular phylogenetic analyses (e.g. Frost *et al.*, 2006; Pyron & Wiens, 2011) clearly show that the classical genus *Bufo* is a paraphyletic entity, and that several monophyletic lineages are strongly supported. However, as recently discussed in detail by Dubois & Bour (2010), assignment of taxonomic ranks to these monophyletic clades remains an unsettled matter, as they could receive a genus or subgenus status. Nevertheless, concerning the fossil record, it seems clear that *Bufo* sensu stricto (type species *Rana bufo* Linnaeus, 1758) is essentially restricted to the Palaeartic region, and there is no indication that it was ever present in the Nearctic ecozone. However, several putative extinct species were described in the North American Neogene and assigned to *Bufo*. At the time, it was the only known bufonid genus in this region. No taxonomic reviews have been conducted on these extinct species since the current phylogenies were proposed, and therefore, new combinations are required in order to incorporate the fossil record with the nomenclature of the living fauna. As detailed below, the American fossil taxa will be allocated in the genera *Anaxyrus* Tschudi, 1845 and *Incilius* Cope, 1863. These are two well-supported clades for which we think that the genus status is currently the most appropriate option.

Concerning the fossil Palaeartic *Bufo*, two genus names have been used by some within the paleontological community for living species in addition to *Bufo* (sensu stricto): *Epidalea* Cope, 1864 and *Pseudepidalea* Frost, Grant, Faivovich, Bain, Haas, Haddad, de Sá, Channing, Wilkinson, Donnellan, Raxworthy, Campbell, Blotto, Moler, Drewes, Nussbaum, Lynch, Green, and Wheeler, 2006. *Bufo* (sensu stricto) and *Pseudepidalea* are both strongly supported clades (Pyron & Wiens, 2011), which are distantly related in the bufonid phylogeny, and thus, the generic assignment of *Pseudepidalea* seems the most convenient for neontological and paleontological purposes. In contrast, the generic consideration of *Epidalea* is

still open to debate because current molecular results are not well-supported, and for this reason, we do not propose any nomenclatural changes for this group.

### ***Bufo belogoricus* Ratnikov, 1993**

*Bufo belogoricus* was described by Ratnikov (1993) based on a frontoparietal bone (VGU Voronezh 530/102) from the Upper Pliocene of Korotoyak-Belogor'e (Russia). This species has only been associated with the former *Bufo (viridis)* species group (e.g. Ratnikov, 2002), and consequently, we propose its reassignment as *Pseudepidalea belogorica* (Ratnikov, 1993) *combinatio nova*.

### ***Bufo defensor* Meylan, 2005**

*Bufo defensor* was described by Meylan (2005) using several disassembled elements, with the holotype being a frontoparietal (FLMNH Gainesville 222916) from the Pliocene or Lower Pleistocene (Blancan NALMA) of Inglis 1A (Florida, U.S.A.). The affinities of this species, as originally described, are with the *Bufo (americanus)* species group of Tihen (1962), currently in the genus *Anaxyrus*. Consequently, we propose its placement in this genus as *Anaxyrus defensor* (Meylan, 2005) *combinatio nova*.

### ***Bufo hibbardi* Taylor, 1937**

The holotype of *Bufo hibbardi* is a sacrum (KUMNH Lawrence 1437) from the Upper Miocene of Edson Quarry (Kansas, U.S.A.), although other disarticulated skeletal elements are also known (Taylor, 1937). Later taxonomic reviews (Tihen, 1962; Holman, 1975; Sanchiz, 1998a; Holman, 2003) placed this species in the *Bufo (americanus)* species group of Tihen (1962), which is currently included in the genus *Anaxyrus*. Moreover, using exclusively the morphology of the ilium, Bever (2005) found that the features observed in *Bufo hibbardi* overlap with the character suites of several living species, all of which are currently considered as members of the genus *Anaxyrus*. The adscription of this species to the latter genus seems warranted, and consequently the *combinatio nova* *Anaxyrus hibbardi* (Taylor, 1937) is formally proposed here.

### ***Bufo planus* Ratnikov, 1993**

This species was based on a humerus (holotype GIN Moscow 689D/24) from the Upper Pliocene of



Kotlovina (Ukraine) (Ratnikov, 1993). *Bufo planus* has been only considered within the former *Bufo (viridis)* species group (e.g. Ratnikov 2002), and therefore, we propose its assignment to *Pseudepidalea* as *Pseudepidalea plana* (Ratnikov, 1993) combinatio nova.

#### ***Bufo pliocompactilis* Wilson, 1968**

*Bufo pliocompactilis* was based on disassembled remains (holotype UMMP Ann Arbor V55430, frontoparietal) from the Upper Miocene Wakeeney site (Kansas, U.S.A.) (Wilson, 1968). It is considered as a nomen dubium, either being a valid extinct species or a possible synonym with respect to the living *Anaxyrus compactilis* (Wiegmann, 1833) by Sanchiz (1998a) or *Anaxyrus speciosus* by Frost (2011). The iliac morphology is not diagnostic, as it has a set of characters that overlaps with several living species, many of which are within *Anaxyrus*, but also a few within the genus *Incilius* (Bever, 2005). In any case, we propose the new combination *Anaxyrus pliocompactilis* (Wilson, 1968) as the most appropriate name for further taxonomic analysis.

