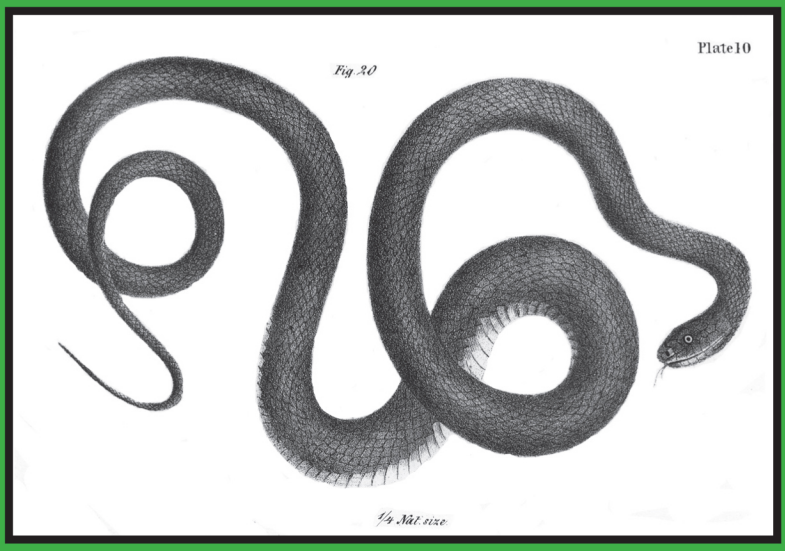
SCIENTIFIC AND STANDARD ENGLISH NAMES OF AMPHIBIANS AND REPTILES OF NORTH AMERICA NORTH OF MEXICO, WITH COMMENTS REGARDING CONFIDENCE IN OUR UNDERSTANDING

SIXTH EDITION



Committee On Standard English And Scientific Names
Brian I. Crother (Committee Chair)

Official Names List
of
American Society of Ichthyologists and Herpetologists
The Herpetologists' League
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Cover Illustration: *Coluber constrictor* from DeKay, James. 1842. Zoology of New York, Part III: Amphibians and Reptiles

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INTRODUCTION

This publication serves as a complete update for the most recent list of scientific and standard English names of North American amphibians and reptiles north of Mexico (Crother et al., 2003, Herpetol. Rev., 2003, 34: 196–203). Unlike the previous update (op.cit.), the list below is a stand alone volume. This edition includes new taxa described since the previous publication and any taxonomic changes that have led to name changes, both English and scientific. As in previous versions, annotations are given to explain such changes. For the general philosophy and rationale behind the names used here, readers may want to refer back to the first volume produced by this committee (Crother et al. 2001. Herpetological Circular No. 29: 1–82; available online at http://www.ssarherps.org/pdf/Crother.pdf). We have also separated the entries for native and alien species and created a new section for the latter. So instead of searching each taxonomic section for introduced species, the reader can go directly to the final section for a complete list.

In the past, citations of this work have greatly varied in format. To try to attain uniformity of citation, the committee agreed on the following format in which the authors of a subsection are cited as the authors of the publication IN Crother. For example,

de Queiroz, K. and T. W. Reeder. 2008. Squamata: Lizards. *IN* B. I. Crother (ed.), Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, pp. 24–45. SSAR Herpetological Circular 37.

If the entire volume is cited, please use the following format:

Crother, B. I. (ed.). 2008. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, pp. 1–84. SSAR Herpetological Circular 37.

The task of compiling the kind of information that goes into these publications is not trivial. We encourage readers to please send us your reprints concerning any taxonomic changes or decisions that your work may dictate or which may be relevant to this list. Receiving your reprints will help ensure these names lists are as complete as possible.

ACKNOWLEDGMENTS

Numerous people kindly answered questions and provided information for this list. We are grateful to A. Bauer, T. Castoe, J. Collins, T. Devitt, E. Enderson, K. Enge, A. Holycross, L. Jones, K. Krysko, A. Leaché, W. Meshaka, D. Mulcahy, M. Sredl, and L. Perkins.

LIST OF STANDARD ENGLISH AND CURRENT SCIENTIFIC NAMES

Anura—Frogs

Darrel R. Frost[1], Roy W. McDiarmid[2] and Joseph R. Mendelson III[3]

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Acris Duméril and Bibron, 1841—CRICKET FROGS

A. crepitans Baird, 1854—Northern Cricket Frog

Two nominal subspecies have not been formally rejected though they are infrequently recognized. Whether these represent arbitrary or historical units is unknown and this requires further investigation. McCallum and Trauth, 2006, Zootaxa 1104, rejected the distinctiveness of *A. c. blanchardi* from *A. c. crepitans*.

A. c. crepitans Baird, 1854—Eastern Cricket Frog

A. c. paludicola Burger, Smith, and Smith, 1949—Coastal Cricket Frog

A. gryllus (LeConte, 1825)—Southern Cricket Frog

Two nominal subspecies are occasionally recognized, although whether they are arbitrary or historical units has not been adequately investigated.

A. g. dorsalis (Harlan, 1827)—Florida Cricket Frog

A. g. gryllus (LeConte, 1825)—Coastal Plain Cricket Frog

Anaxyrus Tschudi, 1845—NORTH AMERICAN TOADS

This genus of strictly North American toads was recently removed from a paraphyletic "*Bufo*" by Frost et al. (2006, Bull. Am. Mus. Nat. Hist., 297).

A. americanus (Holbrook, 1836)—American Toad

Geographic variation has been insufficiently studied, although careful evaluation of call and/or molecular data might provide considerable evidence of divergent lineages. See comments under *A. baxteri, A. fowleri, A. hemiophrys, A. terrestris,* and *A. woodhousii.* Masta, et al. (2002, Mol. Phylog. Evol. 24: 302–314) suggested evidence that *A. a. charlesmithi* might be a distinct species.

A. a. americanus (Holbrook, 1836)—Eastern American Toad

A. a. charlesmithi (Bragg, 1954)—Dwarf American Toad

A. baxteri (Porter, 1968)—Wyoming Toad

Recognized as a species, rather than a subspecies of *A. hemiophrys* by Packard (1971, J. Herpetol. 5: 191–193), and more recently by Smith et al. (1998, Contemp. Herpetol. 1). Nevertheless, Cook (1983, Publ. Nat. Sci. Natl. Mus. Canada 3) considered *A. baxteri* to be undiagnosable against the background of geographic variation in *A. hemiophrys* (as *Bufo americanus hemiophrys*), and this has not been addressed by subsequent authors.

