

1-27-2010

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## Recommended Citation

Lavilla, Esteban O., José A. Langone, Ulisses Caramaschi, W. Ronald Heyer, and Rafael O. de Sá. "The Identification of *Rana Ocellata* Linnaeus, 1758. Nomenclatural Impact on the Species Currently Known as *Leptodactylus ocellatus* (Leptodactylidae) and *Osteopilus brunneus* (Gosse, 1851) (Hylidae)." *Zootaxa* 2346 (January 28, 2010): 1-16.

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## The identification of *Rana ocellata* Linnaeus, 1758. Nomenclatural impact on the species currently known as *Leptodactylus ocellatus* (Leptodactylidae) and *Osteopilus brunneus* (Gosse, 1851) (Hylidae)

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### Abstract

The usage of the name *Rana ocellata* Linnaeus, 1758, is plagued by misidentifications and misinterpretations. After an exhaustive bibliographic review, we conclude that the Linnaeus 1758 name refers to *Osteopilus brunneus* (Gosse, 1851) from Jamaica, while the taxon currently known as *Leptodactylus ocellatus* corresponds to *Rana latrans* Steffen, 1815. Herein, we designate and provide descriptions of the neotypes of *Leptodactylus latrans* (Steffen, 1815), revalidated, new combination, and *Osteopilus ocellatus* (Linnaeus, 1758), new combination, as a senior synonym of *Osteopilus brunneus* (Gosse, 1851).

**Key words:** Nomenclature, *Leptodactylus*, *Rana*, *Osteopilus*, neotypes

“... die Quelle das reinste Wasser liefert, und das von ihr abgeleitete Wasser oft recht trübe ist...”  
R. A. Philippi, 1894.

Archiv für Naturgeschichte, 60, 214

### Introduction

It is generally accepted that January 1<sup>st</sup>, 1758 set the official birth of zoological nomenclature, taking as the starting point the publication of the tenth edition of Linnaeus' *Systema Naturae* [International Commission of Zoological Nomenclature, 1999 (ICZN), Article 3]. That event had significant consequences; the positive ones are widely known, but at the same time it veiled a great amount of valuable sources of information available at the time. Although 250 years have elapsed, misconceptions still persist due to overlooking the pre-Linnean contributions, with the exception of Clerck (1757).

Regarding what we currently know as Anurans, Linnaeus (1758) included 17 species of which only two (*Rana typhonia* and *Rana variegata*) appear to be original descriptions. Linnaeus' names (1758) are frequently followed by a brief description, with an ambiguous geographic distribution, and footnotes with some curious facts (such as the belief that the males nuptial pads were the frog penis or that the secretions of

salamanders were used as depilatory). In addition, they included a synonymy in the form of a list of works from previous authors that, according to Article 72.4.1 of the ICZN, are part of the description.

*Rana ocellata* was one of the Neotropical species included by Linnaeus in the tenth edition of his *Systema Naturae* (Linnaeus, 1758) and is a species with a long history of misinterpretations and misidentifications. Herein, we attempt to clarify the nomenclatural history and the status of this taxon.

## Materials and methods

The first part of this contribution is a bibliographic review and, as such, the analyzed materials were [almost] all the texts cited by Linnaeus (1758) and those in which subsequent authors used the name *Rana ocellata*, its putative synonyms, and the diverse combinations of the name. Only those contributions considered relevant are included in the text; for other citations see the bibliography for *Leptodactylus* at <http://learning.richmond.edu/Leptodactylus/index.html>.

The second part of this contribution consists of a description of the neotype of *Rana ocellata* under the new combination *Osteopilus ocellatus*, as a senior synonym of *O. brunneus*.

The third part of this contribution deals with identifying the substitute name for the taxon currently known as *Leptodactylus ocellatus*, and we conclude that it corresponds to *Rana latrans* Steffen, 1815.

Finally, the fourth part consists of assigning and describing a neotype for *Rana latrans* under the new combination *Leptodactylus latrans* (Steffen, 1815).

Examined specimens are housed in the Museu Nacional, Rio de Janeiro, Brazil (MNRJ), and in the National Museum of Natural History, Smithsonian Institution, Washington DC, USA (USNM).

Measurements were taken with digital calipers. Abbreviations of the measurements (in mm) are: SVL (snout–vent length); HL (head length); HW (head width); IND (internarial distance); END (eye to nostril distance); ED (eye diameter); UEW (upper eyelid width); IOD (interorbital distance); TD (tympanum diameter); HAL (hand length); THL (thigh length); TL (tibia length); FL (foot length, including tarsus); measurements follow Napoli (2005) and snout profile terminology follows Heyer *et al.* (1990).