#### ***Bufo praeivus* Tihen, 1951**

*Bufo praeivus* was based on several disassembled elements (holotype MCZ Cambridge 1991, ilium) from the Lower or Middle Miocene (Hemingfordian NALMA) of Thomas Farm (Florida, U.S.A.) (Tihen, 1951). During its taxonomic history, it has been considered a member of the *Bufo (valliceps)* species group (Tihen, 1962; Sanchiz, 1998a; Holman, 2003), which is currently in the genus *Incilius*. The iliac morphology is not diagnostic (Bever, 2005), as it is similar to several species in the genera *Anaxyrus* and *Incilius*. We propose the use of *Incilius praeivus* (Tihen, 1951) combinatio nova as the most suitable choice, given the present state of knowledge.

#### ***Bufo priscus* Špinar, Klembara & Meszároš, 1993**

*Bufo priscus* was based on a skeleton (holotype, SNM Bratislava 15300) from the Middle Miocene of Devínska Nová Ves (Bonanza site) in Slovakia (Špinar *et al.*, 1993). It has been related once to *Bufo bufo* (Roček & Rage, 2000), but it appears to be morphologically more similar to the members of the former *Bufo (viridis)* species group (e.g. Sanchiz, 1998a; Venczel & Stiuca, 2008). Pending future reviews, we reallocate this species as

*Pseudepidalea prisca* (Špinar, Klembara & Meszároš, 1993) combinatio nova. The specific name is a Latin adjective meaning “ancient” and must be declined for gender agreement (Art. 31.2).

#### ***Bufo repentinus* Tihen, 1962**

*Bufo repentinus* Tihen, 1962 was based on a single ilium (UMMP Ann Arbor 34491) from the late Middle or Upper Pleistocene (Rancholabrean NALMA) of Cragin Quarry (Kansas, U.S.A.) (Tihen, 1962). This species has been considered a member of the *Bufo (americanus)* species group, which is close to, or even possibly a synonym, of the living *Bufo woodhousii* Girard, 1854 or *Bufo cognatus* Say, 1822 (Tihen, 1962; Sanchiz, 1998a). All of these species are currently included in the genus *Anaxyrus*, and consequently, to conform to recent phylogenetic nomenclature, we propose *Anaxyrus repentinus* (Tihen, 1962) combinatio nova.

#### ***Bufo rexroadensis* Tihen, 1962**

*Bufo rexroadensis* was based on a frontoparietal (holotype, UMMP Ann Arbor 40139), and other disassembled elements, from the Pliocene or early Pleistocene (Blancan NALMA) of Fox Canyon (Kansas, U.S.A.) (Tihen, 1962). In its taxonomic history (see Martín & Sanchiz, 2012), this toad has been considered a member of the *Bufo (americanus)* species group, and in the recent critical review by Bever (2005), its iliac morphology overlaps those of several living species, all of which are currently included in the genus *Anaxyrus*. Therefore, it seems taxonomically appropriate to propose the use of *Anaxyrus rexroadensis* (Tihen, 1962) combinatio nova for this species.

#### ***Bufo spelaeus* Rivière & Brocchi, 1886**

*Bufo spelaeus* was described by Rivière & Brocchi in Rivière (1886) based on several disassembled elements (syntypes, MAP Monte Carlo), from the Grottes de Menton (France). Considered a subspecies or a plain synonym of the European Common toad, variant spellings have fluctuated between “*spelaea*” and “*spelaeus*” in association with *Bufo bufo* or *Bufo vulgaris*. For both combinations, the spelling variant “*spelaeus*” is grammatically appropriate.

#### ***Bufo spongifrons* Tihen, 1962**

*Bufo spongifrons* was based on frontoparietals (holotype USNM Washington 22234, frontoparie-

tale) and ilia from the Upper Miocene of Long Island Quarry E (Kansas, U.S.A.). It has been considered a member of the *Bufo (americanus)* species group (Tihen, 1962; Sanchiz, 1998a; Holman, 2003), which is now included in the genus *Anaxyrus*. As previously mentioned, the ilium of this taxon is not diagnostic as its features are similar to the morphology displayed by several living species (Bever, 2005), all of which are currently included in the genus *Anaxyrus*. Therefore, we propose to allocate this taxon as *Anaxyrus spongifrons* (Tihen, 1962) *combinatio nova*.

#### ***Bufo suspectus* Tihen, 1962**

*Bufo suspectus* was proposed by Tihen (1962) based on an ilium (holotype UMMP Ann Arbor 40155) from the Pliocene or Lower Pleistocene (Blancan NALMA) site Fox Canyon (Kansas, U.S.A.). This species was initially considered in the *Bufo (valliceps)* group (Tihen, 1962; Holman, 1975), which is currently in the genus *Incilius*. However, Wilson (1968) considered it likely related to the living *Bufo boreas* Baird & Girard, 1852 (currently, *Anaxyrus boreas*). Holman (2003) considered it possibly derived from *Bufo valentinensis*. The comparative review by Bever (2005) does not give an unequivocal generic adscription for this species, since a morphological overlap with many living species of *Anaxyrus*, and also with *Incilius valliceps*, exists. As a provisional allocation, we propose to consider this species as *Anaxyrus suspectus* (Tihen, 1962) *combinatio nova*.

#### ***Bufo tiheni* Auffenberg, 1957**

Auffenberg (1957) originally described *Bufo tiheni* based on a sacrum (holotype, FLMNH Gainesville 5203) and several ilia from the Upper Miocene Haile 6A site (Florida, U.S.A.). In its taxonomic history, this fossil form has been related to several living *Anaxyrus* species, particularly *Anaxyrus quercicus* (Holbrook, 1840) (Auffenberg, 1957; Tihen, 1962; Sanchiz, 1998a; Holman, 2003). However, according to the critical review of Bever (2005) its ilium is not informative, as it is compatible with many species, most of which belong to the genus *Anaxyrus* but also to species in the genus *Incilius*. Morphological information for this taxon is limited, yet it seems that *Anaxyrus tiheni* (Auffenberg, 1957) *combinatio nova* may represent the best combination.