A. boreas (Baird and Girard, 1852)—Western Toad

See Schuierer (1963, Herpetologica 18: 262–267). Two nominal subspecies are generally recognized, although Goebel (2005, *In* Lannoo, M. [ed.], Amphibian Declines, Univ. California Press, Pp. 210–211.) discussed geographic variation and phylogenetics of the *A. boreas* (as the *Bufo boreas*) group (i.e., *A. boreas, A. canorus, A. exsul,* and *A. nelsoni*), and noted other populations of nominal *A. boreas* that might be distinct species. *A. b. halophilus* and *A. b. boreas* have been suggested (e.g., Bogert, 1960, Animal Sounds Commun.: 179) to not be conspecific.

A. b. boreas (Baird and Girard, 1852)—Boreal Toad

A. b. halophilus (Baird and Girard, 1853)—Southern California Toad

A. californicus (Camp, 1915)—Arroyo Toad

See account (as *Bufo microscaphus californicus*) by Price and Sullivan (1988, Cat. Am. Amph. Rept. 415). See also Gergus (1998, Herpetologica 54: 317–325) for justification for this to be considered a distinct species.

A. canorus (Camp, 1916)—Yosemite Toad

Reviewed by Karlstrom (1973, Cat. Am. Amph. Rept. 132) as *Bufo canorus.* See comment under *A. boreas*.

A. cognatus (Say, 1823)—Great Plains Toad

Reviewed by Krupa (1990, Cat. Am. Amph. Rept. 457) as *Bufo cognatus.*

A. debilis (Girard, 1854)—Green Toad

See accounts in Sanders and Smith (1951, Field and Laboratory 19: 141–160) and by Bogert (1962, Am. Mus. Novit. 2100) as *Bufo debilis.* The nominal subspecies are unlikely to be more than arbitrarily defined sections of clines although this remains to be investigated adequately.

A. d. debilis (Girard, 1854)—Eastern Green Toad

A. d. insidior (Girard, 1854)—Western Green Toad

A. exsul (Myers, 1942)—Black Toad

See comment under *A. boreas.*

A. fowleri (Hinckley, 1882)—Fowler's Toad

Green (1996, Israel J. Zool. 42: 95–109) provided a discussion of the problem of interspecific hybridization in the *A. americanus* complex and briefly addressed the publication by Sanders (1987, Evol. Hybrid. Spec. N. Am. Indig. Bufonids), in which Sanders recognized a number of dubiously delimited taxa within the *A. americanus* complex (*Bufo hobarti*, which would be in the synonymy of *A. fowleri*; *Bufo copei*, which would be in *A. americanus*, and *Bufo planiorum* and *Bufo antecessor*, both of which would be in the synonymy of *A. woodhousii woodhousii*). None have been formally synonymized, but also none have attracted recognition by those working on the complex. See comment under *A. woodhousii*. Masta et al. (2002, Mol. Phylog. Evol. 24: 302–314) provided evidence for the distinctiveness of this species from *A. woodhousii*.

A. hemiophrys (Cope, 1886)—Canadian Toad

See comment under *A. baxteri*. Cook (1983, Publ. Nat. Sci. Natl. Mus. Canada 3) Regarded *A. hemiophrys* and *A. americanus* as forming very distinctive subspecies of one species, although subsequent authors (e.g., Green and Pustowka, 1997, Herpetologica 53: 218–228) have regarded the contact zone between these taxa as a hybrid zone between two species.

A. houstonensis (Sanders, 1953)—Houston Toad

Reviewed by Brown (1973, Cat. Am. Amph. Rept. 133) as *Bufo houstonensis.*

A. microscaphus (Cope, 1866)—Arizona Toad

See account by Price and Sullivan (1988, Cat. Am. Amph. Rept. 415) as *Bufo microscaphus*. See comment under *A. californicus*. Formerly included *A. californicus* and *A. mexicanus* (extralimital) as subspecies, which were recognized as species by Gergus (1998, Herpetologica 54: 317–325).

A. nelsoni (Stejneger, 1893)—Amargosa Toad

Stebbins (1985, A Field Guide to Western Reptiles and Amphibians, Houghton Mifflin, Boston. Pp. 70) and Altig et al. (1998, Contemp. Herpetol. Inform. Serv. 2) regarded *A. nelsoni* as a species, rather than a subspecies of *A. boreas*. See comment under *A. boreas*.

A. punctatus (Baird and Girard, 1852)—Red-spotted Toad

Reviewed by Korky (1999, Cat. Am. Amph. Rept. 1104) as *Bufo punctatus*.

A. quercicus (Holbrook, 1840)—Oak Toad

Reviewed by Ashton and Franz (1979, Cat. Am. Amph. Rept. 222) as *Bufo quercicus.*

A. retiformis (Sanders and Smith, 1951)—Sonoran Green Toad

Reviewed by Hulse (1978, Cat. Am. Amph. Rept. 207) as *Bufo retiformis.*

A. speciosus (Girard, 1854)—Texas Toad

Older literature confused this species with *A. cognatus, A. mexicanus* (extralimital), and *A. compactilis* (extralimital). Rogers (1972, Copeia 1972: 381–383) demonstrated its morphological distinctiveness.

A. terrestris (Bonnaterre, 1789)—Southern Toad

No geographic variation reported as such in the literature, although extensive geographic variation is evident on examination of specimens. Hybrization with *A. americanus* along the Fall Line may have strong effects on geographic variation, although data on this have not been published. Reviewed by Blem (1979, Cat. Am. Amph. Rept. 223) as *Bufo terrestris.*

A. woodhousii (Girard, 1854)—Woodhouse's Toad

See comments under *A. fowleri*. The unjustified emendation of the species name to *woodhousei* has been used widely. The status of taxa recognized by Sanders (1987, Evol. Hybrid. Spec. N. Am. Indig. Bufonids) has not been evaluated closely by any author, although they have neither enjoyed any recognition. Evidence provided by Masta et al. (2002, Mol. Phylog. Evol. 24: 302–314) suggests that *A. w. australis* may be a distinct species and that former *A. w. velatus* is a hybrid population of *A. woodhousii* X *A. fowleri,* and therefore should not be recognized.

A. w. australis (Shannon and Lowe, 1955)—Southwestern Woodhouse's Toad

A. w. woodhousii Girard, 1854—Rocky Mountain Toad

Ascaphus Stejneger, 1899—TAILED FROGS

A. montanus Mittleman and Myers, 1949—Rocky Mountain Tailed Frog

See Nelson et al. (2001, Evolution 55: 147–160) for evidence supporting the recognition of this species separate from *A. truei*.

A. truei Stejneger, 1899—Coastal Tailed Frog

See Metter (1968, Cat. Am. Amph. Rept. 69) for review (as including *A. montanus*).

