Oedipina koehleri Sunyer, Townsend, Wake, Travers, Gonzalez, Obando, and Quintana, 2011. This Nicaraguan endemic species is known from only four mid-elevation localities. For over four decades this cryptic worm salamander was referred to as *O. pseudouniformis*, until it was described as new species based on genetic evidence. Modern molecular analyses have become a useful tool in taxonomic studies that allow us understand the diversity and phylogenetic diversification of life. Further collecting in Nicaragua, in combination with morphologic and molecular studies, will continue to add herpetofaunal species to the country's checklist.

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An updated checklist of the amphibians and reptiles of Nicaragua

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Abstract: I provide an updated list of the amphibians and reptiles of Nicaragua, and include notes on nomenclatural changes made since the last checklist was published for the country. I recognize a total of 248 species (74 amphibians, 174 reptiles), of which 11 are endemic (seven amphibians, four reptiles) and three (lizards) are exotic.

Key Words: Amphibia, herpetofauna, Reptilia

Resumen: Proporciono una lista actualizada de los anfibios y reptiles de Nicaragua, incluyendo notas sobre cambios taxonómicos realizados desde el último listado publicado del país. Reconozco un total de 248 especies (74 anfibios, 174 reptiles), de las cuales 11 son endémicas (siete anfibios, cuatro reptiles) y tres (lagartijas) son exóticas.

Palabras Claves: Anfibios, herpetofauna, listado, reptiles

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INTRODUCTION

Villa (1983) provided the first amphibian and reptile checklist for Nicaragua, and Köhler (1999, 2001), Ruiz and Buitrago (2003), and Sunyer and Köhler (2010) presented updates. Recent research in Nicaragua has resulted in the description of endemic species, and the addition of species to the country's checklist; morphological and molecular studies also have resulted in numerous nomenclatural changes. The purpose of this contribution is to provide an update on the status of the Nicaraguan herpetofauna, and to summarize the nomenclatural changes that have taken place since the publication of the last checklist (Sunyer and Köhler, 2010). I arranged the list alphabetically by class, order, family, genus, and species; for the Order Squamata, however, I placed the lizards before the snakes. An asterisk following a scientific name indicates an endemic species, and two asterisks an exotic species.

Herpetofauna of Nicaragua (2 classes, 6 orders, 49 families, 135 genera, 248 species, 11 endemic species, 3 exotic species)

CLASS AMPHIBIA Blainville, 1816 (3 orders, 13 families, 35 genera, 74 species, 7 endemic species)

ORDER ANURA Duméril, 1805 (11 families, 30 genera, 63 species, 2 endemic species)

FAMILY AROMOBATIDAE Grant, Frost, Caldwell, Gagliardo, Haddad, Kok, Means, Noonan, Schargel, and Wheeler, 2006 **(1 genus, 1 species)**
Allobates Zimmermann and Zimmermann, 1988 **(1)**
Allobates talamancae (Cope, 1875)

FAMILY BUFONIDAE Gray, 1825 **(3 genera, 7 species)**
Incilius Cope, 1863 **(5)**
Incilius coccifer (Cope, 1866)
Incilius coniferus (Cope, 1862)
Incilius leutkenii (Boulenger, 1891)
Incilius melanochlorus (Cope, 1877)
Incilius valliceps (Wiegmann, 1833)
Rhaebo Cope, 1862 **(1)**
Rhaebo haematiticus Cope, 1862
Rhinella Fitzinger, 1826 **(1)**. Based on Savage and Bolaños (2009), Sunyer and Köhler (2010) regarded this genus as *Chaunus*, which now is considered a junior synonym of *Rhinella*.
Rhinella marina (Linnaeus, 1758). Sunyer and Köhler (2010) listed this species as *Chaunus marinus*. The gender of *Rhinella* is feminine, so the correct spelling is *R. marina*.

FAMILY CENTROLENIDAE Taylor, 1951 **(5 genera, 7 species)**
Cochranella Taylor, 1951 **(1)**
Cochranella granulosa (Taylor, 1949)
Espadarana Guayasamin, Castroviejo-Fisher, Trueb, Ayarzagüena, Rada, and Vilà, 2009 **(1)**
Esparadama prosoblepon (Boettger, 1892)
Hyalinobatrachium Ruiz-Carranza and Lynch, 1991 **(1)**
Hyalinobatrachium fleischmanni (Boettger, 1893)
Sachatamia Guayasamin, Castroviejo-Fisher, Trueb, Ayarzagüena, Rada, and Vilà, 2009 **(2)**
Sachatamia albomaculata (Taylor, 1949)
Sachatamia ilex (Savage, 1967)
Teratohyla Taylor, 1951 **(2)**
Teratohyla pulverata (Peters, 1873)
Teratohyla spinosa (Taylor, 1949)

FAMILY CRAUGASTORIDAE Hedges, Duellman, and Heinicke, 2008 **(2 genera, 12 species)**
Craugastor Cope, 1862 **(10)**
Craugastor bransfordii (Cope, 1886)
*Craugastor chingopetaca** Köhler and Sunyer, 2006
Craugastor fitzingeri (Schmidt, 1857)
Craugastor laevissimus (Werner, 1896)
Craugastor lauraster (Savage, McCranie, and Espinal, 1996)
Craugastor megacephalus (Cope, 1875)
Craugastor mimus (Taylor, 1955)
Craugastor noblei (Barbour and Dunn, 1921)
Craugastor ranoides (Cope, 1886)
Craugastor talamancae (Dunn, 1931)

Pristimantis Jiménez de la Espada, 1870 **(2)**. Sunyer and Köhler (2010) included this genus in the family Strabomantidae. Pyron and Wiens (2011) subsumed the family Strabomantidae into the family Craugastoridae. Recent analyses by Padial et al. (2014) corroborate this finding.

Pristimantis cerasinus (Cope, 1875)
Pristimantis ridens (Cope, 1866)

FAMILY DENDROBATIDAE Cope, 1865 **(3 genera, 3 species)**
Dendrobates Wagler, 1830 **(1)**
Dendrobates auratus (Girard, 1855)
Oophaga Bauer, 1994 **(1)**
Oophaga pumilio (Schmidt, 1857)
Phyllobates Duméril and Bibron, 1841 **(1)**
Phyllobates lugubris (Schmidt, 1857)

FAMILY ELEUTHERODACTYLIDAE Lutz, 1954 **(1 genus, 1 species)**
Diasporus Hedges, Duellman, and Heinicke, 2008 **(1)**
Diasporus diastema (Cope, 1875)

FAMILY HYLIDAE Rafinesque, 1815 **(10 genera, 18 species)**
Agalychnis Cope, 1864 **(2)**
Agalychnis callidryas (Cope, 1862)
Agalychnis saltator Taylor, 1955
Cruziohyla Faivovich, Haddad, Garcia, Frost, Campbell, and Wheeler, 2005 **(1)**
Cruziohyla calcarifer (Boulenger, 1902)
Dendropsophus Fitzinger, 1843 **(3)**
Dendropsophus ebraccatus (Cope, 1874)
Dendropsophus microcephalus (Cope, 1886)
Dendropsophus phlebodes (Stejneger, 1906)
Ecnomiohyla Faivovich, Haddad, Garcia, Frost, Campbell, and Wheeler, 2005 **(1)**
Ecnomiohyla miliaria (Cope, 1886)
Hypsiboas Wagler, 1830 **(1)**
Hypsiboas rufitelus (Fouquette, 1961)
Ptychohyla Taylor, 1944 **(1)**
Ptychohyla hypomykter McCranie and Wilson, 1993
Scinax Wagler, 1830 **(3)**
Scinax boulengeri (Cope, 1887)
Scinax elaeochroa (Cope, 1875)
Scinax staufferi (Cope, 1865)
Smilisca Cope, 1865 **(4)**
Smilisca baudinii (Duméril and Bibron, 1841)
Smilisca phaeota (Cope, 1862)
Smilisca puma (Cope, 1885)
Smilisca sordida (Peters, 1863)
Tlalocohyla Faivovich, Haddad, Garcia, Frost, Campbell, and Wheeler, 2005 **(1)**
Tlalocohyla loquax (Gaige and Stuart, 1934)
Trachycephalus Tschudi, 1838 **(1)**
Trachycephalus typhonius (Linnaeus, 1758). Sunyer and Köhler (2010) listed this species as *T. venulosus*. Lavilla et al. (2010) corrected the name for this species.