#### ***Bufo valentinensis* Estes & Tihen, 1964**

*Bufo valentinensis* was described by Estes and Tihen (1964) based on disassembled elements (holotype UNSM Lincoln 61019, frontoparietal) from the Middle Miocene (Barstovian NALMA) of Norden Bridge Quarry (Nebraska, U.S.A.). *Bufo valentinensis* is usually considered a distinct species that may be related, synonymous, or ancestral to *Bufo suspectus* (e.g. Sanchiz, 1998a; Holman, 2003). However, its generic allocation is not unequivocal. Chantell (1971) related it with the *Bufo americanus* group (i.e. *Anaxyrus*). Similar to the *Bufo suspectus* case, we propose, as a working hypothesis, to refer to this species as *Anaxyrus valentinensis* (Estes & Tihen, 1964) *combinatio nova*.

#### ***Bufo stranensis* Němec, 1972**

*Bufo viridis stranensis* was described by Němec (1972) based on a tridimensional skull fragment (holotype NMPM Prague NC-8118) and other disassembled elements from the Lower Pleistocene of Stránská Skála (Czechia). A species level was assigned to this taxon (Sanchiz, 1998a), as a nomen dubium, because the original study detected its coexistence with *Bufo viridis viridis* without intermediate morphologies. In any case, and concerning its generic allocation, this taxon should clearly be considered as *Pseudepidalea stranensis* (Němec, 1972) *combinatio nova*.

#### ***Rana robusta* Brunner, 1956**

*Rana robusta* was described by Brunner (1956) based on a humerus (holotype BSP Munich) from the Upper Pleistocene of Pottenstein (Germany). Based on the figure published by Brunner (1956), Rage (1974) suggested that it might correspond to a large specimen of *Rana temporaria* Linnaeus, 1758, but later authors (Holman, 1998; Sanchiz, 1998a) have considered it a probable synonym of *Bufo bufo*. However, the species *Rana robusta* Brunner, 1956 is homonymous with two living species. Firstly, it is a junior homonym of *Rana robusta* Blyth, 1855, which is a junior subjective synonym of the current *Euphlyctis hexadactyla* (Lesson, 1834) [*Euphlyctis hexadactylus* in Frost, 2011] (Dicroglossidae Anderson, 1871). Secondly, this fossil species is also a secondary homonym of *Rana robusta* (Nieden, 1908), a new combination proposed by Parker (1936), which corresponds to the current *Conraua robusta* Nieden, 1908 (Petropedetidae Noble, 1931). Since *Rana robusta*

Brunner, 1956 lacks any specific synonym, we propose the replacement name of *Rana sendoa*, from the Basque word “robust”, as a new name for the taxon, which is based on the same specimen holotype of *Rana robusta* Brunner, 1956. The specific name is treated as a noun in apposition.

### Ceratophryidae Tschudi, 1838

#### *Neoprocoela edentata* Schaeffer, 1949

*Neoprocoela edentatus* [sic] was described by Schaeffer (1949) based on a partial tridimensional skeleton (holotype AMNH New York 3428) from the Upper Oligocene (Deseadan SALMA) of Scarritt Pocket (Chubut, Argentina). This taxon has been considered either as an extinct genus in the subfamily Telmatobiinae Fitzinger, 1843 (Ceratophryidae) or as a bufonid assigned to the former genus *Bufo* (sensu lato). In both genera, spelling variants for the species have frequently fluctuated between “*edentata*” and “*edentatus*”. The correct variants are *Neoprocoela edentata* and *Bufo edentatus* because *Neoprocoela* is grammatically feminine, while *Bufo* is grammatically masculine.

### Gobiatidae Roček & Nesov, 1991

#### *Gobiates* Špinar & Tatarinov, 1986

The name *Gobiates* appeared for the first time in Špinar (1983: 54) as “*Gobiates* nov. gen. Špinar, 1984”, without designation of type species and in reference to a future publication that, as stated in the bibliography, is coauthored with L. Tatarinov, but that was never published as such. This announced article likely corresponds to Špinar & Tatarinov (1986), although with a different title. In this article, the name is validly proposed for the first time; thus, it should be considered the correct original authorship.

### Limnodynastidae Lynch, 1969

#### *Kyarranus borealis* Tyler, 1991

*Kyarranus borealis*, an extinct species member of a living genus, was based (Tyler, 1991) on an ilium (holotype, QM Brisbane F18167) from the Lower or Middle Miocene of Riversleigh B complex (Queensland, Australia). Currently, *Kyarranus* Moore, 1958 is an accepted synonym of the living

*Phyloria* Spencer, 1901. Therefore we propose to reallocate the fossil taxon as *Phyloria borealis* (Tyler, 1991) combinatio nova.