Bufo: See *Anaxyrus, Ollotis,* and *Rhinella*.

Craugastor Cope, 1862—NORTHERN RAINFROGS

This taxon of predominantly Mexican and Central American frogs was recently removed from a paraphyletic "*Eleutherodactylus*" by Crawford and Smith (2005, Mol. Phylog. Evol. 35: 551).

C. augusti (Dugès, 1879)—Barking Frog

Reviewed by Zweifel (1967, Cat. Am. Amph. Rept. 41) as *Eleutherodactylus augusti.* Goldberg et al. (2004, Herpetologica 60: 312–320) suggested that *C. a. cactorum* and *C. a. latrans* are different species but did not execute a formal taxonomic change.

C. a. cactorum Taylor, 1939 "1938"—Western Barking Frog

C. a. latrans (Cope, 1880)—Balcones Barking Frog

Eleutherodactylus Duméril and Bibron, 1841—RAIN FROGS

See *Craugastor*. Frost et al. (2006, Bull. Am. Mus. Nat. Hist., 297) recognized *Syrrhophus* for a group containing *E. cystignathoides, E. guttilatus,* and *E. marnocki* and *Euhyas* for a group containing *E. planirostris.* Heinicke et al. (2007, Proc. Natl. Acad. Sci. USA 104: 10092–97) redelimited *Eleutherodactylus* as monophyletic by exclusion of a number of South American taxa and replaced *Euhyas* and *Syrrhophus* into *Eleutherodactylus.*

E. cystignathoides (Cope, 1877)—Rio Grande Chirping Frog

Two nominal subspecies named, only one of which enters the USA. The status of these taxa, whether they represent arbitrarily delimited parts of a single population or different lineages is unknown.

E. c. campi Stejneger, 1915—Rio Grande Chirping Frog

E. guttilatus (Cope, 1879)—Spotted Chirping Frog

Geographic variation is poorly known. Some authors (e.g. Morafka, 1977, Biogeographica 9: 69) considered *E. guttilatus* a synonym of *E. campi*.

E. marnockii (Cope, 1878)—Cliff Chirping Frog

See account by Lynch (1970, Univ. Kansas Publ. Mus. Nat. Hist. 20: 1–45). Geographic variation is not well studied.

Gastrophryne Fitzinger, 1843—NORTH AMERICAN NARROW-MOUTHED TOADS

Reviewed by Nelson (1972, J. Herpetol. 6: 111–137) and Nelson (1973, Cat. Am. Amph. Rept. 134).

G. carolinensis (Holbrook, 1836)—Eastern Narrow-mouthed Toad

Reviewed by Nelson (1972, Cat. Am. Amph. Rept. 120); details of distribution in Nelson (1972, J. Herpetol. 6: 125–128).

G. olivacea (Hallowell, 1857 "1856")—Western Narrow-mouthed Toad

Reviewed by Nelson (1972, Cat. Am. Amph. Rept. 122); details of distribution given by Nelson (1972, J. Herpetol. 6: 129–130). Cryptic species possible given the extensive distribution of this species.

Hyla Laurenti, 1768—HOLARCTIC TREEFROGS

Faivovich et al. (2005, Bull. Am. Mus. Nat. Hist., 294) recently redelimited this genus to include only North American and Eurasian species.

H. andersonii Baird, 1854—Pine Barrens Treefrog

Reviewed by Gosner and Black (1967, Cat. Am. Amph. Rept. 54). The widely disjunct populations have been examined with allozymes and only subtle (no fixed differences) geographic variation was documented (Karlin et al., 1982, Copeia 1982: 175–178).

H. arenicolor Cope, 1866—Canyon Treefrog

Barber (1999, Mol. Ecol. 8: 563–576) examined geographic variation in this taxon and suggested that at least two other species should be recognized within the Mexican component of its range.

H. avivoca Viosca, 1928—Bird-voiced Treefrog

Smith (1953, Herpetologica 9: 172) discussed geographic variation and recognized two nominal subspecies. Whether these represent arbitrary or historical units is unknown. For discussion see Smith (1966, Cat. Am. Rept. Amph. 28).

H. a. avivoca Viosca, 1928—Western Bird-voiced Treefrog

H. a. ogechiensis Neill, 1948—Eastern Bird-voiced Treefrog

H. chrysoscelis Cope, 1880—Cope's Gray Treefrog

See comment under *H. versicolor*. Reviewed by Hoffman (1988, Cat. Am. Amph. Rept. 436).

H. cinerea (Schneider, 1799)—Green Treefrog

Subspecies are occasionally recognized (*H. c. cinerea* and *H. c. evittata*) without discussion, and on the basis of a single populationally variable character. See Duellman and Schwartz (1958, Bull. Florida State Mus., Biol. Sci. 3: 241) for discussion and rejection of subspecies.

H. femoralis Bosc, 1800—Pine Woods Treefrog

Reviewed by Hoffman (1988, Cat. Am. Amph. Rept. 436).

H. gratiosa LeConte, 1857 "1856"—Barking Treefrog

Reviewed by Caldwell (1982, Cat. Am. Amph. Rept. 298).

H. squirella Bosc, 1800—Squirrel Treefrog

Reviewed by Martof (1975, Cat. Am. Amph. Rept. 168).

H. versicolor LeConte, 1825—Gray Treefrog

Holloway et al. (2006, Am. Nat. 167: E88–E101) discussed the role of *H. chrysoscelis* in the formation of the tetraploid *H. versicolor,* discussed previous literature, and provided a revised range.

H. wrightorum Taylor, 1939 "1938"—Arizona Treefrog

Gergus et al. (2004, Copeia 2004: 758–769) reported on the distinctiveness of this species from *H. eximia* (extralimital).

Hypopachus Keferstein, 1867—SHEEP FROGS

H. variolosus (Cope, 1866)—Sheep Frog

See Nelson (1973, Herpetologica 29: 6–17; 1974, Herpetologica 30: 250–274) for discussion of geographic variation and rejection of subspecies. Although only two species are currently recognized within this genus, *very* strong geographic variation in coloration, call, and toe structure suggests that several species are masquerading under this particular name. Given that the type locality of *H. variolusus* is in Costa Rica, one can look forward to the scientific name applied to the U.S. form to change.

Leptodactylus Fitzinger, 1826—NEOTROPICAL GRASS FROGS

L. fragilis (Brocchi, 1877)—Mexican White-lipped Frog

Reviewed by Heyer et al. (2006, Cat. Am. Amph. Rept. 830).