FAMILY LEPTODACTYLIDAE Werner, 1896 **(2 genera, 4 species)**
Engystomops Jiménez de la Espada, 1872 **(1)**. Sunyer and Köhler (2010) included this genus in the family Leiuperidae. Pyron and Wiens (2011) placed this genus in the family Leptodactylidae, within the subfamily Leiuperinae.
Engystomops pustulosus (Cope, 1864)
Leptodactylus Fitzinger, 1826 **(3)**
Leptodactylus fragilis (Brocchi, 1877)
Leptodactylus melanonotus (Hallowell, 1861)
Leptodactylus savagei Heyer, 2005

FAMILY MICROHYLIDAE Günther, 1858 **(1 genus, 2 species)**
Hypopachus Keferstein, 1867 **(2)**
Hypopachus pictiventris (Cope, 1886). Sunyer and Köhler (2010) listed this species in the genus *Gastrophryne*. Streicher et al. (2012) tentatively placed the only Nicaraguan member of this genus in *Hypopachus*.
Hypopachus variolosus (Cope, 1866)

FAMILY RANIDAE Batsch, 1796 **(1 genus, 7 species)**
Lithobates Fitzinger, 1843 **(7)**
Lithobates brownorum (Sanders, 1973)
Lithobates forreri (Boulenger, 1883)
Lithobates maculatus (Brocchi, 1877)
*Lithobates miadis** (Barbour and Loveridge, 1929)
Lithobates taylori (Smith, 1959)
Lithobates vaillanti (Brocchi, 1877)
Lithobates warszewitschii (Schmidt, 1857)

FAMILY RHINOPHRYNIDAE Günther, 1859 **(1 genus, 1 species)**
Rhinophrynus Duméril and Bibron, 1841 **(1)**
Rhinophrynus dorsalis Duméril and Bibron, 1841

ORDER CAUDATA Fischer von Waldheim, 1813 (1 family, 3 genera, 9 species, 5 endemic species)

FAMILY PLETHODONTIDAE Gray, 1850 **(3 genera, 9 species)**
Bolitoglossa Duméril, Bibron, and Duméril, 1854 **(4)**
Bolitoglossa indio Sunyer, Lotzkat, Hertz, Wake, Alemán, Robleto, and Köhler, 2008. Sunyer and Köhler (2010) considered this species endemic to Nicaragua; Sunyer et al. (2012) recorded this salamander from Costa Rica, so it is no longer a Nicaraguan endemic.
*Bolitoglossa insularis** Sunyer, Lotzkat, Hertz, Wake, Alemán, Robleto, and Köhler, 2008
*Bolitoglossa mombachoensis** Köhler and McCranie, 1999
Bolitoglossa striatula (Noble, 1918)
Nototriton Wake and Elias, 1983 **(1)**
*Nototriton saslaya** Köhler, 2002
Oedipina Keferstein, 1868 **(4)**
Oedipina collaris (Stejneger, 1907)
Oedipina cyclocauda Taylor, 1952
*Oedipina koehleri** Sunyer, Townsend, Wake, Travers, Gonzalez, Obando, and Quintana, 2011. Sunyer et al. (2011) described this cryptic, endemic species; Sunyer and Köhler (2010) referred to populations of this species as *O. pseudouniformis*.
*Oedipina nica** Sunyer, Wake, Townsend, Travers, Rovito, Papenfuss, Obando, and Köhler, 2010. Sunyer et al. (2010) described this endemic species; Köhler (2001) referred to populations of this species as *O. cyclocauda* (in part).

ORDER GYMNOPHIONA Müller, 1832 (1 family, 2 genera, 2 species)

FAMILY DERMOPHIIDAE Taylor, 1969 **(2 genera, 2 species)**. Sunyer and Köhler (2010) considered this family as Caeciliidae. Wilkinson et al. (2011) placed all the caecilians occurring Nicaragua in the family Dermophiidae.
Dermophis Peters, 1880 **(1)**
Dermophis mexicanus (Duméril and Bibron, 1841)
Gymnopis Peters, 1874 **(1)**
Gymnopis multiplicata Peters, 1874

CLASS REPTILIA Laurenti, 1768 (3 orders, 36 families, 100 genera, 174 species, 4 endemic species, 3 exotic species)

ORDER CROCODYLIA Owen, 1842 (2 families, 2 genera, 2 species)

FAMILY ALLIGATORIDAE Cuvier, 1807 **(1 genus, 1 species)**
Caiman Spix, 1825 **(1)**
Caiman crocodilus (Linnaeus, 1758)

FAMILY CROCODYLIDAE Cuvier, 1807 **(1 genus, 1 species)**
Crocodylus Laurenti, 1768 **(1)**
Crocodylus acutus (Cuvier, 1807)

ORDER SQUAMATA Oppel, 1811 (28 families, 89 genera, 158 species, 4 endemic species, 3 exotic species)

SQUAMATA—LIZARDS (16 families, 27 genera, 56 species, 2 endemic species, 3 exotic species)

FAMILY ANGUIDAE Gray, 1825 **(3 genera, 4 species)**
Celestus Gray, 1839 **(1)**
Celestus bivittatus (Boulenger, 1895)
Diploglossus Wiegmann, 1834 **(2)**
Diploglossus bilobatus (O'Shaughnessy, 1874)
Diploglossus monotropis (Kuhl, 1820)
Mesaspis Cope, 1877 **(1)**
Mesaspis moreletii (Bocourt, 1872)

FAMILY CORYTOPHANIDAE Fitzinger, 1843 **(3 genera, 5 species)**
Basiliscus Laurenti, 1768 **(3)**
Basiliscus basiliscus (Linnaeus, 1758)
Basiliscus plumifrons Cope, 1875
Basiliscus vittatus Wiegmann, 1828
Corytophanes Boie, 1827, *In* Schlegel, 1827 **(1)**
Corytophanes cristatus (Merrem, 1820)
Laemanctus Wiegmann, 1834 **(1)**
Laemanctus longipes Wiegmann, 1834

FAMILY DACTYLOIDAE Fitzinger, 1843 **(1 genus, 17 species)**. Sunyer and Köhler (2010) considered this family as Polychrotidae. Townsend et al. (2011) resurrected the family name Dactyloidae, a decision followed by Nicholson et al. (2012).
Norops Wagler, 1830 **(17)**. Sunyer and Köhler (2010) considered this genus as *Anolis*. Nicholson et al. (2012, 2014) placed all the Nicaraguan anoles in the genus *Norops*.