## Results

### 1. Bibliographic review

Linnaeus (1758: 211) described *Rana ocellata* as “*R[ana]auribus ocellatis, pedibus muticis. Habitat in America. Ad aures macula ocellaris utrinque. Palmae tetradactylae fissae, Plantae pentadactylae, subpalmatae,*” implying a frog with a spot on each ear (likely the tympanum itself) and expanded digits, unwebbed hands and basally webbed feet, from America. The description was based on the *Rana 1* of Browne (1756), diagnosed as *Maxima compressa miscella*, meaning a “large, narrow, spotted frog.” In the comments, Browne (1756: 466) wrote: “This creature is very common in the inland parts of Jamaica, where it keeps a continued croaking at night, but lies still during the day. It is large and thin, climbs with ease, and lies so flat, wherever it is, that an attentive eye alone is able to observe it.”

Browne (1756) included three taxa in the synonymy:

i. *Curruru*. Pis. 298

ii. *An, Rana terrestris*. Cat. ii t. 69,

iii. *An, Rana dorso pullifero*. L.S.N

Analyzing the names and references, *Curruru* (Pis. 298) refers to a toad illustrated and described by Pisonis (1658: 298) (but previously published by Pisonis *in* Mauritius, 1648: 46). Although Lacépède (1788 a, b) noted that *Cururú* is the name given in South America to *Pipa pipa*, actually it is the Guaraní noun for “toad” (from *kurú* = warty) and nowadays is applied to a large Brazilian toad species, either to *Rhinella*

*marina* (Linnaeus, 1758), *R. icterica* (Spix, 1824), *R. schneideri* (Werner, 1894a), or *R. jimi* (Stevaux, 2002). The illustration presented by Pisonis (1658) resembles *Rhinella jimi*, a fairly common toad in northeastern Brazil, where probably the picture was produced, during the Dutch invasion in Pernambuco (1637–1644) (see Teixeira 1993, 1995; Ferrão & Soares 1997). The second name, *Rana terrestris* (Cat. ii t. 69), refers to the Land Frog or Grenouille de Terre of Catesby (1754); this pre-Linnean binomen corresponds to *Anaxyrus terrestris* (Bonnaterre, 1789). Finally, L.S.N. is the abbreviation of Linnaeus Systema Naturae, and the name *Rana dorso pullifero* appears in the sixth edition (Linnaeus, 1748) associated with the name *Pipa*.

It is worth noting that Browne's (1756) figure 4, plate 41, cited by Linnaeus (1758) in the synonymy of his *Rana ocellata*, was never associated by Browne to his *Rana maxima compressa miscella*; it does not match the description in the text and the illustration looks like either: (1) an individual of the genus *Lithobates* with unwebbed feet, or (2) a large *Leptodactylus* with an unusually and greatly developed tympanum. However, the illustration has certain resemblances with Browne's *RANA 2. Minima palmis & plantis fissis*, a species without hand or foot webbing that, according to that author, is "...frequent in Mountserat, and may be sometimes seen in Jamaica..." (Browne, 1756). Was he describing a juvenile of what 170 years later Müller (1926) reported as *Leptodactylus fallax*?

Although Linnaeus (1758) consistently used binominal nomenclature, in a contribution published the following year (Linnaeus 1759), he identified the diverse species of batrachians with a descriptive phrase and not with a binomen. Number 9 of Linnaeus (1759) (*R. auribus ocellaris, pedibus muticis*) corresponds to *Rana ocellata* in Linnaeus (1758), and the only difference between both descriptions is the mention of four toes (*Plantae 4dactylae, subpalmatae*) in Linnaeus (1759), considered here as an *error typographicus*.

The next reference to *Rana ocellata* is found in Linnaeus (1764) and is based on at least one specimen housed in the collection of the Swedish King Adolphi Friderici (not mentioned by Balk 1746 nor by Linnaeus 1749 a, b, 1754). Andersson (1900: 24), while analyzing the putative Linnean types at the Royal Museum in Stockholm, wrote: "*In the museum there is a specimen, marked "Rana" on a printed label, on which afterwards has been written "ocellata."* Although Andersson (1900) did not provide a collection number, he wrote that this was the specimen identified by Peters (1872) as *Cystignathus ocellatus*. Peters (1872), referring to Linnaeus (1758) *Rana ocellata*, pointed out that: (1) Browne described a tree-frog, (2) Browne's illustration was obtained from somewhere in North America and, in his ignorance, he included it as a Jamaican species, (3) Browne's illustration corresponds to *Rana clamata* (*sic*; unjustified emendation for *Rana clamitans* Latreille, An X due to Daudin, An X) or to *Rana mugiens* (erroneously attributed to Daudin, An X, probably mistakenly confused with the common French name "La Mugissante"), and (4) the individual studied by Linnaeus (1764) is identical to *Rana pachypus* Spix (1824) but different from the one cited by Linnaeus (1758). Heyer *et al.* (2006) indicated that the purported holotype examined by Peters was (1) transferred in 1801 from the Museum Adolphi Friderici to the Swedish Museum of Natural History (NRM) in Stockholm, (2) was catalogued as NRM 150, and (3) NRM 150 corresponds to *Leptodactylus bolivianus* Boulenger, 1898.