Lithobates Fitzinger, 1843—AMERICAN WATER FROGS

This taxon of North, Central, and South American frogs was recently removed from the large and predominantly Eurasian genus *Rana* by Frost et al. (2006, Bull. Am. Mus. Nat. Hist., 297). Hillis and Wilcox (2005, Mol. Phylog. Evol. 34: 299–314) provided a phylogenetic taxonomy that retained the species now under *Lithobates* within *Rana*. Dubois (2006, Mol. Phylog. Evol. 42: 317–330) criticized the nomenclatural proposals of Hillis and Wilcox and regarded their names as *nomina nuda*. This criticism was responded to by Hillis (2006, Mol. Phylog. Evol. 42: 331–338), who noted that most of the new names of Hillis and Wilcox do have nomenclatural status under the International Code of Zoological Nomenclature (1999). Che et al. (2007, Mol. Phylog. Evol. 42: 1–13) recognized *Lithobates* as a genus.

L. areolatus (Baird and Girard, 1852)—Crawfish Frog

See comment under *L. capito*. Reviewed by Altig and Lohoefener (1983, Cat. Am. Amph. Rept. 324) as *Rana areolata.* Geographic variation deserves further study to determine status of the nominal subspecies.

L. a. areolatus (Baird and Girard, 1852)—Southern Crawfish Frog

L. a. circulosus (Rice and Davis, 1878)—Northern Crawfish Frog

L. berlandieri (Baird, 1854)—Rio Grande Leopard Frog

Geographic variation is not well documented and relationships with extralimital Mexican forms (e.g., *L. forreri, L. brownorum*) are not well understood.

L. blairi (Mecham, Littlejohn, Oldham, Brown, and Brown, 1973)—Plains Leopard Frog

Reviewed by Brown (1992, Cat. Am. Amph. Rept. 536) as *Rana blairi.* Isolated western populations have not been well explored.

L. capito (Le Conte, 1855)—Gopher Frog

Lithobates capito is considered by some to be part of *L. areolatus* (but see Case, 1978, Syst. Zool. 27: 299–311, who considered them distinct). Reviewed by Altig and Lohoefener (1983, Cat. Am. Amph. Rept. 324) as *Rana areolata capito.* Recognized as distinct from *L. areolatus* by Young and Crother (2001, Copeia, 2001: 382–388), who also rejected subspecies.

L. catesbeianus (Shaw, 1802)—American Bullfrog

Introduced worldwide, although geographic variation within the USA is poorly documented.

L. chiricahuensis (Platz and Mecham, 1979)—Chiricahua Leopard Frog

Status of Mexican populations needs study. Platz (1993, J. Herpetol. 27: 160) noted that various lines of evidence suggest that *L. chiricahuensis* is composed of more than one species, with the central Arizona population notably distinctive (although never compared with *L. fisheri*). *Rana subaquavocalis* Platz, 1993, is a synonym according to Goldberg et al. (2004, J. Herpetol. 38: 313).

L. clamitans (Latreille, 1801)—Green Frog

The status of the nominal subspecies requires investigation to determine whether they are arbitrary or evolutionary units. Reviewed by Stewart (1968, Cat. Am. Amph. Rept. 337) as *Rana clamitans.*

L. c. clamitans (Latreille, 1801)—Bronze Frog
L. c. melanota (Rafinesque, 1820)—Northern Green Frog

L. fisheri (Stejneger, 1893)—Vegas Valley Leopard Frog (extinct)
See comment under *L. chiricahuensis.*

L. grylio (Stejneger, 1901)—Pig Frog
Reviewed by Altig and Lohoefener (1982, Cat. Am. Amph. Rept. 286), as *Rana grylio.*

L. heckscheri (Wright, 1924)—River Frog
Reviewed by Sanders (1984, Cat. Am. Amph. Rept. 348) as *Rana heckscheri.*

L. okaloosae (Moler, 1985)—Florida Bog Frog
Reviewed by Moler (1993, Cat. Am. Amph. Rept. 561) as *Rana okaloosae.* Austin et al. (2003, Biol. J. Linn. Soc. 80: 601–624) discussed the genetic relationship of *L. okaloosae* and *L. clamitans.*

L. onca (Cope, 1875)—Relict Leopard Frog
The status of this taxon is controversial, with some workers regarding the Vegas Valley Frog, *L. fisheri* (extinct), as conspecific with the Relict Frog, *L. onca*. Others regard *L. fisheri* as most closely related to central Arizona populations of *L. chiricahuensis* and *L. onca* to not be a member of the *L. chiricahuensis*-group. The systematic discussion is not over although the relevant populations may both be extinct. Reviewed by Jennings (1988, Cat. Am. Amph. Rept. 417) as *Rana onca.*

L. palustris (LeConte, 1825)—Pickerel Frog
Geographic variation studied by Pace (1974, Misc. Publ. Mus. Zool. Univ. Michigan 148). Reviewed by Schaaf and Smith (1971, Cat. Am. Amph. Rept. 117) as *Rana palustris.*

L. pipiens (Schreber, 1782)—Northern Leopard Frog
Synonymy and discussion in Pace (1974, Misc. Publ. Mus. Zool. Univ. Michigan 148) as *Rana pipiens*.

L. septentrionalis (Baird, 1854)—Mink Frog
Reviewed by Hedeen (1977, Cat. Am. Amph. Rept. 202) as *Rana septentrionalis.*

L. sevosus (Goin and Netting, 1940)—Dusky Gopher Frog
Reviewed by Altig and Lohoefener (1983, Cat. Am. Amph. Rept. 324) as *Rana areolata sevosa*. Recognized as distinct from *L. capito* and *L. areolatus* by Young and Crother (2001, Copeia, 2001: 382–388).

L. sphenocephalus (Cope, 1886)—Southern Leopard Frog
Pace (1974, Misc. Publ. Mus. Zool. Univ. Michigan 148) revived the older name *Rana utricularius* Harlan, 1825, for this species, which Pace emended to *R. utricularia*. Subsequently, the International Commission of Zoological Nomenclature moved (Opinion, 1685, 1992, Bull. Zool. Nomencl. 49: 171–173) to suppress *R. utricularia* for purposes of priority in favor of *R. sphenocephala*, leaving the unusual situation of the subspecies name *sphenocephalus* having priority over the older species name, *utricularius*. The status of the nominal subspecies requires detailed examination (see Brown et al., 1977, Bull. Zool. Nomencl. 33: 199–200; Zug, 1982, Bull. Zool. Nomencl. 39: 80–81; and Uzzell, 1982, Bull. Zool. Nomencl. 39: 83).