Norops beckeri (Boulenger, 1881). Sunyer and Köhler (2010) listed this species as *Anolis pentaprion*. Köhler (2010) resurrected *N. beckeri* (as *Anolis beckeri*), a taxon that applies to the populations in northern Nicaragua formerly referred to as *N. pentaprion*.
Norops biporcatus (Wiegmann, 1834)
Norops capito (Peters, 1863)
Norops carpenteri (Echelle, Echelle, and Fitch, 1971)
Norops cupreus (Hallowell, 1861)
Norops dariense (Fitch and Seigel, 1984). Sunyer and Köhler (2010) listed this species as *Anolis cupreus*. Nicholson et al. (2012) recognized *N. dariense* as the species in central and eastern Nicaragua that formerly was regarded as *N. cupreus*.
Norops laeviventris (Wiegmann, 1834)
Norops lemurinus (Cope, 1861)
Norops limifroms (Cope, 1862)
Norops oxylophus (Cope, 1875)
Norops pentaprion (Cope, 1862)
Norops quaggulus (Cope, 1885)
Norops tropidonotus (Peters, 1863)
Norops unilobatus (Köhler and Veselý, 2010). Sunyer and Köhler (2010) listed this species as *Anolis sericeus*. Köhler and Veselý (2010) described *N. unilobatus* (as *Anolis unilobatus*), a taxon that includes the populations in Nicaragua formerly referred to as *N. sericeus*, with the exception of those in the northwestern part of the country (see *Norops wellbornae*).
*Norops villai** (Fitch and Henderson, 1976)
Norops wellbornae (Ahl, 1940). Sunyer and Köhler (2010) listed this species as *Anolis sericeus*. Köhler and Veselý (2010) resurrected *N. wellbornae* (as *Anolis wellbornae*), a taxon that includes the populations in northwestern Nicaragua formerly referred to as *N. sericeus*.
Norops wermuthi Köhler and Obermeier, 1998. This species was considered endemic to Nicaragua in Sunyer and Köhler (2010). Sunyer et al. (2013) recorded this species from Honduras, so this species no longer is a Nicaraguan endemic.

FAMILY EUBLEPHARIDAE Boulenger, 1883 **(1 genus, 1 species)**
Coleonyx Gray, 1845 **(1)**
Coleonyx mitratus (Peters, 1863)

FAMILY GEKKONIDAE Gray, 1825 **(2 genera, 2 species)**
Hemidactylus Cuvier, 1820 **(1)**
*Hemidactylus frenatus*** Schlegel, 1836
Lepidodactylus Fitzinger, 1843 **(1)**
*Lepidodactylus lugubris*** (Duméril and Bibron, 1836)

FAMILY GYMNOPHTHALMIDAE Merrem, 1820 **(1 genus, 1 species)**
Gymnophthalmus Merrem, 1820 **(1)**
Gymnophthalmus speciosus (Hallowell, 1861)

FAMILY IGUANIDAE Gray, 1827 **(2 genera, 3 species)**
Ctenosaura Wiegmann, 1828 **(2)**
Ctenosaura quinquecarinata (Gray, 1842)
Ctenosaura similis (Gray, 1831)
Iguana Laurenti, 1768 **(1)**
Iguana iguana (Linnaeus, 1758)

FAMILY MABUYIDAE Mittleman, 1952 **(1 genus, 3 species)**. Sunyer and Köhler (2010) considered this family as Scincidae. Hedges and Conn (2012) resurrected the family Mabuyidae, and placed the Nicaraguan species formerly referred to as *Mabuya* in the subfamily Mabuyinae.
Marisora Hedges and Conn, 2012 **(3)**. Sunyer and Köhler (2010) listed this genus as *Mabuya*. Hedges and Conn (2012) described *Marisora*, a genus that includes all populations in Nicaragua formerly referred to as *Mabuya*.

Marisora alliacea (Cope 1876). Sunyer and Köhler (2010) listed this species as *Mabuya unimarginata*. Hedges and Conn (2012) resurrected *M. alliacea*, a taxon that includes the populations in southeastern Nicaragua formerly referred to as *M. unimarginata*.
Marisora brachypoda (Taylor, 1956). Sunyer and Köhler (2010) listed this species as *Mabuya unimarginata*. Hedges and Conn (2012) resurrected *M. brachypoda*, a taxon that includes the populations in Nicaragua formerly referred to as *M. unimarginata*, with the exception of those in southeastern Nicaragua (see *M. alliacea*) and from Isla Grande del Maíz (see *M. magnacornae*).
*Marisora magnacornae** Hedges and Conn, 2012. Sunyer and Köhler (2010) listed this species as *Mabuya unimarginata*. Hedges and Conn (2012) described this endemic species from Isla Grande del Maíz.

FAMILY PHRYNOSOMATIDAE Fitzinger, 1843 **(1 genus, 3 species)**
Sceloporus Wiegmann, 1828 **(3)**

Sceloporus malachiticus Cope, 1864
Sceloporus squamosus Bocourt, 1874
Sceloporus variabilis Wiegmann, 1834

FAMILY PHYLLODACTYLIDAE Gamble, Bauer, Greenbaum, and Jackman, 2008 **(2 genera, 2 species)**
Phyllodactylus Gray, 1828 **(1)**

Phyllodactylus tuberculosus Wiegmann, 1834

Thecadactylus Cuvier, 1820 **(1)**

Thecadactylus rapicauda (Houttuyn, 1782)

FAMILY POLYCHROTIDAE Fitzinger, 1843 **(1 genus, 1 species)**
Polychrus Cuvier, 1816 **(1)**

Polychrus gutturosus Berthold, 1845

FAMILY SCINCIDAE Gray, 1825 **(1 genus, 1 species)**
Mesoscincus Griffith, Ngo, and Murphy, 2000 **(1)**

Mesoscincus managuae (Dunn, 1933)

FAMILY SPHAERODACTYLIDAE Underwood, 1954 **(3 genera, 5 species)**
Gonatodes Fitzinger, 1843 **(1)**

Gonatodes albogularis (Duméril and Bibron, 1836)
Lepidoblepharis Peracca, 1897 **(1)**

Lepidoblepharis xanthostigma (Noble, 1916)
Sphaerodactylus Wagler, 1830 **(3)**

*Sphaerodactylus argus*** Gosse, 1850
Sphaerodactylus homolepis Cope, 1886
Sphaerodactylus millepunctatus Hallowell, 1861

FAMILY SPHENOMORPHIDAE Welch, 1982 **(1 genus, 1 species)**. Sunyer and Köhler (2010) considered this family as Scincidae. Hedges (2014) proposed including the genus *Scincella* in the family Sphenomorphidae.

Scincella Mittleman, 1950 **(1)**. Sunyer and Köhler (2010) listed this genus as *Sphenomorphus*. Honda et al. (2003) suggested reassigning the only member of this genus in Nicaragua to the genus *Scincella*, a decision followed by Hedges (2014).

Scincella cherriei (Cope, 1893)

FAMILY TEIIDAE Gray, 1827 **(3 genera, 6 species)**

Aspidoscelis Fitzinger, 1843 **(2)**

Aspidoscelis deppii (Weigmann, 1834)

Aspidoscelis motaguae (Sackett, 1941). Köhler et al. (2013) recorded this species from Nicaragua.

Cnemidophorus Wagler, 1830 **(1)**

Cnemidophorus ruatanus Barbour, 1928. Sunyer and Köhler (2010) listed this species as *C. lemniscatus*. McCranie and Hedges (2013) resurrected *C. ruatanus*, a taxon that includes the Nicaraguan populations formerly referred to as *C. lemniscatus*.

Holcosus Cope, 1862 **(3)**. Sunyer and Köhler (2010) listed this genus as *Ameiva*. Harvey et al. (2012) resurrected *Holcosus*, a genus that includes all the Nicaraguan species formerly referred to as *Ameiva*.

Holcosus festivus (Lichtenstein and von Martens, 1856, *In* Lichtenstein, 1856). Sunyer and Köhler (2010) listed this species as *Ameiva festiva*. The genus *Holcosus* is masculine in gender, so the name for this species (and for those listed below) terminates in "-us" (Harvey et al., 2012).