### Palaeobatrachidae Cope, 1865

#### *Messelobatrachus tobieni* Wuttke in Sanchiz, 1998a

- 1988 “*Messelobatrachus tobieni*” — Wuttke (1988d, p. 18) described and named the genus and monotypic species in an unpublished Ph. D. thesis.
- 1988 “*Messelobatrachus tobieni*” — Wuttke (1988b). The species was only mentioned in a taphonomic context.
- 1988 “*Messelobatrachus tobieni*” — Wuttke (1988a) indicated (p. 98): “In ihrem Skelettbau vermittelt die neue Gattung und Art *Messelobatrachus tobieni* (Abb. 156-158) ...”, which is figured and considered a Palaeobatrachidae. However, there is no description, other than a non-comparative size indication among inferences on its ecology and taphonomy, and no diagnosis was intended.
- 1988 “*Messelobatrachus tobieni*” — Wuttke (1988c). The species was only mentioned in a taphonomic context.
- 1992 “*Messelobatrachus tobieni*” — Wuttke (1992a) is an English translation of Wuttke (1988a).
- 1992 “*Messelobatrachus tobieni*” — Wuttke (1992b) is an English translation of Wuttke (1988b).
- 1992 “*Messelobatrachus tobieni*” — Wuttke (1992c) is an English translation of Wuttke (1988c).
- 1996 “*Messelobatrachus tobieni*” — Wuttke (1996) The species (as Palaeobatrachidae) was mentioned in a taphonomic context.
- 1997 “*Messelobatrachus*” — Keller & Wuttke (1997) mentioned the generic name within Palaeobatrachidae.
- 1998 *Messelobatrachus tobieni* — Sanchiz (1998a) described this monotypic genus within Palaeobatrachidae and included a diagnosis and museological reference to the type material, but explicitly mentioned (p. 36) that the information came “After Wuttke (1987, in press)”. In the bibliography of Sanchiz (1998a), Wuttke (1987) referred to Wuttke’s Ph. D. thesis, and Wuttke (in press) referred to an article that was never published. However, the authorship of the taxon was considered “Wuttke, 1988” (in reference to the 1988a publication), under the assumption that a single non-comparative indication of size could be considered as a valid nomenclatural diagnosis.
- 1998 *Messelobatrachus* — Sanchiz (1998b) mentioned *Messelobatrachus* as Palaeobatrachidae.
- 2000 *Messelobatrachus* — Franzen & Schaal (2000) mentioned the genus name.
- 2000 *Messelobatrachus* — Heatwole & Carroll (2000) mentioned the genus as Palaeobatrachidae.
- 2000 *Messelobatrachus tobieni* — Roček & Rage (2000) mentioned the species as Palaeobatrachidae.
- 2000 *Messelobatrachus tobieni* — Hossini & Rage (2000) mentioned the species as Palaeobatrachidae.
- 2002 *Messelobatrachus* — Ratnikov (2002) mentioned the genus as Palaeobatrachidae.
- 2003 *Messelobatrachus tobieni* — Rage & Roček (2003) mentioned the species name.
- 2004 *Messelobatrachus tobieni* — Morlo *et al.* (2004) considered this taxon a nomen nudum because Wuttke

(1988d) is in a thesis format, and Wuttke (1988a) “gave no diagnostic description that would meet the requirements ...” (p. 96). Sanchiz (1998a) was not considered in this article.

- 2008 *Messelobatrachus* — Gardner (2008) mentioned the genus name as *Palaeobatrachidae*.
- 2012 *Messelobatrachus tobieni* — Wuttke *et al.* (2012) reviewed the morphology of the species, and a new combination was proposed as *Palaeobatrachus tobieni*. The authorship was assigned as *Messelobatrachus tobieni* Sanchiz, 1998a.

*Messelobatrachus* is a palaeobatrachid genus established by monotypy of the species *Messelobatrachus tobieni*, first described by Wuttke (1988d) based on articulated skeletons (holotype SMF Frankfurt am Main Me-752a+b) from the Middle Eocene of Messel (Germany). However, as this study was only presented in thesis form, it does not meet the ICZN criteria for a valid nomenclatural publication (Arts. 8 & 9). As indicated in the taxonomic history above, Wuttke (1988a) did mention and illustrate this taxon, but no diagnostic description was provided. *Messelobatrachus* was mentioned several times in subsequent publications, but also without the requisites for making it taxonomically available. Sanchiz (1998a) included a descriptive diagnosis and museological reference for the type series of this taxon, but he incorrectly attributed the authorship as “Wuttke, 1988”, in reference to Wuttke (1988a). The monograph by Sanchiz (1998a) made this taxonomic name available, and its consideration by Morlo *et al.* (2004) as a nomen nudum is incorrect. Wuttke *et al.* (2012) considered the authorship of this taxon as *Messelobatrachus tobieni* Sanchiz, 1998a, but Sanchiz (1998a) explicitly mentioned (p. 36) that the morphological diagnosis was taken from the unpublished Ph.D. thesis of Wuttke. As a consequence, the correct authorship for this genus and monotypic species is *Messelobatrachus tobieni* Wuttke in Sanchiz, 1998a.

#### ***Palaeobatrachus luedeckei* Wolterstorff, 1886**

Wolterstorff (1886) described *Palaeobatrachus luedeckei* based on an articulated slab (lectotype MNB Berlin, designated by Špinar, 1972) found in the Upper Oligocene or lowermost Miocene of Zittau (Germany), although the type locality is frequently wrongly assigned to Markvartice (Czechia). The original spelling has been consistently used. However, besides the lapsus calami *Palaeobatrachus luedeckei*, the variant spellings *Palaeobatrachus luedeki* and *Palaeobatrachus luedekii* have also been employed. The original

spelling is to be maintained, since these incorrect subsequent spellings have an almost inexistent usage (Arts. 32.3, 33.4).