L. s. sphenocephalus (Cope, 1886)—Florida Leopard Frog
L. s. utricularius (Harlan, 1825)—Southern Leopard Frog

L. sylvaticus (LeConte, 1825)—Wood Frog

Geographic variation requires detailed work, particularly with regard to the status of various isolated populations, of which one in Colorado, *Rana maslini* Porter, 1969, has been arguably considered a distinct species although this was rejected by Bagdonas and Pettus (1976, J. Herpetol. 10: 105–112). Reviewed by Martof (1970, Cat. Am. Amph. Rept. 86) as *Rana sylvatica.*

L. tarahumarae (Boulenger, 1917)—Tarahumara Frog

Extinct in the USA although persisting in Mexico. Attempts are being made to reintroduce the species into former Arizona localities. Reviewed by Zweifel (1968, Cat. Am. Amph. Rept. 66) as *Rana tarahumarae.*

L. virgatipes (Cope, 1891)—Carpenter Frog

Reviewed by Gosner and Black (1968, Cat. Am. Amph. Rept. 67) as *Rana virgatipes.* Data provided by Pytel (1986, Herpetologica 42: 273–282) suggest that careful evaluation for cryptic species is warranted.

L. yavapaiensis (Platz and Frost, 1984)—Lowland Leopard Frog

Ollotis Cope, 1875—CENTRAL AMERICAN TOADS

This genus of predominantly Central American toads was recently removed from a paraphyletic "*Bufo*" by Frost et al. (2006, Bull. Am. Mus. Nat. Hist., 297) and Frost, Grant, and Mendelson (2006, Copeia 2006: 558).

O. alvaria (Girard, 1859)—Sonoran Desert Toad

Reviewed by Fouquette (1970, Cat. Am. Amph. Rept. 93) as *Bufo alvarius.*

O. nebulifer (Girard, 1854)—Gulf Coast Toad

Mulcahy and Mendelson (2000, Mol. Phylog. Evol. 17: 173) recognized this species, as *Bufo nebulifer,* as distinct from *O. valliceps,* an extralimital Mexican species.

Pseudacris Fitzinger, 1843—CHORUS FROGS

Lemmon et al. (2007, Mol. Phylog. Evol. 44: 1068–1082) revised the *P. nigrita* group (*P. brimleyi, P. brachyphona, P. clarkii, P. feriarum, P. kalmi, P. maculata,* and *P. triseriata*) and noted an unnamed species, related to *P. nigrita,* in eastern Texas, eastern Oklahoma, Arkansas, extreme southeastern Missouri, extreme western Tennessee, Louisiana, and western and southern Mississippi.

P. brachyphona (Cope, 1889)—Mountain Chorus Frog

Reviewed by Hoffmann (1980, Cat. Am. Amph. Rept. 234).

P. brimleyi Brandt and Walker, 1933—Brimley's Chorus Frog

Reviewed by Hoffmann (1983, Cat. Am. Amph. Rept. 311).

P. cadaverina (Cope, 1866)—California Treefrog

Reviewed by Gaudin (1979, Cat. Am. Amph. Rept. 225) as *Hyla cadaverina.*

P. clarkii (Baird, 1854)—Spotted Chorus Frog

Reviewed by Pierce and Whitehurst (1990, Cat. Am. Amph. Rept. 458).

P. crucifer (Wied-Neuwied, 1838)—Spring Peeper

Moriarty and Cannatella (2004, Mol. Phylog. Evol. 30: 409–420) rejected subspecies.

P. feriarum (Baird, 1854)—Upland Chorus Frog

See comment under *P. kalmi.*

P. hypochondriaca (Hallowell, 1854)—Baja California Treefrog
Recuero et al. (2006, Mol. Phylog. Evol. 39: 293–304) recognized this species as distinct from *P. regilla*.

P. h. curta (Cope, 1867 "1866")—Northern Baja California Treefrog

P. illinoensis Smith, 1951—Illinois Chorus Frog
Moriarty and Cannatella (2004, Mol. Phylog. Evol. 30: 409–420) discussed the arguable distinctiveness of this taxon with respect to *Pseudacris streckeri*.

P. kalmi Harper, 1955—New Jersey Chorus Frog
Platz (1989, Copeia 1989: 704–712) retained *P. feriarum* and *P. kalmi* as subspecies of one species but suggested that they might also be distinct species on the basis of data presented by Hedges (1986, Syst. Zool. 35: 1–21). Lemmon et al. (2007, Mol. Phylog. Evol. 44: 1068–1082) confirmed that *P. kalmi* and *P. feriarum* are distinct species.

P. maculata (Agassiz, 1850)—Boreal Chorus Frog
Considered a species distinct from *P. triseriata* by Platz (1989, Copeia 1989: 704–712). Lemmon et al. (2007, Mol. Phylog. Evol. 44: 1068–1082) revised the geographic limits of this species.

P. nigrita (Le Conte, 1825)—Southern Chorus Frog
Reviewed by Gates (1988, Cat. Am. Amph. Rept. 416). Subspecies rejected by Moriarty and Cannatella (2004, Mol. Phylog. Evol. 30: 409–420).

P. ocularis (Bosc and Daudin, 1801)—Little Grass Frog
Reviewed by Franz and Chantell (1978, Cat. Am. Amph. Rept. 209) as *Limnaoedus ocularis*.

P. ornata (Holbrook, 1836)—Ornate Chorus Frog
For discussion see Harper (1937, Am. Midl. Nat. 22: 134–149).

P. regilla (Baird and Girard, 1852)—Northern Pacific Treefrog
Recuero et al. (2006, Mol. Phylog. Evol. 39: 293–304) redelimited this species and revised its range.

P. sierra (Jameson, Mackey, and Richmond, 1966)—Sierran Treefrog
Recognized as distinct from *P. regilla* by Recuero et al. (2006, Mol. Phylog. Evol. 39: 293–304) and Recuero et al. (2006, Mol. Phylog. Evol. 41: 511).

P. streckeri Wright and Wright, 1933—Strecker's Chorus Frog
Reviewed by Smith (1966, Cat. Am. Amph. Rept. 27). See comment under *P. illinoensis*.

P. triseriata (Wied-Neuwied, 1838)—Western Chorus Frog
See comment under *P. maculata*. Lemmon et al. (2007, Mol. Phylog. Evol. 44: 1068–1082) revised the geographic limits of this species.

Rana Linnaeus, 1758—BROWN FROGS
This large taxon of predominantly Eurasian frogs was recently redelimited by Frost et al. (2006, Bull. Am. Mus. Nat. Hist., 297) to exclude a number of taxa (e.g., *Lithobates, Glandirana*). See *Lithobates* for most North American species formerly associated with *Rana*.