Holcosus quadrilineatus (Hallowell, 1861). Sunyer and Köhler (2010) listed this species as *Ameiva quadrilineata*.

Holcosus undulatus (Wiegmann, 1834). Sunyer and Köhler (2010) listed this species as *Ameiva undulata*.

FAMILY XANTUSIIDAE Baird, 1859 **(1 genus, 1 species)**

Lepidophyma Duméril, 1851 **(1)**

Lepidophyma flavimaculatum Duméril, 1851

SQUAMATA—SNAKES (12 families, 62 genera, 102 species, 2 endemic species)

FAMILY ANOMALEPIDIDAE Taylor, 1939 **(1 genus, 1 species)**

Anomalepis Jan, 1860, *In* Jan and Sordelli, 1860–1866 **(1)**

Anomalepis mexicanus Jan, 1860, *In* Jan and Sordelli, 1860–1866

FAMILY BOIDAE Gray, 1825 **(2 genera, 2 species)**

Boa Linnaeus, 1758 **(1)**

Boa imperator Daudin, 1803. Sunyer and Köhler (2010) listed this species as *B. constrictor*. Reynolds et al. (2013) resurrected *B. imperator*, a taxon that includes the Nicaraguan populations formerly referred to as *B. constrictor*.

Corallus Daudin, 1803 **(1)**

Corallus annulatus (Cope, 1875)

FAMILY CHARINIDAE Gray, 1849 **(1 genus, 2 species)**. Sunyer and Köhler (2010) considered this family as Ungaliophiidae. Pyron et al. (2014) resurrected the family Charinidae, and placed the genus *Ungaliophis* within the subfamily Ungaliophiinae.

Ungaliophis Müller, 1880 **(2)**

Ungaliophis continentalis Müller, 1880

Ungaliophis panamensis Schmidt, 1933

FAMILY COLUBRIDAE Oppel, 1811 **(19 genera, 38 species)**

Chironius Fitzinger, 1826 **(1)**

Chironius grandisquamis (Peters, 1868)

Dendrophidion Fitzinger, 1843 **(3)**

Dendrophidion apharocybe Cadle, 2012. Sunyer and Köhler (2010) listed this species as *D. vinitor*. Cadle (2012) described *D. apharocybe*, a taxon that includes the Nicaraguan populations formerly referred to as *D. vinitor*.
Dendrophidion percarinatum (Cope, 1893)
Dendrophidion rufiterminorum Cadle and Savage, 2012. Sunyer and Köhler (2010) listed this species as *D. nuchale*. Cadle and Savage (2012) described *D. rufiterminorum*, a taxon that includes the Nicaraguan populations formerly referred to as *D. nuchale*.

Drymarchon Fitzinger, 1843 **(1)**
Drymarchon melanurus (Duméril, Bibron, and Duméril, 1854)

Drymobius Fitzinger, 1843 **(4)**
Drymobius chloroticus (Cope, 1886)
Drymobius margaritiferus (Schlegel, 1837)
Drymobius melanotropis (Cope, 1875)
Drymobius rhombifer (Günther, 1860)

Lampropeltis Fitzinger, 1843 **(1)**
Lampropeltis abnorma (Bocourt, 1886). Sunyer and Köhler (2010) listed this species as *L. triangulum*. Ruane et al. (2014) elevated *L. abnorma* to species level, a taxon that includes all Nicaraguan populations formerly referred to as *L. triangulum*.

Leptodrymus Amaral, 1927 **(1)**
Leptodrymus pulcherrimus (Cope, 1874)

Leptophis Bell, 1825 **(4)**
Leptophis ahaetulla (Linnaeus, 1758)
Leptophis depressirostris (Cope, 1861)
Leptophis mexicanus (Duméril, Bibron, and Duméril, 1854)
Leptophis nebulosus Oliver, 1942

Masticophis Baird and Girard, 1853 **(1)**
Masticophis mentovarius (Duméril, Bibron, and Duméril, 1854)

Mastigodryas Amaral, 1935 **(2)**
Mastigodryas alternatus (Bocourt, 1884). Sunyer and Köhler (2010) listed this species as *M. melanolomus*. McCranie (2011) resurrected *M. alternatus*, a taxon that includes the Nicaraguan populations formerly referred to as *M. melanolomus*.
Mastigodryas dorsalis (Bocourt, 1890)

Oxybelis Wagler, 1830 **(3)**
Oxybelis aeneus (Wagler, 1824)
Oxybelis brevirostris (Cope, 1861)
Oxybelis fulgidus (Daudin, 1803)

Phrynonax Cope, 1862 **(1)**. Sunyer and Köhler (2010) listed this genus as *Pseustes*. Jadin et al. (2013) placed the only Nicaraguan member into the genus *Phrynonax*.
Phrynonax poecilonotus (Günther, 1858)

Pseudelaphe Mertens and Rosenberg, 1943 **(1)**
Pseudelaphe flavirufa (Cope, 1867)

Scolecophis Fitzinger, 1843 **(1)**
Scolecophis atrocinctus (Schlegel, 1837)

Senticolis Dowling and Fries, 1987 **(1)**
Senticolis triaspis (Cope, 1866)

Spilotes Wagler, 1830 **(1)**
Spilotes pullatus (Linnaeus, 1758)

Stenorrhina Duméril, 1853 **(2)**
Stenorrhina degenhardtii (Berthold, 1845)
Stenorrhina freminvillii (Duméril, Bibron, and Duméril, 1854). Sunyer and Köhler (2010) listed this species as *S. freminvillei*.

Tantilla Baird and Girard, 1853 **(8)**
Tantilla alticola (Boulenger, 1903)
Tantilla armillata Cope, 1875
Tantilla reticulata Cope, 1860
Tantilla ruficeps (Cope, 1894)
Tantilla schistosa (Bocourt, 1883)
Tantilla supracincta (Peters, 1863)
Tantilla taeniata (Bocourt, 1883)
Tantilla vermiformis (Hallowell, 1861)
Tantillita Smith, 1941 **(1)**
Tantillita lintoni (Smith, 1940)
Trimorphodon Cope, 1862 **(1)**
Trimorphodon quadruplex Smith, 1941

FAMILY DIPSADIDAE Bonaparte, 1838 **(25 genera, 41 species)**. Sunyer and Köhler (2010) treated this family as Colubridae. Zaher et al. (2009) and Grazziotin et al. (2012) recognized the family Dipsadidae.
Adelphicos Jan, 1862 **(1)**
Adelphicos quadrivirgatum Jan, 1862
Amastridium Cope 1861 **(1)**
Amastridium veliferum Cope, 1861
Clelia Fitzinger, 1826 **(1)**
Clelia clelia (Daudin, 1803)
Coniophanes Hallowell, 1860 **(3)**
Coniophanes bipunctatus (Günther, 1858)
Coniophanes fissidens (Günther, 1858)
Coniophanes piceivittis Cope, 1870
Conophis Peters, 1860 **(1)**
Conophis lineatus (Duméril, Bibron, and Duméril, 1854)
Crisantophis Villa, 1971 **(1)**
Crisantophis nevermanni (Dunn, 1937)
Dipsas Laurenti, 1768 **(2)**
Dipsas articulata (Cope, 1868)
Dipsas bicolor (Günther, 1895)
Enuliophis McCranie and Villa, 1993 **(1)**
Enuliophis sclateri (Boulenger, 1894)
Enulius Cope, 1871 **(1)**
Enulius flavitorques (Cope, 1869)
Erythrolamprus Boie, 1826 **(1)**
Erythrolamprus mimus (Cope, 1869)
Geophis Wagler, 1830 **(2)**
*Geophis dunni** Schmidt, 1932
Geophis hoffmanni (Peters, 1859)
Hydromorphus Peters, 1859 **(1)**
Hydromorphus concolor Peters, 1859
Imantodes Duméril, 1853 **(3)**
Imantodes cenchoa (Linnaeus, 1758)
Imantodes gemmistratus (Cope, 1862)
Imantodes inornatus (Boulenger, 1896)
Leptodeira Fitzinger, 1843 **(3)**
Leptodeira nigrofasciata (Günther, 1868)

Leptodeira rhombifera (Günther, 1872). Sunyer and Köhler (2010) listed this species as *L. annulata*. McCranie (2011) resurrected *L. rhombifera*, a taxon that includes the Nicaraguan populations formerly referred to as *L. annulata*.