#### ***Probatrachus vicentinus* Peters, 1878**

*Probatrachus vicentinus* was described by Peters (1878) based on an articulated metamorphosing tadpole from the Upper Oligocene lignites of Ponte Laverdà (Italy). This species has also been considered a member of the genus *Palaeobatrachus* Tschudi, 1838. In the original publication, the spelling variants *vicetinus* and *vicentinus* were used, both being grammatically correct and ‘alternative original spellings’. To our knowledge, the first authors to mention this species were Portis (1885) and Wolterstorff (1886), and both used the spelling *vicentinus*. Here, we select, as First Revisers (Art. 24.2), the spelling *P. vicentinus* as the correct one, which becomes available, while the other spelling (*vicetinus*) becomes unavailable.

#### **Pelodytidae Bonaparte, 1850**

##### ***Pelodytes arevacus* Sanchiz, 1978**

*Pelodytes arevacus* was established by Sanchiz (1978) based on several disassembled elements (holotype MNCN Madrid 72221, atlas) from the Middle Miocene karstic fillings in Escobosa de Calatañazor (Spain). The species name appeared in two earlier publications (Sanchiz, 1977a, b). However, Sanchiz (1977a) is merely a news report on the topics covered in the author’s Ph.D thesis; there is no information associated to the scientific name in this article. In Sanchiz (1977b), the new species name is referred to the article “Sanchiz, in press”, although in this bibliographic reference the journal name is in error (the correct reference is Sanchiz, 1978). Furthermore, the three mentioned works were actually published in 1978. Taken together, authorship for this species has to be settled to Sanchiz (1978).

#### **Pipidae Gray, 1825**

##### **“*Salteniidae*”**

Kuhn (1965) mentioned the family “*Salteniidae* Kuhn 1963”, but the corresponding reference does not appear in Kuhn’s bibliography, nor in the Zoological Record for 1963. However, Kuhn (1965) references Kuhn (1962), and in this 1962

article (published in 1963?), the following quote is found: (p. 333) “7. Fam. nov. Nur *Saltenia* Reig 1959 ...”, followed by a description of this genus. No family name is given. Thus, Salteniidae should be considered a nomen nudum. This family name has never been used since.

### Ranidae Rafinesque, 1814

#### *Leptodactylus abavus* Holman, 1965

Holman (1965) described *Leptodactylus abavus* based on ilia (holotype FLMNH Gainesville 10201) from the Lower or Middle Miocene (Hemingfordian NALMA) of Thomas Farm (Florida, U.S.A.). Initially considered a leptodactylid, the taxon was transferred by Lynch (1971) to Ranidae under the combination *Rana abavus*, and subsequently synonymized, acting as the First Reviser, with *Rana miocenica* Holman, 1965. Both taxa have been considered similar to the living former *Rana (pipiens)* species group (e.g. Holman, 1966; Sanchiz, 1998a). Consequently we propose its reassignment as *Lithobates miocenicus* (Holman, 1965) combinatio nova.

#### *Rana* Linnaeus, 1758

Recent evolutionary studies (e.g. Frost *et al.*, 2006; Che *et al.*, 2007; Wiens *et al.*, 2009; Pyron & Wiens, 2011) have confirmed the convenience of splitting the traditional, yet highly diversified, genus *Rana* into several monophyletic lineages. *Rana* (sensu stricto, type species *Rana temporaria* Linnaeus, 1758) remains essentially a Palaearctic entity, which is also present in the western part of North America. Concerning the necessary reallocation of fossil species, besides the genus *Rana* sensu stricto, the genus *Lithobates* Fitzinger, 1843 will be used for some American forms and the genus *Pelophylax* Fitzinger, 1843 for some Palaearctic forms. In both cases, their status as genus seems warranted because their monophyletic clades are strongly supported by molecular analyses, which show that they are distantly related. Furthermore, these genera potentially can also be osteologically identified as fossils.

#### *Rana* from Rexroad (Kansas, U.S.A.)

Taylor (1942) described nine new ranid species from the Pliocene or Lower Pleistocene (Blancan NALMA) of Rexroad (Kansas, U.S.A.): three of

them were placed in the new genus *Anchylorana* Taylor, 1942, and the other six in the genus *Rana* Linnaeus, 1758. Ritland (1955) explicitly suggested the synonym, while Holman (1963) demonstrated that *Anchylorana* is a synonym of *Rana*. As a consequence, all of the Rexroad species were placed in this living genus. The holotypes selected by Taylor (1942) were all sacral vertebrae, including anomalous ones. Therefore, it is difficult to establish how many different species were present in this fossil site, although according to Holman (1963), there were no more than two or three species. Sanchiz (1998a) considered the three anomalous holotypes of *Anchylorana* species, as well as other *Rana* species from this site, as uninformative nomina vana, thereby restricting the number of frog species to two: *Rana rexroadensis*, which included as synonyms *Rana ephippium*, *R. meadensis* and *R. valida*, and a valid *Rana fayeae*, which has a distinct holotype morphology. All of the material resembles corresponding members of the former *Rana (pipiens)* species group. Therefore, we consider *Anchylorana* Taylor, 1942 as a junior synonym of *Lithobates* Fitzinger, 1843, and we reassign to this living genus *Lithobates* the following species:

*Lithobates dubitus* combinatio nova for *Anchylorana dubita* Taylor, 1942.

*Lithobates moorei* combinatio nova for *Anchylorana moorei* Taylor, 1942.

*Lithobates robustocondylus* combinatio nova for *Anchylorana robustocondyla* Taylor, 1942.