From 1764 to the first half of the 19th Century the name *Rana ocellata* was tied either to the Caribbean fauna [i.a., Linnaeus 1766 (*partim*, due to the inclusion of Browne 1756); Gmelin 1788 (*partim*, due to the inclusion of Browne 1756); Ledru 1810; Le Dru 1812; Gosse 1851; and Taylor 1864], to the North American fauna [i.a., Linnaeus 1766 (*partim*; synonymy with Seba 1734; Kalm 1761; and Catesby 1754), Kalm 1771 (English translation); Krünitz 1778; Gmelin 1788 (*partim*; synonymy with Seba 1734; Kalm 1761; and Catesby 1754); Daubenton 1784; Lacépède 1788; Bonnaterre 1789; Castiglioni 1790; Winterbotham 1795, 1799; Barton 1799; Schneider 1799; Sonnini and Latreille An X; Shaw 1802; Lacépède 1800; Daudin An X; Blumenbach 1803; Anonymous 1803 (L.A.G. Bosc); Daudin An XI; Pinkerton 1804; Bingley 1805; Stewart 1806; Anonymous 1817 (L.A.G. Bosc); Lacépède 1819; Merrem 1820; Goldfuss 1820; Cloquet 1821; Schinz 1822; Deshayes 1825 (*part*); Harlan 1826, 1827, 1835; Cuvier 1829; Griffith and Pidgeon 1831; Harlan 1835; Anonymous 1836; Cuvier 1836; and Holbrook 1842], or to a Neotropical taxon [i.a., Fitzinger 1826; Wagler 1830 (indicated as "America" and restricted to South America due to its inclusion in the genus *Cystignathus*); Tschudi 1838; Deshayes 1825 (*part*); Duméril and Bibron 1841; Hoeven 1852–1856 (by implication, due its

inclusion in the genus *Cystignathus*); Girard 1853, 1858; Guichenot 1855; Jan 1857; Girard 1858; and Günther 1859 “1858”]. The current usage of the name *Rana ocellata* associated with the genus *Leptodactylus* originated with Girard (1853).

The nomenclatural and literature analyses presented above show that:

1—*Rana ocellata* was first described by Linnaeus in 1758, based on four sets of specimens, nowadays lost, that includes the secondary syntype *Rana maxima compressa miscella* of Browne (1756) and the tertiary syntypes (a) *Curruru* Pisonis 1658, (b) *Rana terrestris* Catesby 1754 and (c) *Rana dorso pullifero* Linnaeus, 1748 (syntype categories follow Dubois and Ohler, 1997).

2—Subsequently, under the name *Rana ocellata*, Linnaeus (1764) characterized an individual that later became implicitly or explicitly identified as NRM 150 (i.a., Peters 1872; Andersson 1900; Heyer *et al.* 2006), considered by diverse authors (i.a. Andersson, 1900; Heyer *et al.*, 2006; Frost, 2009) as the name-bearing type of *Rana ocellata*. This attribution is the result of an overwritten label and the presence of the name in a catalog, due to Quensel (according to Andersson 1900), and is in conflict with Article 72.4.7. of the ICZN.

3—From the set of four syntypes of *Rana ocellata* Linnaeus, 1758, we select as Lectotype the individual described by Browne (1756) under the name *Rana maxima compressa miscella*. This action restricts the type locality for this name to inland Jamaica.

4—As the Lectotype of *Rana maxima compressa miscella* is untraceable, we designate a Neotype for this taxon, based on a climbing-frog from Jamaica (according to Browne, 1756 comments on the species natural history), with expanded terminal phalanges (“*pedibus muticis*”), identifiable by the presence of a spot on the ear (“*auribus ocellatis*”), and subpalmate toes (“*Plantae pentadactylae, subpalmatae*”) (*vide* Linnaeus 1758 characterization of the species).

## 2. Designation of a neotype for *Rana ocellata* Linnaeus, 1758 (Amphibia: Anura)

### *Osteopilus ocellatus* (Linnaeus, 1758), new combination

(Figure 1)

*Rana ocellata* Linnaeus, 1758

*Hyla brunnea* Gosse, 1851 [new synonymy]

*Trachycephalus scutigerus* Cope, 1863 [new synonymy]

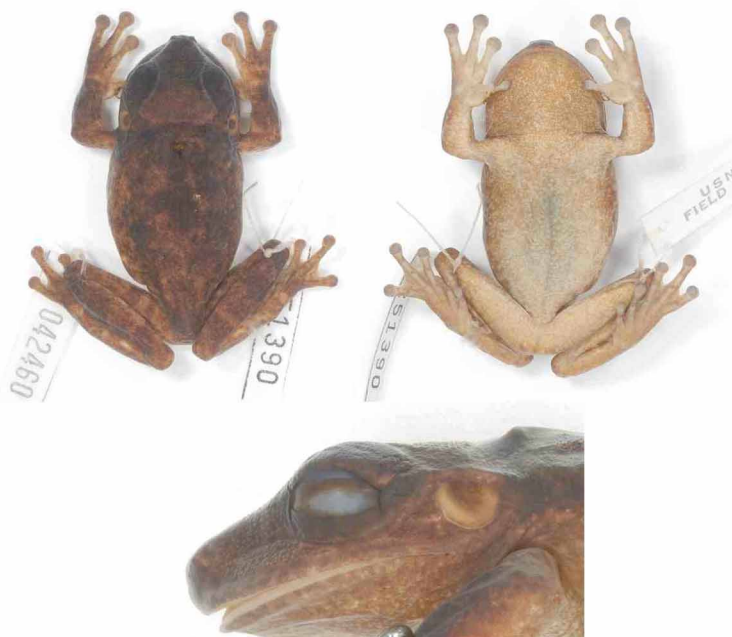
**Neotype:** USNM 251390, adult male (Figure 1), collected in Jamaica, Hanover Parish, 1.7 miles SSE of Hopewell, on 08 July 1977, by Ronald I. Crombie and Jeremy Jacobs.