R. aurora Baird and Girard, 1852—Northern Red-legged Frog
Reviewed (in the sense of including *R. draytonii*) by Altig and Dumas (1972, Cat. Am. Amph. Rept. 160). Evidence of the distinctiveness of this species from *R. draytonii* was provided by Hayes and Miyamoto (1984, Copeia 1984: 1018–1022), Shaffer et al. (2004, Mol. Phylog. Evol. 13: 2667–2677), and Conlon et al. (2006, Peptides 27: 1305–1312).

R. boylii Baird, 1854—Foothill Yellow-legged Frog
See Zweifel (1968, Cat. Am. Amph. Rept. 71) for review. Molecular study of geographic variation of this rapidly disappearing species should prove illuminating.

R. cascadae Slater, 1939—Cascades Frog
Reviewed by Altig and Dumas (1971, Cat. Am. Amph. Rept. 105). The disjunct populations should be investigated with respect to call and molecular parameters.

R. draytonii Baird and Girard, 1852—California Red-legged Frog
See comment under *R. aurora.*

R. luteiventris Thompson, 1913—Columbia Spotted Frog
Green et al. (1996, Evolution 50: 374–390) and Cuellar (1996, Biogeographica 72: 145–150) suggested that *R. pretiosa* was composed of two sibling species. Subsequently Green et al. (1997, Copeia 1997: 1–8) recognized *R. luteiventris* as a species distinct from the eastern and northern form.

R. muscosa Camp, 1917—Southern Mountain Yellow-legged Frog
See Zweifel (1968, Cat. Am. Amph. Rept. 65) for review. Vredenburg et al. (2007, J. Zool. 271: 361–374) discussed the systematics of this species and its disappearance from large parts of its former range.

R. pretiosa Baird and Girard, 1853—Oregon Spotted Frog
See comment under *R. luteiventris*.

R. sierrae Camp, 1917—Sierra Nevada Yellow-legged Frog
Vredenburg et al. (2007, J. Zool. 271: 361–374) recognized this species as distinct from *R. muscosa*.

Rhinella Fitzinger, 1826—SOUTH AMERICAN TOADS
This genus of predominantly South American toads was recently redelimited by Chaparro et al. (2007, Herpetologica 63: 203–212) to reflect the phylogenetic results of Pramuk (2006, Zool. J. Linn. Soc. 146: 407–452).

R. marina (Linnaeus, 1758)—Cane Toad
Reviewed by Easteal (1986, Cat. Am. Amph. Rept. 395) as *Bufo marinus.*

Rhinophrynus Duméril and Bibron, 1841—BURROWING TOADS

R. dorsalis Duméril and Bibron, 1841—Burrowing Toad
Geographic variation has not been studied in any detail and cryptic lineages are a possibility. Reviewed by Fouquette (1969, Cat. Am. Amph. Rept. 78).

Scaphiopus Holbrook, 1836—NORTH AMERICAN SPADEFOOTS
See comment under *Spea*.

S. couchii Baird, 1854—Couch's Spadefoot
Reviewed by Wasserman (1970, Cat. Am. Amph. Rept. 85). Geographic variation is poorly documented.

S. holbrookii (Harlan, 1835)—Eastern Spadefoot
Reviewed by Wasserman (1968, Cat. Am. Amph. Rept. 70) as *Scaphiopus h. holbrookii*.

S. hurterii Strecker, 1910—Hurter's Spadefoot
Reviewed by Wasserman (1968, Cat. Am. Amph. Rept. 70) as *Scaphiopus holbrookii hurterii*.

Smilisca Cope, 1865—MEXICAN TREEFROGS

The content of this taxon was recently redelimited by Faivovich et al. (2005, Bull. Am. Mus. Nat. Hist. 294) to include former *Pternohyla*.

S. baudinii (Duméril and Bibron, 1841)—Mexican Treefrog

Reviewed by Duellman (1968, Cat. Am. Amph. Rept. 59). Molecular analysis would likely find interesting marks of history distinguishing the western and eastern Mexican populations although this would be unlikely to affect the appropriate name for the USA population.

S. fodiens (Boulenger, 1882)—Lowland Burrowing Treefrog

Reviewed by Trueb (1969, Cat. Am. Amph. Rept. 77) as *Pternohyla fodiens*.

Spea Cope, 1866—WESTERN SPADEFOOTS

Tanner (1989, Great Basin Nat. 49: 38–70) and Wiens and Titus (1991, Herpetologica 47: 21–28) removed *Spea* from the synonymy of *Scaphiopus*.

S. bombifrons (Cope, 1863)—Plains Spadefoot

Known to hybridize with *S. multiplicata* in parts of their ranges (Brown, 1976, Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 286). Geographic variation is poorly documented.

S. hammondii (Baird, 1859 "1857")—Western Spadefoot

This name formerly covered populations now referred to *S. multiplicata* and *S. intermontana* until separated by Brown (1976, Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 286). See Tanner (1989, Great Basin Nat. 49: 503–510) for discussion, although he continued to retain these species as subspecies of *S. hammondi*, a position effectively rejected by Wiens and Titus (1991, Herpetologica 47: 21–38).

S. intermontana (Cope, 1883)—Great Basin Spadefoot

Geographic variation very poorly documented, and, according to evidence provided by Titus and Wiens (1991, Herpetologica 47: 21–29), this nominal species may be a paraphyletic composite of at least two species. Reviewed by Hall (1999, Cat. Am. Amph. Rept. 650).

S. multiplicata (Cope, 1863)—Mexican Spadefoot

Considered a species distinct from *S. hammondii* by Brown (1976, Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 286) and by Titus and Wiens (1991, Herpetologica 47: 21–28). Regarded, on the basis of overall similarity to be conspecific with *S. hammondii* by Van Devender, Mead, and Rea (1991, Southwest. Nat. 36: 302–314) and by Tanner (1989, Great Bas. Nat. 49: 503–510). Tanner recognized *S. h. stagnalis* Cope as the northern (Arizona to central Chihuahua) subspecies of his *Spea hammondii*, which is here, on the basis of phylogenetic evidence presented by Titus and Wiens, considered to be part of *S. multiplicata*. Geographic variation has not been carefully studied and cryptic species are possible.

S. m. stagnalis (Cope, 1875)—Chihuahuan Desert Spadefoot

Caudata — Salamanders

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Ambystoma Tschudi, 1838—MOLE SALAMANDERS

A. annulatum Cope, 1886—Ringed Salamander

A. barbouri Kraus and Petranka, 1989—Streamside Salamander

A. bishopi Goin, 1950—Reticulated Flatwoods Salamander

Pauley, Piskurek and Shaffer (2006, Mol. Ecol. 16: 415–429) recognized western populations of *A. cingulatum* as a distinct species. They inadvertently reversed the proposed vernacular name with that for *A. cingulatum*.