*Lithobates fayeae* combinatio nova for *Rana fayeae* Taylor, 1942.

*Lithobates rexroadensis* combinatio nova for *Rana rexroadensis* Taylor, 1942.

*Lithobates parvissimus* combinatio nova for *Rana parvissima* Taylor, 1942.

The living species *Rana moorei* Blair, 1947 is a secondary homonym, nomen replaced by *Rana johni* Blair, 1965 (currently *Lithobates johni*, Ranidae).

#### *Rana bucella* Holman, 1965

This taxon was based by Holman (1965) on an ilium (holotype FGS Tallahassee V-6071) from the Lower or Middle Miocene (Hemingfordian NALMA) of Thomas Farm (Florida, U.S.A.). The scarcity of material precludes any reliable taxonomic identification, but a general adscription to the former *Rana (pipiens)* species group, as previously suggested by Sanchiz (1998a), is the most appropriate option at present. Consequently, we

propose its reassignment as *Lithobates bucella* (Holman, 1965) combinatio nova. The specific epithet is a noun in apposition, hence invariable.

#### ***Rana miocenica* Holman, 1965**

*Rana miocenica* is based on disassembled elements (holotype FGS Tallahassee V-6069, ilium) from the Lower or Middle Miocene (Hemingfordian NALMA) of Thomas Farm (Florida, U.S.A.) (Holman, 1965). As in the aforementioned case of *Leptodactylus abavus*, *Rana miocenica* is similar to the former *Rana (pipiens)* species group and should be reassigned to the living genus *Lithobates* as *Lithobates miocenicus* (Holman, 1965) combinatio nova.

#### ***Rana barani* Rückert-Ülkümen, 1980**

*Rana barani* was named by Rückert-Ülkümen (1980) based on articulated specimens (holotype BSP Munich 1980.X.1) from the Middle or Upper Miocene of Beşkonak Köyü (Turkey). This taxon has always been considered a water or green frog, historically included in the paleontological literature (Sanchiz, 1998a; Rückert-Ülkümen, 2003) in *Rana (ridibunda)*, which is a group of species (based on *Rana ridibunda* Pallas, 1771) that also contains hybridogenetic forms, such as *Rana klepton esculenta*, and which is equivalent to the current genus *Pelophylax*. Therefore, we propose for this taxon the new taxonomic adscription *Pelophylax barani* (Rückert-Ülkümen, 2003) combinatio nova.

#### ***Rana meriani* Meyer, 1853**

Based on several articulated specimens (syntypes in NMBA Basel and GM-RFWU Bonn) from the Uppermost Oligocene (Arvenian ELMA MP30) lignites of Rott (Germany), this taxon, named by Meyer (1853), has most frequently been considered a water or green frog of the former *Rana (ridibunda)* species group (e.g. Boulenger, 1891; Sanchiz, 1998a; Rückert-Ülkümen 2003). As a consequence, it should now be placed in the living genus *Pelophylax* as *Pelophylax meriani* (Meyer, 1853) combinatio nova.

#### ***Rana pueyoi* Navás, 1922a**

The name *Rana pueyoi* was used for the first time in Navás (1920), which included a photograph and the following phrase (p. 282): "... deduje que pertenece al género *Rana*. [...]. Mas la especie, por

ser probablemente desconocida, interinamente la apellidaré *Pueyoi* ...". In our opinion, this publication cannot be taken nomenclaturally as original authorship (Art. 1.3.5), since the name is explicitly declared a temporary one. The authorship should be credited to Navás (1922a), a work in which the new species is described, figured and explicitly named. Within ranids, this species (holotype MPUZ Zaragoza) from the Upper Miocene of Libros (Spain) has been considered, in the past, as a water or green frog in the *Rana (ridibunda)* species group (e.g. Sanchiz, 1998a) or in the subgenus *Rana (Pelophylax)* (Luque *et al.*, 1996). For adaptation to the current taxonomy, this species should be referred to as *Pelophylax pueyoi* (Navás, 1922a) combinatio nova.

#### ***Rana quellenbergi* Navás, 1922a**

Navás (1922a) described a new frog species under the name *Rana quellenbergi* based on a slab with an articulated skeleton (holotype MPUZ Zaragoza) from the Upper Miocene of Libros (Spain) and named it in honor of Guillermo Quellenberg (p. 57). Due to a double typographical error in the original publication, the spelling 'Quellenberg' was printed for the taxon and dedicated person. Navás (1922b) subsequently corrected the original spelling to *Rana quellenbergi*. The Navás (1922a,b) articles can be downloaded from Martín & Sanchiz (2012). Both variant spellings have been used, recently as well as in the past; therefore, the spelling is not settled as can be seen in Martín & Sanchiz (2012). The amendment of Navás (1922b) is valid according to Arts. 33.2.1 and 33.2.2 of the Code, and the correct spelling should read *Rana quellenbergi* Navás, 1922a.

This species has been considered very close, or even synonymous (Morisi & Tropeano, 1983), to *Rana pueyoi*, which was also found in the locality of Libros (Spain). As in the case of *Rana pueyoi*, both species should be incorporated into the genus *Pelophylax*. Consequently we propose its denomination as *Pelophylax quellenbergi* (Navás, 1922a) combinatio nova.

#### ***Rana muelleri* Brunner, 1959**

Brunner (1959) named a new brown frog species as *Rana mülleri* based on a frontoparietal (holotype BSP Munich 1982.X.6599) from the Pleistocene Schmiedberg-Abri bei Hirschbach (Germany). Acting as first reviewer, Sanchiz

(1998a) corrected the original spelling to *Rana muelleri*; this species should continue to be referred to under this spelling.