**Description of the neotype:** Skin exostosed with skull from level above tympanum, extending between eyes to mid loreal region, almost reaching nares. Snout shape nearly rounded in dorsal outline, rounded in profile. Canthus rostralis distinct, almost sharp. Loreal region convex/obtuse. Tympanum distinct, about 70% eye diameter. Vomerine teeth in two short patches with about five teeth per patch, almost equidistant from each other and choanae; vomerine teeth aligned along a line drawn from the posterior extents of the elliptical, slightly transversely oriented choanae. Vocal slits present, elongate. Vocal sac single, weakly developed. Finger disk II (finger numbering following Fabrezi and Alberch 1996) rounded, smaller than large round disks on fingers III, IV, V. Finger web formula II trace III  $1\frac{2}{3}$  –  $2\frac{3}{4}$  IV  $3\frac{1}{2}$  –  $2\frac{1}{2}$  V. Subarticular tubercles weak, single on fingers II, III, IV, bifid on V. Tan nuptial pad covering prepollical area to level of subarticular tubercle on finger II. Forearm slightly hypertrophied. Outer ulnar region with a row of few, light, fleshy tubercles. Supratympanic fold weakly developed. Anal region undecorated. Dorsal texture smooth, without folds; throat smooth; belly areolate. Toe disks round, well developed; toe disk I smaller than others; toe disks slightly smaller than finger disks. Toe web formula I trace II  $1\frac{1}{2}$  – 3<sup>-</sup> III  $1^-$  – 3<sup>-</sup> IV  $2\frac{3}{4}$  – 1<sup>+</sup> V. Inner metatarsal tubercle elongate, protuberant distally. Outer metatarsal absent. Tarsal fold absent. Heels with a few indistinct fleshy tubercles.

**Color:** In preservative, the specimen is overall an unremarkable brown frog. Head brown with slightly darker upper eyelids. Dorsum weakly lichenous patterned (slightly darker and lighter browns). Tympanum tan with obvious dark brown spot extending from top of tympanum to just below middle of tympanum. Upper limbs brown; faintly lichenous. Throat finely mottled, slightly darker than remainder of mottled ventral surfaces.

**Measurements of the neotype:** SVL 49.9; HL 18.7; HW 18.4; IND 3.8; END 6.1; ED 7.7; UEW 5.0; IOD 6.7; TD 3.8; HAL 4.0; THL 20.5; TL 21.8; FL 28.8.

**Nomenclature:** The neotype of *Rana ocellata* Linnaeus, 1758 is a species up until now recognized as *Osteopilus brunneus*. The synonymy of *Osteopilus ocellatus* (Linnaeus, 1758) contains *Hyla brunnea* Gosse, 1851 and *Trachycephalus scutigerus* Cope, 1863.



**FIGURE 1.** *Osteopilus ocellatus* (Linnaeus, 1758), neotype (USNM 251390; 49.9 mm SVL), A) dorsal and B) ventral views; C) lateral view of head.

### 3. The valid nomen of the species currently known as *Leptodactylus ocellatus*

It has been previously argued that the association of a type specimen with a given type locality is critical in *Leptodactylus* species that may represent species complexes (de Sá *et al.* 2007): a first step is to have a clear understanding of the nomenclature involved.

As shown, the name *Rana ocellata* Linnaeus, 1758 applies to a tree-frog from Jamaica; consequently, the taxon currently known as *Leptodactylus ocellatus* needs a new name. The following analysis of the synonymy of this species, as presented by Frost (2009), will help in this task.

*Rana halecina* Linnaeus, 1766

In the 12<sup>th</sup> edition of the *Systema Naturae*, and under the specific epithet *ocellata*, Linnaeus (1766) included five synonyms. His *R[ana] auribus ocellatus* (Linnaeus, 1764), Browne (1756) *Rana maxima compressa miscella*, Kalm (1761) *Rana halecina*, and an unnamed species of Seba (1734), cited as *Seb. Mus, I. t. 76. f. I* (for the correct identification of this species, see Lacépède 1788 b: 300–301, footnote).