Leptodeira septentrionalis (Kennicott, 1859)

Ninia Baird and Girard, 1853 **(2)**

Ninia maculata (Peters, 1861)

Ninia sebae (Duméril, Bibron, and Duméril, 1854)

Nothopsis Cope, 1871 **(1)**

Nothopsis rugosus Cope, 1871

Oxyrhopus Wagler, 1830 **(1)**

Oxyrhopus petolarius (Linnaeus, 1758). Sunyer and Köhler (2010) listed this species as *O. petola*. Savage (2011) cleared up the confusion regarding the specific name of this taxon.

Pliocercus Cope, 1860 **(1)**

Pliocercus euryzonus Cope, 1862

Rhadinaea Cope, 1863 **(1)**

Rhadinaea decorata (Günther, 1858)

Rhadinella Smith, 1941 **(2)**. Sunyer and Köhler (2010) listed this genus as *Rhadinaea*. Myers (2011) resurrected *Rhadinella* and placed two Nicaraguan species in this genus.

Rhadinella kinkelini (Boettger, 1898)

*Rhadinella rogerromani** (Köhler and McCranie, 1999)

Sibon Fitzinger, 1826 **(5)**

Sibon annulatus (Günther, 1872)

Sibon anthracops (Cope, 1868)

Sibon dimidiatus (Günther, 1872)

Sibon longifrenis (Stejneger, 1909)

Sibon nebulatus (Linnaeus, 1758)

Tretanorhinus Duméril, Bibron, and Duméril, 1854 **(1)**

Tretanorhinus nigroluteus Cope, 1862

Tropidodipsas Günther, 1858 **(1)**

Tropidodipsas sartorii Cope, 1863

Urotheca Bibron, 1843, *In* Ramón de la Sagra, 1838–1843 **(3)**

Urotheca decipiens (Günther, 1893). Salazar and Barquero (2012) recorded this species from Nicaragua.

Urotheca guentheri (Dunn, 1938)

Urotheca pachyura (Cope, 1875). Salazar and Barquero (2012) recorded this species from Nicaragua.

Xenodon Boie, 1826, *In* Schlegel, 1826 **(1)**

Xenodon angustirostris (Peters, 1864). Sunyer and Köhler (2010) listed this species as *X. rabdocephalus*. Myers and McDowell (2014) tentatively resurrected the name *X. angustirostris* for all Nicaraguan populations of this species formerly referred to as *X. rabdocephalus*.

FAMILY ELAPIDAE Boie, 1827 **(2 genera, 4 species)**

Micrurus Wagler, 1824, *In* Spix, 1824 **(3)**

Micrurus alleni Schmidt, 1936

Micrurus multifasciatus (Jan, 1858)

Micrurus nigrocinctus (Girard, 1855)

Hydrophis Latreille, 1801, *In* Sonnini and Latreille, 1801 **(1)**. Sunyer and Köhler (2010) listed this genus as *Pelamis*. Sanders et al. (2012) placed *Pelamis* as a junior synonym of *Hydrophis*.

Hydrophis platurus (Linnaeus, 1766). Pyron et al. (2013) referred to this species as *H. platura*. The gender for *Hydrophis* is masculine, so the correct name for this species is *H. platurus*.

FAMILY LEPTOTYPHLOPIDAE Stejneger, 1892 **(1 genus, 1 species)**
Epictia Gray, 1845 **(1)**. Sunyer and Köhler (2010) listed this genus as *Leptotyphlops*. Adalsteinsson et al. (2009) placed the only Nicaraguan member of this genus into *Epictia*.
Epictia ater (Taylor, 1940). Sunyer and Köhler (2010) listed this species as *Leptotyphlops goudotii*. Savage (2002) and McCranie (2011) referred to this species as *L. ater* and *E. ater*, respectively.

FAMILY LOXOCEMIDAE Cope, 1861 **(1 genus, 1 species)**
Loxocemus Cope, 1861 **(1)**
Loxocemus bicolor Cope, 1861

FAMILY NATRICIDAE Bonaparte, 1838 **(1 genus, 2 species)**. Sunyer and Köhler (2010) considered this family as Colubridae. Zaher et al. (2009) recognized the family Natricidae.
Thamnophis Fitzinger, 1843 **(2)**
Thamnophis marcianus (Baird and Girard, 1853)
Thamnophis proximus (Say, 1823, *In* James, 1826)

FAMILY SIBYNOPHIIDAE Dunn, 1928 **(1 genus, 1 species)**. Sunyer and Köhler (2010) considered this family as Colubridae. Zaher et al. (2012) recognized the family Sibynophiidae.
Scaphiodontophis Taylor and Smith, 1943 **(1)**
Scaphiodontophis venustissimus (Günther, 1894)

FAMILY TYPHLOPIDAE Fitzinger, 1826 **(1 genus, 1 species)**
Amerotyphlops Hedges, Marion, Lipp, Marin, and Vidal, 2014 **(1)**. Sunyer and Köhler (2010) listed this genus as *Typhlops*. Hedges et al. (2014) described *Amerotyphlops* (within the subfamily Typhlopinae), a genus that includes the only species in this family recorded in Nicaragua.
Amerotyphlops costaricensis (Jiménez and Savage, 1963)

FAMILY VIPERIDAE Oppel, 1811 **(7 genera, 8 species)**
Agkistrodon Palisot de Beauvois, 1799 **(1)**
Agkistrodon howardgloydi (Conant, 1984). Sunyer and Köhler (2010) listed this species as *A. bilineatus*. Porras et al. (2013) elevated the subspecies *howardgloydi* to specific status, a taxon that includes the Nicaraguan populations formerly referred to as *A. bilineatus*.
Atropoides Werman, 1992 **(1)**
Atropoides mexicanus (Duméril, Bibron, and Duméril, 1854)
Bothriechis Peters, 1859 **(1)**
Bothriechis schlegelii (Berthold, 1845)
Bothrops Wagler, 1824 **(1)**
Bothrops asper (Garman, 1884)
Crotalus Linnaeus, 1758 **(1)**
Crotalus simus Latreille, 1801, *In* Sonnini and Latreille, 1801
Lachesis Daudin, 1803**(1)**
Lachesis stenophrys Cope, 1875
Porthidium Cope, 1871 **(2)**
Porthidium nasutum (Bocourt, 1868)
Porthidium ophryomegas (Bocourt, 1868)

ORDER TESTUDINES Batsch, 1788 (6 families, 9 genera, 14 species)

FAMILY CHELONIIDAE Oppel, 1811 **(4 genera, 4 species)**
Caretta Rafinesque, 1814 **(1)**
Caretta caretta (Linnaeus, 1758)
Chelonia Brongniart, 1800 **(1)**
Chelonia mydas (Linnaeus, 1758)
Eretmochelys Fitzinger, 1843 **(1)**
Eretmochelys imbricata (Linnaeus, 1766)
Lepidochelys Fitzinger, 1843 **(1)**
Lepidochelys olivacea (Eschscholz, 1829)