#### ***Rana strausi* Špinar, 1976a**

A formal nomenclatural proposal for *Rana strausi* (Ranidae), which is based on articulated skeletons (holotype GPIG Göttingen 4764a-b) from the Lower Pliocene of Willershausen (Germany), was made by Špinar (1980). However, in an earlier article (Špinar, 1976a: 286) without any explicit nomenclatural proposal, Špinar included this species name in a figure, which was accompanied by a morphological description and the mention of the fossil locality of this extinct brown frog. Therefore, Špinar (1976a) is to be considered the valid original reference for *Rana strausi*.

The variant spelling *Rana straussi* has been used on occasion (see Martín & Sanchiz, 2012), however none of the uses appear to be an explicit grammatical emendation. We consider it an incorrect subsequent spelling (Art. 33.3), and thus not available.

#### **“*Rana temporaria fossilis*”**

Stefanov (1951) assigned the name *Rana temporaria fossilis* to articulated specimens found in shales from the Upper Eocene or Lower Oligocene of Oranowo-Simitu (Bulgaria). This assignment made by Stefanov (1951) presents a peculiar nomenclatural case. He proposed that all of the fossil remains of the species be assigned to this subspecies, merely because of its fossil status (p. 40: “Eben diese Art hat auch fossile Vertreter, die zum Unterschied von recenten Formen meiner Meinung nach, *Rana temporaria fossilis* genannt, werden müssen”, translated as “This species has also fossil representatives, which, in contrast to recent forms, and according to my opinion, should be termed *Rana temporaria fossilis*”). However, after 1930, characters are required for a proper nomenclatural species level proposal, which cannot rely on chronological aspects. Therefore, this taxonomic proposal is not valid under the ICZN rules, and the name remains unavailable.

According to Bronn (1848), the trinomen *Rana temporaria fossilis* was also used by Münster (1833); however, we have been unable to obtain Münster’s work. As the Stefanov (1951) subspecies name is unavailable, no possible homonym conflict exists. Therefore, a replacement name is unnecessary.

#### **“*Rana temporalis*”**

Bolkay (1911) published, as a printed mistake (p. 157), the name *Rana temporalis*, rather than *Rana temporaria*, despite this name being correctly mentioned several times in the same publication. The printed error has the same spelling as the nomen *Rana temporalis* (Günther, 1864), which is currently *Hylarana temporalis* (Günther, 1864) (Ranidae). However, according to the ICZN, a lapsus calami is not an available name to establish a homonym case conflict. Therefore, no nomenclatural action is required.

#### **Caudata Fischer von Waldheim, 1813**

##### **Familia incertae sedis**

#### **“*Geyeriellinae*”**

In the context of a taxonomic checklist, Brame (1958) included as a plethodontid “subfamily novum” the nomen Geyeriellinae, which includes the genera *Geyeriella* Herre, 1950 and *Dehmiella* Herre & Lunau, 1950. Brame (1958) is a privately distributed mimeographed report, and for this reason, it has been, at times, incorrectly considered an ICZN non valid nomenclatural publication (e.g. Frost, 2011). However, in the case of Geyeriellinae the name is unavailable because neither Brame (1958) nor any other author has explicitly described this taxon, which is a mandatory requirement of the ICZN. A copy of the original Brame (1958) can be downloaded from Martín & Sanchiz (2012).

#### **“*Palaeurodelidae*”**

In the same publication mentioned above for Geyeriellinae, Brame (1958) proposed a “Family Palaeurodelidea [sic, lapsus calami] family novum” to include the monospecific genus *Hylaeobatrachus* Dollo, 1884. This family taxon name has not been used subsequently. For the same reasons given above for Geyeriellinae, and also because the name is not derived from the only genus in the family (Art. 11.7.1.1), the name Palaeurodelidae is unavailable.

#### **Batrachosauroididae Auffenberg, 1958**

##### ***Peratosauroides problematica* Naylor in Estes, 1981**

*Peratosauroides problematica*, type species of the monotypic genus *Peratosauroides*, was established by Naylor (1983) based on disassembled ele-

ments (holotype UCMP Berkeley 75465, atlas) from the Upper Miocene (Hemphillian NALMA) of the San Pablo Formation (UCMP Berkeley V-3952 site) in California (U.S.A.). The authorship of this taxon has been the subject of discussion. The name was first made available in Estes (1981), where it is credited to Naylor (1983), by an “in press” reference included in Estes’ bibliography. According to an Editors’ Note, inserted after the article by Naylor (1983), Estes’ monograph was published in 1982; however, we have not been able to confirm this date. The Deutschen Nationalbibliothek assigns 1981 as the year of publication, but the actual distribution date is unknown. Yet, according to the same Editors’ Note, Naylor (1981) was actually published in 1983. Estes (1981) explicitly considered Naylor as the taxon author. He had access to the publication in press, as evident from the use (p. 38) of the original figures of Naylor (1983). Consequently, the correct authorship should be *Peratosauroides problematica* Naylor in Estes, 1981.

#### **Salamandridae Goldfuss, 1820**

##### ***Grippiella mohrae* Herre, 1949**

*Grippiella mohri* was described by Herre (1949) based on vertebral remains (holotype BSP Munich 1937.II.19159) from the Lower Miocene of Wintershof West (Germany). The species name was amended by Brame (1967) to *G. mohrae*. However, both variant spellings “*mohri*” and “*mohrae*” have been used with similar frequency (see Martín & Sanchiz, 2012). Since the species was named after a woman, the curator Erna Mohr, we insist (Art. 31.1.3, 32.3, and 34.2) that the correct binomen of this taxon is *Grippiella mohrae* Herre, 1949.