Linnaeus (1766) used the Latin words *Rana halecina* to translate the Swedish vulgar name *Sillhåppetåbor* employed by Kalm (1761) in relation to his *Rana virescens plantis tetradactylis*, and all indications are that it was never intended as a scientific name (as was the case of other Latin names in the synonymy). *Sillhåppetåbor* means “herring–hoppers” frogs, *halecinus* being a compound word formed by the noun [*h*]alecis = herring + *-in* = suffix for pertaining/belonging to; connected with or derived/coming from (see also Garman 1889).

Aside from these considerations, the name *Rana halecina* was published in the synonymy of *Rana ocellata* by Linnaeus (1766), but was made available by Daudin (An X) (Article 11.6.1). Although the type locality was not explicitly stated, in Kalm’s (1761) book, written in the form of a diary, it is clear that the *Sillhåppetåbor* (or *Rana virescens plantis tetradactylis*) was observed on March 11<sup>th</sup>, 1749, somewhere in Racoon, New Jersey, United States of America. More recently, *Rana halecina* was included correctly in the synonymy of *Lithobates pipiens* (Schreber, 1782) by Pace (1974).

#### *Rana rubella* Daudin (in Sonnini and Latreille 1801)

The original description of *Rana rubella* was based on one individual of unknown provenance, with a SVL of 15 *lignes* (the French *ligne* in the beginning of the XIX Century was equivalent to 2.3 mm). Merrem (1820) included this species, of less than 3.5 cm SVL, in the synonymy of his *Rana daudinii* (in turn, a substitute name of *Rana punctata* Daudin, An X). *Rana daudinii* was considered to be a synonym of *Cystignathus ocellatus* by Duméril and Bibron (1841), but later Nieden (1923) considered it to be a synonym of *Pelodytes punctatus*. Nieden’s (1923) action is unconvincing.

The description in Sonnini and Latreille (An X) leads us to think that it could be a frog of the *Leptodactylus podicipinus–wagneri* complex, mainly due to: (1) its small size (“...*Elle ressemble, par sa forme, à la grenouille galonnée; mais elle n'est longue que de quinze lignes...*”), (2) ventral coloration pattern (“...*le dessous du corps est blanchâtre, avec des petits points roussâtres sous la tête, et avec quelques petites taches également roussâtres sous le ventre et les cuisses...*”), and (3) the characteristics of the toes (“...*Les doigts des pieds antérieurs sont séparés et ceux des postérieurs faiblement demi–palmés...*”). The *grenouille galonnée* is Daudin’s (An X) *Rana typhonia*, a synonym of *Leptodactylus fuscus* (Schneider, 1799).

#### *Rana latrans* Steffen, 1815

*Rana latrans* Steffen, 1815 is a senior homonym of *Rana latrans* David, 1872 [now *Quasipaa spinosa* (David, 1875) *sensu* Frost (2009)], and corresponds to the first available name for the South American frog currently known as *Leptodactylus ocellatus*. Although Gorham (1966) considered it as a *nomen nudum*, Steffen’s description fits the requirements of Articles 11 and 12 of the ICZN. The species was based on at least one individual with “strong arms, of a kind not seen in other frogs”, collected in “Brasilia” (= Brazil) by Tilesio. *Rana latrans* was placed in the synonymy of *Leptodactylus ocellatus* by Nieden (1923).

#### *Rana gibbosa* Raddi, 1823

Raddi (1820) mentioned that the individual named *Rana ocellata*, housed at the Imperiale e Reale Museo in Florence (Italy), was a new species and named it *Rana gibbosa* (a *nomen nudum* in that context). Three years later and based on a single individual, Raddi (1823) described this taxon from the surroundings of Rio de Janeiro (Brazil). Raddi’s name is a junior homonym of *Rana gibbosa* Linnaeus, 1758 = *Breviceps gibbosus* (Linnaeus, 1758), but the name is available according to Article 59.2 of the ICZN. *Rana gibbosa* Raddi, 1820 was placed in the synonymy of *Leptodactylus ocellatus* by Bokermann (1965).

#### *Rana fusca* Raddi, 1823

Raddi (1820) gave the name *Rana fusca* (a *nomen nudum* in that context) to an individual housed at the Imperiale e Reale Museo in Florence (Italy) under the name of *Rana grunniens*. Later, Raddi (1823) described this taxon, based on one individual, from the surroundings of Rio de Janeiro (Brazil). *Rana fusca* Raddi, 1823 is a junior homonym of *Rana fusca* Schneider, 1799 [now *Leptodactylus fuscus* (Schneider, 1799)], but it fits

into the considerations of Article 59.2 of the ICZN. Bokermann (1965) synonymized *Rana fusca* Raddi, 1823 with *Leptodactylus ocellatus*, without commenting on the homonymy.

*Rana pygmaea* Spix, 1824

*Rana pygmaea* Spix, 1824 was described from “Provincia Bahiae”, Brazil. The name is a senior homonym of *Rana pygmaea* Günther, 1876 (now *Nyctibatrachus deccanensis* Dubois, 1984). It was placed in the synonymy of *Cystignathus ocellatus* by Günther (1859 “1858”).