FAMILY CHELYDRIDAE Swainson, 1839 **(1 genus, 1 species)**
Chelydra Schweigger, 1812 **(1)**
Chelydra acutirostris Peters, 1862

FAMILY DERMOCHELYIDAE Blainville, 1816 **(1 genus, 1 species)**
Dermochelys Blainville, 1816 **(1)**
Dermochelys coriacea (Vandelli, 1761)

FAMILY EMYDIDAE Rafinesque, 1815 **(1 genus, 2 species)**
Trachemys Agassiz, 1857 **(2).** Parham et al. (2013) suggested that the Río San Juan in southeastern Nicaragua might represent an area of secondary contact between the two species of *Trachemys* that occur in Nicaragua.
Trachemys emolli (Legler, 1990, *In* Gibbons, 1990). Sunyer and Köhler (2010) listed this species as *T. venusta*. Parham et al. (2013) referred to the Pacific populations in Nicaragua as *T. emolli*.
Trachemys venusta (Gray, 1855). Sunyer and Köhler (2010) listed this species as *T. venusta*. Parham et al. (2013) referred to the Atlantic populations in Nicaragua as *T. venusta*.

FAMILY GEOEMYDIDAE Theobald, 1868 **(1 genus, 3 species)**
Rhinoclemmys Fitzinger, 1835 **(3)**
Rhinoclemmys annulata (Gray, 1860)
Rhinoclemmys funerea (Cope, 1875)
Rhinoclemmys pulcherrima (Gray, 1856)

FAMILY KINOSTERNIDAE Agassiz, 1857 **(1 genus, 3 species)**
Kinosternon Spix, 1824 **(3)**
Kinosternon angustipons Legler, 1965
Kinosternon leucostomum (Duméril and Bibron, 1851, *In* Duméril and Duméril, 1851)
Kinosternon scorpioides (Linnaeus, 1766)

COMMENTARY

In recent years, taxonomic changes have been occurring at an unprecedented rate as a result of molecular techniques used in an increasing number of studies. Analyses by different authors not always agree, however, and thus the taxonomic arrangement I provide in this checklist likely will not satisfy the different points of view. These discrepancies involve various levels of the hierarchy (i.e., orders, families, genera, and species). An example of a disagreement at the order level involves Caudata, which has been referred to as Urodela by Dubois (2004), Dubois and Raffaëlli (2012), and Fouquette and Dubois (2014); Frost et al. (2006) and the Amphibian Species of the World (ASW) website (www.research.amnh.org/vz/herpetology/amphibia; accessed 8 November 2014), however, present information that contradicts this change, so for the purpose of this checklist I retained this order as Caudata. At the family level, Zaher et al. (2009, 2012) recognized the families Colubridae, Dipsadidae, Natricidae, and Sibynophiidae for species occurring in

Nicaragua, whereas Pyron et al. (2013) recognized several subfamilies within a large Colubridae; in this case, I retained use of the families previously proposed. In another case, Vidal and Hedges (2009) recognized the family Diploglossidae, but Pyron et al. (2013) considered the Diploglossinae as a subfamily of Anguidae. Pyron et al. (2013: 35), however, noted finding a "non-monophyly of genera within every subfamily, including Diploglossinae," so I retained use of the family Anguidae primarily because they also indicated (p. 13) that studies to resolve this matter currently "are under detailed investigation by other researchers." At the generic level, controversial examples in Nicaragua involve *Bufo* and *Rana* (used by Pyron and Wiens, 2011) vs. *Incilius*, *Rhaebo*, and *Rhinella* (for bufonids) and *Lithobates* (for ranids); herein I used the latter arrangement, as the ASW website presents an extensive discussion explaining this matter. Another controversy involves use of the name *Anolis* (*sensu* Poe, 2004, 2013) vs. *Norops* (*sensu* Nicholson et al., 2012, 2014); in my opinion, Nicholson et al. (2014) adequately addressed the concerns expressed by Poe (2013). Recognition of the genus *Enuliophis* is another problem. Savage (2002) and Myers and McDowell (2014) suggested not to recognize this monotypic genus because *Enuliophis sclateri* clusters with *Enulius* in all features except for hemepenial morphology, and thus might represent a case of extreme hemipenial divergence. In this case, I maintained recognition of the genus *Enuliophis*, until a more conclusive study supported by molecular evidence is available to clarify this matter. With regard to the recognition of *Coluber* vs. *Masticophis*, Wilson and Johnson (2010) presented an overview of this controversy, and because of inadequate taxon sampling in various molecular studies recommended the use of both taxa as separate genera; importantly, molecular samples of the wide-ranging *M. mentovarius*, the only member ocurring in Nicaragua, were not used in the pertinent studies. At a species level, *Norops dariense* was not recognized in recent checklists for Costa Rica (Bolaños et al., 2011) and Honduras (Solís et al., 2014), although based on morphology it would seem inappropriate to recognize *N. villai* in Nicaragua and not *N. dariense* because these two species show more similarities between one another than to *N. cupreus*. Other examples of discrepancies at the species level include the spelling of *Aspidoscelis deppii* vs. *A. deppei*, and *Stenorrhina freminvillii* vs. *S. freminvillei*. In both examples I chose the spelling used in the original description, until further research clarifies the proper nomenclature for these species. In this regard, Savage (2011) clarified use of the name *Oxyrhopus petolarius*, which previously also had been referred to as *Coluber petalarius*, *C. pethola*, and *C. petola*.

With advances in herpetological research, the list of amphibians and reptiles known to occur in Nicaragua keeps growing. In this century, Köhler (2001) recorded 229 species, Sunyer and Köhler (2010) 238 species, and herein I recognize 248 species. Still, within the larger Central American countries (i.e., those that share both Pacific and Atlantic oceanic boundaries), Nicaragua by far is the least herpetologically diverse. Nicaragua remains the least explored of these countries, however, and in time more species probably will be discovered. For example, frogs of the genera *Duellmanohyla* and *Isthmohyla*, and various other species (*Anotheca spinosa*, *Rhadinella godmani*, and *Rhinobothryum bovallii*) have been recorded to the north and south of Nicaragua, and likely occur in the country. In addition, several other species are known from adjacent areas of Costa Rica and Honduras, in habitats similar to those found in Nicaragua, and also could be found in the country. Finally, aside from undescribed endemic species that most likely occur in the country, particularly in the isolated northern highlands, molecular studies might reveal that several taxa described as subspecies, especially on islands, might warrant specific status. The degree of endemism in Nicaragua is 4.5% (excluding exotic species), whereas that of neighboring Honduras recently was reported as 27.5% (Solís et al., 2014). The relatively low rates of diversity and endemism probably are associated with the generalized low topography of this relatively geologically young country. Still, the number of herpetofaunal species, including endemic and exotic, is expected to keep growing.

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Literature Cited

Adalsteinsson, S. A., W. R. Branch, S. Trape, L. J. Vitt, and S. B. Hedges. 2009. Molecular phylogeny, classification, and biogeography of snakes of the family Leptotyphlopidae (Reptilia, Squamata). Zootaxa 2,244: 1–50.

Bolaños, F., J. M. Savage, and G. Chaves. 2011. Anfibios y Reptiles de Costa Rica. Listas Zoológicas Actualizadas UCR. Última actualización el 6 de diciembre del 2011. Publicacíon original en el 2009. Museo de Zoología UCR. San Pedro, Costa Rica.

Cadle J. E. 2012. Cryptic species within the *Dendrophidion vinitor* complex in Middle America (Serpentes: Colubridae). Bulletin of the Museum of Comparative Zoology 160: 183–240.