A. californiense Gray, 1853—California Tiger Salamander

A. cingulatum Cope, 1868—Frosted Flatwoods Salamander

Pauley, Piskurek and Shaffer (2006, Mol. Ecol. 16: 415–429) recognized western populations of *A. cingulatum* as a distinct species (*A. bishopi*) and proposed a new vernacular name for this species. They inadvertently reversed the proposed vernacular name with that for *A. bishopi*.

A. gracile (Baird, 1859)—Northwestern Salamander

Titus (1990, J. Herpetol. 24: 107–108), on the basis of allozymic evidence, recommended against recognizing subspecies. Subspecies are not recognized by Richter (2005, *in* Jones, L.L.C., Leonard, W. P. and Olson, D.H. [eds.], Amphibians of the Pacific Northwest, Seattle Audubon Society, Pp. 30–33).

A. jeffersonianum (Green, 1827)—Jefferson Salamander

Unisexual allotriploids combining genomes of *A. jeffersonianum* and *A. laterale* have been recognized as distinct species: *A. platineum* for the form combining two haploid chromosome sets from *A. jeffersonianum* and one from *A. laterale*, and *A. tremblayi* for the form combining two sets from *A. laterale* and one from *A. jeffersonianum* (Uzzell, 1964, Copeia, 1964: 257–300). Other hybrid chromosome combinations involve 2N, 3N, 4N, and 5N ploidy levels and chromosomes from *A. texanum* and *A. tigrinum*. Taxonomic recognition of these forms raises complex issues dealing with discordance between cytoplasmic and nuclear genes, reticulate evolution, and genome-swapping (Bogart, 2003, *in* Sever, D.M. [ed.], Reproductive Biology and Phylogeny of Urodela, Science Publishers, Inc., Pp. 109–134).

A. laterale Hallowell, 1856—Blue-spotted Salamander

See comment under *A. jeffersonianum*.

A. mabeei Bishop, 1928—Mabee's Salamander

A. macrodactylum Baird, 1849—Long-toed Salamander

A. m. columbianum Ferguson, 1961—Eastern Long-toed Salamander

A. m. croceum Russell and Anderson, 1956—Santa Cruz Long-toed Salamander

A. m. krausei Peters, 1882—Northern Long-toed Salamander

A. m. macrodactylum Baird, 1849—Western Long-toed Salamander
A. m. sigillatum Ferguson, 1961—Southern Long-toed Salamander
A. maculatum (Shaw, 1802)—Spotted Salamander
A. mavortium Baird, 1850—Barred Tiger Salamander

Shaffer and McKnight (1996, Evolution 50: 417–433) provided molecular phylogenetic data indicating that the eastern and western tiger salamanders should be regarded as distinct species and treated the western forms as subspecies of *Ambystoma mavortium*. Hallock (2005, *in* Jones, L.L.C., Leonard, W. P. and Olson, D.H. [eds.], Amphibians of the Pacific Northwest, Seattle Audubon Society, Pp. 30–33) placed northwestern populations in *A. tigrinum*. Lannoo (2005, *in* Lannoo M., [ed.], Amphibian Declines, Status of United States Species, Univ. California Press, Pp. 636–639) includes *A. mavortium* in *A. tigrinum*.

A. m. diaboli Dunn, 1940—Gray Tiger Salamander
A. m. melanostictum (Baird, 1860)—Blotched Tiger Salamander
A. m. mavortium Baird, 1850—Barred Tiger Salamander
A. m. nebulosum Hallowell, 1852—Arizona Tiger Salamander
A. m. stebbinsi Lowe, 1954—Sonoran Tiger Salamander
A. opacum (Gravenhorst, 1807)—Marbled Salamander
A. talpoideum (Holbrook, 1838)—Mole Salamander
A. texanum (Matthes, 1855)—Small-mouthed Salamander
A. tigrinum (Green, 1825)—Eastern Tiger Salamander

See comment under *A. mavortium*.

Amphiuma Garden, 1821—AMPHIUMAS
A. means Garden, 1821—Two-toed Amphiuma
A. pholeter Neill, 1964—One-toed Amphiuma
A. tridactylum Cuvier, 1827—Three-toed Amphiuma

Aneides Baird, 1849—CLIMBING SALAMANDERS
A. aeneus (Cope and Packard, 1881)—Green Salamander

Chromosomally differentiated groups have been described in this species by Sessions and Kezer (1987, Chromosoma 95: 17–30) and Morescalchi (1975, Evolutionary Biology 8: 339–387).

A. ferreus Cope, 1869—Clouded Salamander
A. flavipunctatus (Strauch, 1870)—Black Salamander

Lynch (1981, Smithsonian Contrib. Zool. 324: 1–53) treated *A. flavipunctatus* as polytypic. Highton (2000, *in* R. C. Bruce, B. G. Jaeger and L. D, Houck [eds.], The Biology of Plethodontid Salamanders. Kluwer Academic/Plenum Publishers, New York, Pp. 215–224) suggested that the subspecies *A. f. niger* be recognized as a distinct species. The taxon is currently under study and until conclusions are available we follow Lynch's (1981) treatment.

A. f. flavipunctatus (Strauch, 1870)—Speckled Black Salamander
A. f. niger Myers and Maslin, 1948—Santa Cruz Black Salamander
A. hardii (Taylor, 1941)—Sacramento Mountains Salamander
A. lugubris (Hallowell, 1849)—Arboreal Salamander
A. vagrans Wake and Jackman, 1999—Wandering Salamander

Batrachoseps Bonaparte, 1841—SLENDER SALAMANDERS

B. attenuatus (Eschscholtz, 1833)—California Slender Salamander

B. campi Marlow, Brode and Wake, 1979—Inyo Mountains Salamander

B. diabolicus Jockusch, Wake and Yanev, 1998—Hell Hollow Slender Salamander

B. gabrieli Wake, 1996—San Gabriel Mountains Slender Salamander

Standard English name follows Wake (1996, Contrib. Sci. Natur. Hist. Mus. Los Angeles Co. 463: 1–12), who named the species for the San Gabriel Mountains, not for Saint Gabriel.