*Rana pachypus* Spix, 1824

*Rana pachypus* Spix, 1824 was described from “Provinciae Rio de Janeiro”, Brazil. Tschudi (1838) placed this name in the synonymy of *Cystignathus ocellatus*.

*Rana pachybrachion* Wied–Neuwied, 1824

*Rana pachybrachion* Wied–Neuwied, 1824 was described from “Brasiliens”. The synonymy is credited to Heyer as a personal communication to Frost (2009). The suggestion that the name is a possible incorrect subsequent spelling or emendation of *Rana pachypus* Spix, 1824 makes sense, considering that both authors dealt with frogs with six dorsal folds.

*Rana macrocephala* Wied–Neuwied, 1825

According to Frost (2009), *Rana macrocephala* Wied–Neuwied, 1825 (described from “Lagoa d'Arara unweit des Flusses Mucuri”, Brazil) is a junior homonym of *Rana macrocephala* Wied–Neuwied, 1824 = *Ceratophrys aurita* (Raddi, 1823) (synonymy cited as Heyer pers. comm.) At the same time, Frost quoted that the tentative synonymy of *Rana macrocephala* Wied–Neuwied, 1825 with *Leptodactylus ocellatus* is due to Bokermann (1966: 89), who indicated the type locality to be “somewhere in southern Bahia”.

*Rana pachypus octolineata* Mayer, 1835

*Rana pachypus octolineatus* Mayer, 1835 was described from an unknown number of specimens of unknown provenance. The inclusion of this name as a subjective synonym of *Rana ocellata* resides in the synonymy of *Rana pachypus* Spix, 1824 done by Tschudi (1838); this action remains valid until an examination of the type specimens of *Rana pachypus octolineatus* (not found yet) would suggest an alternative placement (Frost, pers. comm).

*Leptodactylus serialis* Girard, 1853

*Leptodactylus serialis* Girard, 1853 was described from Rio de Janeiro (Brazil). Girard (1858) placed this name in the synonymy of *Leptodactylus ocellatus*.

*Leptodactylus caliginosus* Girard, 1853

*Leptodactylus caliginosus* Girard, 1853 was described from Rio de Janeiro (Brazil). Nieden (1923) placed *L. caliginosus* in the synonymy of *Leptodactylus ocellatus*. Ives (1892 “1891”) considered *Leptodactylus caliginosus* Brocchi, 1882 (*non* Girard 1853) under *Leptodactylus labialis* [in turn, a synonym of *Leptodactylus mystacinus* (Burmeister, 1861)].

*Rana luctator* Hudson, 1892

Gallardo (1964) placed *Rana luctator* in the synonymy of *Leptodactylus ocellatus* and the illustration on p. 77 (by J. Smid) shows a frog with palmate feet of a kind never seen in its type locality (Buenos Aires, Argentina).

*Rana octoplicata* Werner, 1893

*Rana octoplicata* was originally described based on one female of 92 mm with feet webbed up to ¼ of the



toes, from an unknown locality in the United States of America; the following year Werner (1894b) wrote “*Meine octoplicata ist Leptodactylus ocellatus (L.)*”, without further explanations. Boulenger (1893) considered the species to be a synonym of *Lithobates areolatus*, explicitly pointing out that the specimens are from the United States of America. Frost (2009) included *Rana octoplicata* in the synonymy of both.

#### *Cystignathus oxycephalus* Philippi, 1902

*Cystignathus oxycephalus* was described by Philippi (1902) based on two juveniles of 35 mm SVL from Montevideo (Uruguay). Klappenbach (1968) placed this name in the synonymy of *Leptodactylus ocellatus*.

#### *Leptodactylus pygmaeus* Miranda–Ribeiro, 1927

Frost (2009) stated that Flower (1928) included *Leptodactylus pygmaeus* Miranda–Ribeiro, 1927 in the synonymy of *Leptodactylus ocellatus*. Miranda–Ribeiro never coined this binomen; in fact, in his paper of 1927 he referred to the species as *Leptodactylus pygmaeus* (Spix).

### 4. Designation of a neotype for *Rana latrans* Steffen, 1985 (Amphibia: Anura)

Steffen (1815) apparently described *Rana latrans* from a single specimen, which he subsequently skeletonised. The skeleton was deposited in the anatomical collection of what is now the Museum für Naturkunde, Leibniz Institute for Research on Evolution and Biodiversity at the Humboldt University in Berlin. Dr. Mark–Oliver Rödel, Curator of Herpetology, was unable to find the skeleton of *Rana latrans* in the Berlin collection (pers. comm. on 16 July 2009 to WRH).

Heyer *et al.* (2006) submitted a request to the International Commission of Zoological Nomenclature (ICZN, Case 3323) to conserve the name *Leptodactylus ocellatus* by designation of a neotype for *Rana ocellata* Linnaeus, 1758. The ICZN Secretariat provided (e-mail June 16, 2008) comments from commissioners who suggested various actions on the petition. Subsequently, ICZN Case 3323 was withdrawn on July 30, 2008 (e-mail message to S. Nikolaeva).