Cadle J. E., and J. M. Savage. 2012. Systematics of the *Dendrophidion nuchale* complex (Serpentes: Colubridae) with the description of a new species from Central America. Zootaxa 3,513: 1–50.

Dubois, A. 2004. The higher nomenclature of recent amphibians. Alytes 22(1–2): 1–14.

Dubois, A., and J. Raffaëlli. 2012. A new ergotaxonomy of the order Urodela Duméril, 1805 (Amphibia, Batrachia). Alytes 28(3–4): 77–161.

Foquette, M. J., Jr., and A. Dubois. 2014. A Checklist of North American Amphibians and Reptiles: The United States and Canada. 7th ed. Volume 1. Département Systématique & Evolution, Muséum National d'Histoire Naturelle, Paris, France.

Frost, D. R., T. Grant, J. Faviovich, R.H. Bain, A. Haas, C. F. B. Haddad, R. O. de Sá, A. Channing, M. Wilkinson, S. C. Donnellan, C. J. Raxworthy, J. A. Campbell, B. L. Blotto, P. Moler, R. C. Drewes, R. A. Nussbaum, J. D. Lynch, D. M. Green, and W. C. Wheeler. 2006. The amphibian tree of life. Bulletin of the American Museum of Natural History 297: 1–370.

Grazziotin, F., H. Zaher, R. W. Murphy, G. Scrocchi, M. Altamonaro, Y. –P. Zhang, and S. L. Bonatto. 2012. Molecular phylogeny of the New World Dipsadidae (Serpentes: Colubroidae): a reappraisal. Cladistics 28: 437–459.

Harvey M. B., G. N. Ugueto, and R. L. Gutberlrt, Jr. 2012. Review of teiid morphology with a revised taxonomy and phylogeny of the Teiidae (Lepidosauria: Squamata). Zootaxa 3,459: 1–156.

Hedges, S. B. 2014. The high-level classification of skinks (Reptilia, Squamata, Scincomorpha). Zootaxa 3,765(4): 317–338.

Hedges, S. B., and C. E. Conn. 2012. A new skink fauna from Caribbean islands (Squamata, Mabuyidae, Mabuyinae). Zootaxa 3,288: 1–244.

Hedges, S. B., A. B. Marion, K. M. Lipp, J. Marin, and N. Vidal. 2014. A taxonomic framework for typhlopid snakes from the Caribbean and other regions (Reptilia, Squamata). Caribbean Herpetology 49: 1–61.

Honda, M., H. Ota, G. Köhler, I. Ineich, L. Chirio, S-L. Chen, and T. Hikida. 2003. Phylogeny of the lizard subfamily Lygosominae (Reptilia: Scincidae), with special reference to the origin of the New World taxa. Genes Genetics Systematics 78: 71–80.

Jadin, R. C., F. T. Burbrink, G. A. Rivas, L. J. Vitt, C. L. Barrio-Amorós, and R. P. Gurlnick. 2013. Finding arboreal snakes in an evolutionary tree: phylogenetic placement and systematic revision of the Neotropical birdsnakes. Journal of Zoological Systematic and Evolutionary Research doi: 10.1111/jzs.12055: 1–8.

Köhler, G. 1999. The amphibians and reptiles of Nicaragua: a distributional checklist with keys. Courier Forschungsinstut Senckenberg 213: 1–212.

Köhler, G. 2001. Anfibios y Reptiles de Nicaragua. Herpeton, Offenbach, Germany.

Köhler, G. 2010. A revision of the Central American species related to *Anolis pentaprion* with the resurrection of *A. beckeri* and the description of a new species (Squamata: Polychrotidae). Zootaxa 2,354: 1–18.

Köhler, G., M. Salazar-Saavedra, J. Martínez, G. Lopez, and J. Sunyer. 2013. First record of *Aspidoscelis motaguae* (Sackett, 1941) (Reptilia: Squamata: Teiidae) from Nicaragua. Check List 9: 475.

Köhler G., and M. Veselý. 2010. A revision of the *Anolis sericeus* complex with the resurrection of *A. wellbornae* and the description of a new species (Squamata: Polychrotidae). Herpetologica 66: 207–228.

Lavilla, E. O., J. A. Langone, J. M. Padial, and R. O. De Sá. 2010. The identity of the crackling, luminescent frog of Suriname (*Rana typhonia* Linnaeus, 1758) (Amphibia, Anura). Zootaxa 2,671: 17–30.

McCranie, J. R. 2011. The Snakes of Honduras: Systematics, Distribution, and Conservation. Contributions to Herpetology, Volume 26, Society for the Study of Amphibians and Reptiles, Ithaca, New York, United States.

McCranie J. R., and S. B. Hedges. 2013. A review of the *Cnemidophorus lemniscatus* group in Central America (Squamata: Teiidae), with comments on other species in the group. Zootaxa 3,722: 301–316.

Myers, C. W. 2011. A new genus and new tribe for *Enicognathus melanauchen* Jan, 1863, a neglected South American snake (Colubridae: Xenodontinae), with taxonomic notes on some Dipsadinae. American Museum Novitates 3,715: 1–33.

Myers, C. W., and S. B. McDowell. 2014. New taxa and cryptic species of Neotropical snakes (Xenodontinae), with commentary on hemipenes as generic and specific characters. Bulletin of the American Museum of Natural History 385: 1–112.

Nicholson, K. E., B. I. Crother, C. Guyer, and J. M. Savage. 2012. It is time for a new classification of anoles (Squamata: Dactyloidae). Zootaxa 3,477: 1–108.

Nicholson, K. E., B. I. Crother, C. Guyer, and J. M. Savage. 2014. Anole classification: a response to Poe. Zootaxa 3,814: 109–120.

Padial, J. M., T. Grant, and D. R. Frost. 2014. Molecular systematics of terraranas (Anura: Brachycephaloidea) with an assessment of the effects of alignment and optimality criteria. Zootaxa 3,825: 1–132.

Parham, J. F., T. J. Papenfuss, P. P. van Dijk, B. S. Wilson, C. Marte, L. Rodriguez Schettino, and W. B. Simison. 2013. Genetic introgression and hybridization in Antillean freshwater turtles (*Trachemys*) revealed by coalescent analyses of mitochondrial and cloned nuclear markers. Molecular Phylogenetics and Evolution 67: 176–187.

Poe, S. 2004. Phylogeny of anoles. Herpetological Monographs 18: 37–89.

Poe, S. 2013. Redux: new genera of anoles (Squamata: Dactyloidae) are unwarranted. Zootaxa 3,626: 295–299.

Porras, L. W., L. D. Wilson, G. W. Schuett, and R. S. Reiserer. 2013. A taxonomic reevaluation and conservation assessment of the common cantil, *Agkistrodon bilineatus* (Squamata: Viperidae): a race against time. Amphibian & Reptile Conservation 7: 48–73.

Pyron, R. A., F. T. Burbrink, and J. J. Wiens. 2013. A phylogeny and revised classification of Squamata, including 4161 species of lizards and snakes. BMC Evolutionary Biology 13: 1–53.

Pyron, R. A., R. G. Reynolds, and F. T. Burbrink. 2014. A Taxonomic revision of boas (Serpentes: Boidae). Zootaxa 3,846: 249–260.

Pyron R. A., and J. J. Wiens. 2011. A large-scale phylogeny of Amphibia including over 2800 species, and a revised classification of extant frogs, salamanders, and caecilians. Molecular Phylogenetics and Evolution 61: 543–583.

Reynolds, R. G., M. L. Niemiller, and L. J. Revell. 2013. Toward a Tree-of-Life for the boas and pythons: multilocus species-level phylogeny with unprecedented taxon sampling. Molecular Phylogenetics and Evolution 71: 201–213.