##### ***Polysemiidae* Meyer, 1860**

Meyer (1860) named the extinct genera *Polysemia* (type species *Salamandra ogygia* Goldfuss, 1831) and *Heliarchon* (type species *Heliarchon furcillatus* Meyer, 1860) and included both in a new family as (p. 559) “Die Familie der Polysemiaden würde die fossilen Genera *Polysemia* und *Heliarchon* umfassen.” Given the family name, the type genus is implicitly considered to be *Polysemia* Meyer, 1860. The family name *Polysemiidae* Meyer, 1860 is available but permanently invalid as its type genus is a junior homonym (Art. 39) and not a synonym. The

amphibian *Polysemia* has been replaced with *Epipolysemia* by Brame (1973) and is now considered a synonym of *Chelotriton* Pomel, 1853. The designation of a replacement name for this family is possible but currently unnecessary as it would be a junior synonym of Salamandridae (type genus *Salamandra* Garsault, 1764).

##### **“*Prosalamandridae*”**

Stefano (1903) studied salamander vertebral remains from a sample of the Phosphorites du Quercy complex (France) and named a new monotypic genus *Heteroclitotriton* (type species *H. zitteli*) and a new species of the genus *Megalotriton* Zittel, 1890. In his discussion of the relevance of the Quercy salamanders, Stefano (1903) stated (p. 49-50) that “Si potrebbe ad essi dare il valore tassonomico di una famiglia, che io chiamerei, per ricordare le viventi Salamandre, col nome di Prosalamandridea, /.../ Detta famiglia resterebbe subordinata a quella delle attuali Salamandridea;”. Since no type genus was proposed by Stefano (1903), the family name *Prosalamandridae* is not available. To the best of our knowledge, this taxon has not been subsequently used.

##### ***Triturus wintershofi* Lunau, 1950**

*Triturus wintershofi* was described by Lunau (1950) based on a partial cranium (holotype BSP Munich) from the Lower Miocene of Wintershof West (Germany). This taxon has been considered either incertae sedis within the genus *Triturus* Rafinesque, 1815, sensu lato (Estes, 1981; Dubois & Rafaëlli, 2009) or related to the former *Triturus alpestris* (Laurenti, 1768) (Lunau, 1950; Roček *et al.*, 2003). In order to adapt the name of this taxon to the current taxonomic usage, we propose its assignment to *Ichthyosaura* Sonnini de Manoncourt & Latreille, 1801, as *Ichthyosaura wintershofi* (Lunau, 1950) combinatio nova.

##### ***Salamandra broilii* Schlosser, 1922**

*Salamandra broilii* was described by Schlosser (1922) based on disassembled elements (syntypes LNK Karlsruhe, presumably destroyed), from the Lower Miocene (Aquitanian) of Oberkochen (Germany). The spelling of the species name as *S. broili* has also appeared in the taxonomic literature (see Martín & Sanchiz, 2012); however, it is an incorrect subsequent spelling and not a justified emendation.



***Triturus roehrsi* Herre, 1955**

Herre (1955) named a new species of newt as *Triturus röhrsi*, after M. Röhrs, based on a vertebra (lectotype NHM Wien) from the Middle Miocene karstic fissures at Devínska Nová Ves (Neudorf) in Slovakia. Brame (1967), as first nomenclatural reviewer, used the spelling *Triturus rohersi*. Sanchiz (1998b), applying the Code in force at the time, emended the spelling to *Triturus roehrsi*. Both variant spellings have been used in recent years, not only in *Triturus*, but also in the genus *Lissotriton* Bell, 1839 (new combination by Venczel, 2007). However, based on the study of Sanchiz (1998b), we propose that this extinct species should be included in the genus *Ommatotriton* Gray, 1850 as *Ommatotriton roehrsi* (Herre, 1955) combinatio nova.

**“Voigtiellinae”**

Voigtiellinae, which was proposed by Brame (1958) in a privately distributed mimeographed report, is the name for an extinct subfamily of Salamandridae based on *Voigtiella* Herre, 1949 (type species *Voigtiella ludwigi* Herre, 1949). As in the aforementioned case of Geyeriellinae, the publication by Brame (1958) is a valid nomenclatural one, but the subfamily name Voigtiellinae is unavailable because this taxon has never been described, as required by the ICZN. A digital copy of Brame (1958) can be downloaded from Martín & Sanchiz (2012).

**Scapherpetidae Auffenberg & Goin, 1959*****Scapherpetonidae* Auffenberg & Goin, 1959**

The family Scapherpetonidae was established by Auffenberg & Goin (1959) based on the genus *Scapherpeton* Cope, 1876. Estes (1965) and subsequent articles used the variant Scapherpetontidae, without any nomenclatural comment. This action possibly resulted from a mistaken spelling in his database files. However, this spelling variant has been extensively used since, to the point that it has nearly become the only one used in recent years. Other spelling variants (see Martín & Sanchiz, 2012) have been Scapherpetidae (“scapherpetids” in Skutschas, 2009) and Scapherpetodontidae, which is probably a lapsus calami. Being derived from *Scapherpeton*, Scapherpetidae is the correct family name, and the alternatives should not be used, since

the stem of the last element of the generic name (Greek *herpeton*, a reptile) is “herpet-”.

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