#### *Leptodactylus latrans* (Steffen, 1815), revalidated, new combination

(Figures 2–3)

*Rana latrans* Steffen, 1815.

**Neotype:** MNRJ 30733, adult male (Figure 2), collected at Vale dos Agriões (22°25'S, 42°58'W, approx. 900 m above sea level), Municipality of Teresópolis, State of Rio de Janeiro, Brazil, on 18 September 1999, by U. Caramaschi, H. de Niemeyer, and D. F. de Moraes Jr. mtDNA sequence data GenBank accession number AY669856.

**Description of the neotype:** Adult male, with strongly hypertrophied arms. Robust build; head wider than long, HL 88.8% of HW, HL 34.9% of SVL, HW 39.3% of SVL. Snout rounded viewed from above (Fig. 3A), obtuse in profile (Fig. 3B); canthus rostralis indistinct, rounded; loreal region oblique, slightly concave. Nostrils closer to tip of snout than to eyes; internarial distance smaller than eye to nostril distance and eye diameter. Eye to nostril distance larger than eye diameter, upper eyelid width, interorbital distance, and tympanum diameter. Upper eyelid width equals the interorbital distance and the internarial distance, and smaller than tympanum diameter. Tympanum circular, annulus distinct, thick; tympanum largely separated from eye, its diameter slightly smaller than eye diameter, TD 97.7% of ED. Upper eyelid, head, and dorsal skin smooth; a thick supratympanic fold from the posterior corner of eye, arching downwards posteriorly to tympanum, and reaching the dorsal region of the arm articulation; a thick, longitudinally elongated bucal post–commissural fold; eight dorsolateral folds disposed four on each side of the body, consisting of one

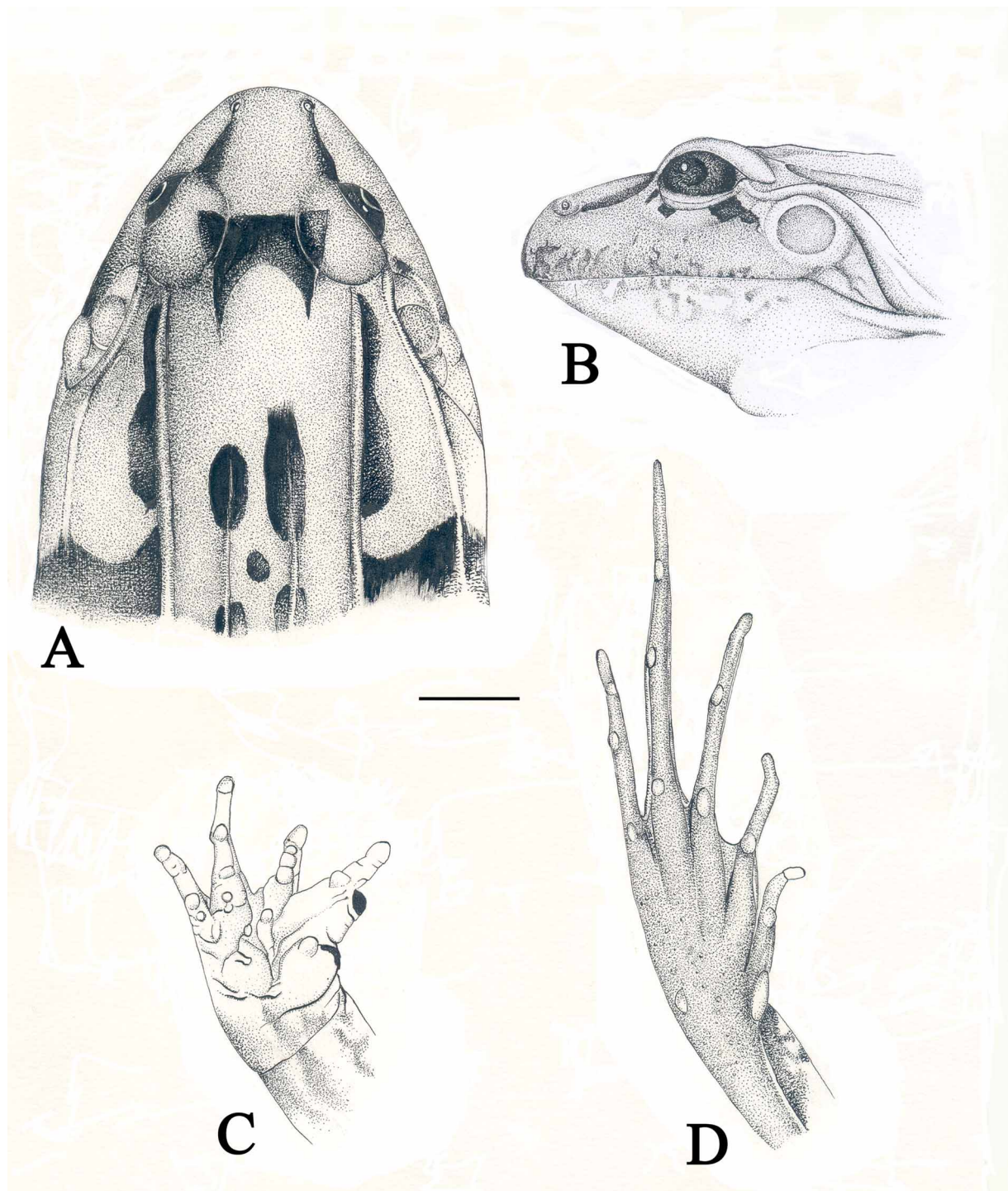
dorsal from the posterior interocular region to the urostyle region, one dorsolateral from the posterior corner of eye to groin, and two lateral, one above, relatively short, from the shoulder region to groin, and one below, from the posterior corner of eye to groin; small tubercles, approximately aligned, between the posterior half of the dorsal folds; flanks barely rugose; ventral skin smooth; a small granular seat patch under thighs; anal region not modified; dorsal and ventral surfaces of arms smooth; a weak, crenulated crest along the posterior line of the ventral surface of forearm; dorsal surface of thighs and tibiae with many small, approximately aligned, horny tubercles. Vocal sac poorly developed, subgular, unique but slightly bilobed; no lateral vocal folds. Vocal slits present; vomerine teeth in two transverse series almost contacting medially, laying between and just posterior to choanae. Tongue large, free, slightly notched behind. Hand (Fig. 3C) with fingers slender, not webbed, tips rounded, not expanded; weak lateral ridges present; finger lengths  $V < III < II < IV$ ; subarticular tubercles rounded, proximal tubercles more developed than distal ones; few rounded supranumerary tubercles present; outer metacarpal tubercle large, cordiform; inner metacarpal tubercle small, rounded; a large, rounded, keratinized black spine on thumb, lateral to the second subarticular tubercle; a large, rounded, keratinized spine on the strongly developed prepollex. Legs robust, tibia length slightly smaller than thigh length, tibia length 97.3% of thigh length; SVL 99.2% of the sum of tibia and thigh lengths. Foot large (Fig. 3D), foot length larger than tibia and thigh lengths, 77.9% of SVL. Toes slender, only basally webbed, fringed; toe lengths  $I < II < V < III < IV$ ; toe tips slightly pointed; subarticular tubercles large, rounded; sole of foot with distinct, approximately aligned small tubercles; outer metatarsal tubercle very small, rounded; inner metatarsal tubercle large, elliptical, slightly elevated; sole of tarsus with many scattered small tubercles; inner tarsal fold developed, approximately the length of the tarsus.