Ruane, S., R. W. Bryson, Jr., R. A. Pyron, and F. T. Burbrink. 2014. Coalescent species delimitation in milksnakes (genus *Lampropeltis*) and impacts on phylogenetic comparative analyses. Systematic Biology 63: 231–250.

Ruiz, G. A., and F. Buitrago. 2003. Guía ilustrada de la herpetofauna de Nicaragua. ARAUCARIA-MARENA-AECI, Managua, Nicaragua.

Salazar, M., and M. D. Barquero. 2012. First country records for *Urotheca decipiens* and *Urotheca pachyura* and range extensions of *Urotheca guentheri* in Nicaragua. Herpetological Bulletin 121: 30–32.

Sanders, K. L., M. S. Y. Lee, Mumpuni, T. Bertozzi, A. R. Rasmussen. 2013. Multilocus phylogeny and recent rapid radiation of the viviparous sea snakes (Elapidae: Hydrophiinae). Molecular Phylogenetics and Evolution 66: 575–91.

Savage, J. M. 2002. The Amphibians and Reptiles of Costa Rica: A Herpetofauna between Two Continents, between Two Seas. The University of Chicago Press, Chicago, Illinois, United States.

Savage, J. M. 2011. The correct species-group name for an *Oxyrhopus* (Squamata: Dipsadidae) variously called *Coluber petalarius*, *C. pethola*, *C. petola*, or *C. petolarius* by early authors. Proceedings of the Biological Society of Washington 124: 223–225.

Savage, J. M., and F. Bolaños. 2009. A checklist of the amphibians and reptiles of Costa Rica: additions and nomenclatural revisions. Zootaxa: 2,005: 1–23.

Solís, J. M., L. D. Wilson, and J. H. Townsend. 2014. An updated list of the amphibians and reptiles of Honduras, with comments on their nomenclature. Mesoamerican Herpetology 1: 123–144.

Streicher, J. W., C. L. Cox, J. A. Campbell, E. N. Smith, and R. O. de Sá. 2012. Rapid range expansion in the Great Plains narrow-mouthed toad (*Gastrophryne olivacea*) and a revised taxonomy for North American microhylids. Molecular Phylogenetics and Evolution 64: 645–653.

Sunyer, J., R. García-Roa, and J. H. Townsend. 2013. First country record of *Norops wermuthi* Köhler & Obermeier, 1998, for Honduras. Herpetozoa 26(1/2): 103–106.

Sunyer, J., and G. Köhler. 2010. Conservation status of the herpetofauna of Nicaragua. Pp. 488–509 *In* L. D. Wilson, J. H. Townsend, and J. D. Johnson (Eds.). Conservation of Mesoamerican Amphibians and Reptiles.Eagle Mountain Publishing, LC, Eagle Mountain, Utah, United States.

Sunyer, J., J. Townsend, D. Wake, S. Travers, S. Gonzalez, L. Obando, and A. Quintana. 2011. A new cryptic species of salamander, Genus *Oedipina* (Caudata: Plethodontidae), from premontane elevations in northern Nicaragua, with comments on the systematic status of the Nicaraguan paratypes of *O. pseudouniformis* Brame, 1968. Breviora 526: 1–16.

Sunyer, J., D. Wake, and L. Obando. 2012. Distributional data for *Bolitoglossa* (Amphibia, Caudata, Plethodontidae) from Nicaragua and Costa Rica. Herpetological Review 43: 560–564.

Sunyer, J., D. Wake, J. Townsend, S. L. Travers, S. M. Rovito, T. J. Papenfuss, L. A. Obando, and G. Köhler. 2010. A new species of worm salamander (Caudata: Plethodontidae: *Oedipina*) in the subgenus *Oeditriton* from the highlands of northern Nicaragua. Zootaxa 2,613: 29–39.

Townsend, T. M., D. G. Mulcahy, B. P. Noonan, J. W. Sites Jr., C. A. Kuczynski, J. J. Wiens, and T. W. Reeder. 2011. Phylogeny of iguanian lizards inferred from 29 nuclear loci, and a comparison of concatenated and species-tree approaches for an ancient, rapid radiation. Molecular Phylogenetics and Evolution 61: 363–380.

Vidal, N., and S. B. Hedges. 2009. The molecular evolutionary tree of lizards, snakes, and amphisbaenians. Comptes Rendus Biologies 332: 129–139.

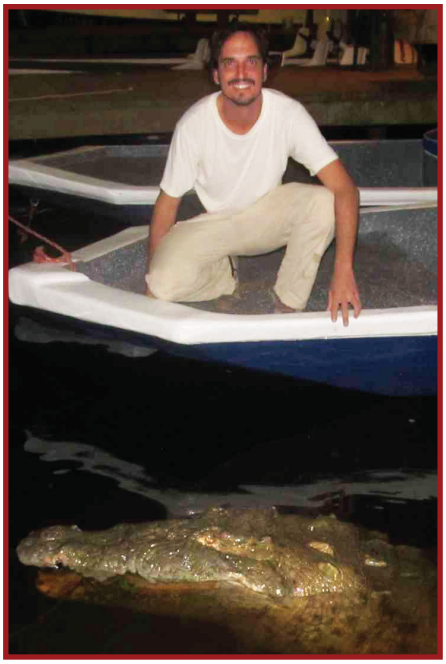
Villa, J. D. 1983. Nicaraguan fishes, amphibians and reptiles: checklist and bibliography. Universidad Centroamericana, Managua, Nicaragua.

Wilkinson M., D. San Mauro, E. Sherratt, and D. J. Gowe. 2011. A nine-family classification of caecilians (Amphibia: Gymnophiona). Zootaxa 2,874: 41–64.

Wilson, L. D., and J. D. Johnson. 2010. Distributional patterns of the herpetofauna of Mesoamerica, a biodiversity hotspot. Pp. 30–235 *In* L. D. Wilson, J. H. Townsend, and J. D. Johnson (Eds.), Conservation of Mesoamerican Amphibians and Reptiles. Eagle Mountain Publishing, LC, Eagle Mountain, Utah, United States.

Zaher H., F. G. Grazziotin, J. E. Cadle, R. W. Murphy, J. C. de Moura, and S. L. Bonatto. 2009. Molecular phylogeny of advanced snakes (Serpentes, Caenophidia) with an emphasis on South American Xenodontines: a revised classification and descriptions of new taxa. Papéis Avulsos de Zoologia 49: 115–153.

Zaher H., F. G. Grazziotin, R. Graboski, R. G. Fuentes, P. Sánchez-Martinez, G. G. Montingelli, and Y.-P. Zhang, R. W. Murphy. 2012. Phylogenetic relationships of the genus *Sibynophis* (Serpentes: Colubroidea). Papéis Avulsos de Zoologia 52: 141–149.



Javier Sunyer received a doctoral degree in Biology from Goethe University, Frankfurt am Main, Germany, where he studied under a full DAAD scholarship at the Senckenberg Museum. He is a herpetologist with a decade of experience in Central America (mostly in Nicaragua), as a member of the Universidad Nacional Autónoma de Nicaragua-León (UNAN-León). During this time, Javier co-authored 32 peer-reviewed papers and notes on herpetological topics, including the descriptions of 11 recognized species, reported country records for 10 herpetofaunal species, and provided the first conservation assessment of the herpetofauna of Nicaragua. Along with national and international colleagues, Javier presently is working on a guide to the amphibians and reptiles of Nicaragua, preparing the first biogeographical analysis of the herpetofauna of country, and conducting an analysis of advertisement calls in several Nicaraguan anuran species, among other projects.