**Measurements of the neotype:** SVL 107.0; HL 37.4; HW 42.1; IND 7.4; END 12.0; ED 8.7; UEW 7.4; IOD 7.4; TD 8.5; HAL 26.5; THL 54.7; TL 53.2; FL 83.4.

**Color:** In preservative, general dorsal background color reddish gray; a distinct interocular black spot with two posterior lobes; scattered, rounded black spots on dorsum; a black spot on posterior side of arms; black spots, aligned across the dorsal surfaces of thighs, tibiae, and feet. A black stripe on canthus rostralis, between the nostril and the anterior corner of eye; loreal region uniformly gray, bordered below by small black, approximately triangular spots; border of maxilla gray with light gray spots. Ventral region white with scattered, unshaped small clear gray spots; gular region gray.



**FIGURE 2.** *Leptodactylus latrans* (Steffen, 1815), neotype (MNRJ 30733; 107.0 mm SVL), dorsal and ventral views.



**FIGURE 3.** *Leptodactylus latrans* (Steffen, 1815), neotype (MNRJ 30733). A: Dorsal view of head. B: Lateral view of head. C: Hand. D: Foot. Bars = 5 mm.

### Acknowledgments

We thank Darrel Frost and Alain Dubois for their useful comments on a previous version of this manuscript. Many papers related to *Rana ocellata* were published in the second half of the 18th Century. EOL thanks the colleagues of AnimalBase Project Group, Göttingen University, and Gallica (National Library of France) who digitized several of those old books and generously made them available through their respective websites.

Kraig Adler (Cornell University, USA), Dione Seripieri (Museu de Zoologia, Universidade de São Paulo, SP, Brazil), and Santiago Castroviejo–Fischer and José M. Padial (both from Evolutionary Biology Centre, Uppsala University, Sweden) also served as resources of valuable references. Sonia Ziert–Kretzschmar (Fundación Miguel Lillo, Tucumán, Argentina) translated papers written in gothic German. James R. Poindexter II, Biological Resources Division, United States Geological Service, provided the photos of the neotype of *Rana ocellata* Linnaeus, 1758. JAL acknowledges financial support from the Sistema Nacional de Investigadores, Agencia Nacional de Investigación e Innovación (ANII), Uruguay. UC acknowledges Helianne de Niemeyer and Décio F. de Moraes Jr. for their assistance in fieldwork, Paulo R. Nascimento for the line drawings of the neotype of *L. latrans*, and the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brazil, for financial support. RdS and WRH acknowledge support provided by the National Science Foundation (NSF award 0342918.), USA.

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