B. gavilanensis Jockusch, Yanev, and Wake, 2001—Gabilan Mountains Slender Salamander.

B. gregarius Jockusch, Wake and Yanev, 1998—Gregarious Slender Salamander

B. incognitus Jockusch, Yanev, and Wake, 2001—San Simeon Slender Salamander

B. kawia Jockusch, Wake and Yanev, 1998—Sequoia Slender Salamander

B. luciae Jockusch, Yanev, and Wake, 2001—Santa Lucia Mountains Slender Salamander

B. major Camp, 1915—Garden Slender Salamander

Wake and Jockusch (2000, *in* R. C. Bruce, B. G. Jaeger and L. D, Houck [eds.], The Biology of Plethodontid Salamanders. Kluwer Academic/Plenum Publishers, New York, Pp. 95–109) reduced *B. aridus* to subspecific status, and they were followed by Stebbins (2003, A Field Guide to Western Reptiles and Amphibians, 3rd Ed., Houghton Mifflin, Boston).

B. m. aridus Brame, 1970—Desert Slender Salamander

B. m. major Camp, 1915—Garden Slender Salamander

B. minor Jockusch, Yanev, and Wake, 2001—Lesser Slender Salamander.

B. nigriventris Cope, 1869—Black-bellied Slender Salamander

B. pacificus (Cope, 1865)—Channel Islands Slender Salamander

B. regius Jockusch, Wake and Yanev, 1998—Kings River Slender Salamander

B. relictus Brame and Murray, 1968—Relictual Slender Salamander

B. robustus Wake, Yanev and Hansen, 2002—Kern Plateau Salamander.

B. simatus Brame and Murray, 1968—Kern Canyon Slender Salamander

B. stebbinsi Brame and Murray, 1968—Tehachapi Slender Salamander

B. wrightorum (Bishop, 1937)—Oregon Slender Salamander

Applegarth (1994, Publ. USDI Bureau of Land Management, Eugene, Oregon) made the required emendation from *B. wrighti* to *B. wrightorum*, in absence of evidence that the two Wrights were members of the same family.

Cryptobranchus Leuckart, 1821—HELLBENDERS

C. alleganiensis (Daudin, 1803)—Hellbender

C. a. alleganiensis (Daudin, 1803)—Eastern Hellbender

C. a. bishopi Grobman, 1943—Ozark Hellbender

Desmognathus Baird, 1850—DUSKY SALAMANDERS

D. abditus Anderson and Tilley, 2003—Cumberland Dusky Salamander

D. aeneus Brown and Bishop, 1947—Seepage Salamander

D. apalachicolae Means and Karlin, 1989—Apalachicola Dusky Salamander

D. auriculatus (Holbrook, 1838)—Southern Dusky Salamander

D. brimleyorum Stejneger, 1895—Ouachita Dusky Salamander

D. carolinensis Dunn, 1916—Carolina Mountain Dusky Salamander

D. conanti Rossman, 1958—Spotted Dusky Salamander

D. folkertsi Camp, Tilley, Austin, and Marshall, 2002—Dwarf Black-bellied Salamander

D. fuscus (Rafinesque, 1820)—Northern Dusky Salamander

Treated as a monotypic species by Titus and Larson (1996, Syst. Biol. 45: 451–472). Bonett (Copeia 2002: 344–355) showed that *D. conanti* and *D. fuscus* are parapatric in Tennessee with only very limited hybridization. Molecular data suggest deep differentiation among populations that morphologically resemble *D. fuscus* (Bonett, 2002, Copeia 2002: 344–355; Kozak, et al., 2005, Evolution 59: 2000–2016), and additional species almost certainly await resolution.

D. imitator Dunn, 1927—Imitator Salamander

Phenotypically distinct populations of *D. imitator* occur on the periphery of the species' range in the Plott Balsam Mountains, but allozyme data do not support their recognition as a distinct species (Tilley, 2000, *in* R. C. Bruce, B. G. Jaeger and L. D, Houck [eds.], The Biology of Plethodontid Salamanders. Kluwer Academic/Plenum Publishers, New York, Pp. 121–147).

D. marmoratus (Moore, 1899)—Shovel-nosed Salamander

Molecular data indicate that this taxon and *D. quadramaculatus* may not be reciprocally monophyletic (Rissler and Taylor, 2003, Mol. Phylog. Evol. 27: 197–211; Kozak, et al., 2005, Evolution 59: 2000–2016; Jones et al. 2006, Mol. Phylog. Evol. 38: 280–287).

D. monticola Dunn, 1916—Seal Salamander

D. ochrophaeus Cope, 1859—Allegheny Mountain Dusky Salamander

D. ocoee Nicholls, 1949—Ocoee Salamander

This form consists of numerous parapatric units that occupy different mountain ranges in the southern Blue Ridge and Cumberland Plateau physiographic provinces and probably represent distinct species (Tilley and Mahoney, 1996, Herpetol. Monogr. 10: 1–42; Tilley, 1997, J. Heredity 88: 305–315; (Highton, 2000, *in* R. C. Bruce, B. G. Jaeger and L. D, Houck [eds.], The Biology of Plethodontid Salamanders. Kluwer Academic/Plenum Publishers, New York, Pp. 215–241).

D. orestes Tilley and Mahoney, 1996—Blue Ridge Dusky Salamander

This taxon consists of two genetically differentiated units that may represent cryptic species (Tilley and Mahoney, 1996, Herpetol. Monogr. 10: 1–42; Tilley, 1997, J. Heredity 88: 305–315; Highton, 2000, *in* R. C. Bruce, B. G. Jaeger and L. D, Houck [eds.], The Biology of Plethodontid Salamanders. Kluwer Academic/Plenum Publishers, New York, Pp. 215–241).

D. quadramaculatus (Holbrook, 1840)—Black-bellied Salamander

Molecular data indicate that this taxon and *D. marmoratus* may not be reciprocally monophyletic (Rissler and Taylor, 2003, Mol. Phylog. Evol., 27: 197–211; Kozak, et al., 2005, Evolution 59: 2000–2016; Jones et al., 2006, Mol. Phylog. Evol. 38: 280–287).

D. santeetlah Tilley, 1981—Santeetlah Dusky Salamander
D. welteri Barbour, 1950—Black Mountain Salamander
D. wrighti King, 1936—Pygmy Salamander

Dicamptodon Strauch, 1870—PACIFIC GIANT SALAMANDERS
D. aterrimus (Cope, 1868)—Idaho Giant Salamander
D. copei Nussbaum, 1970—Cope's Giant Salamander
D. ensatus (Eschscholtz, 1833)—California Giant Salamander
D. tenebrosus (Baird and Girard, 1852)—Coastal Giant Salamander

Ensatina Gray, 1850—ENSATINAS
E. eschscholtzii Gray, 1850—Ensatina
The taxonomy of this complex is controversial. Some authors would recognize from two (e.g., Frost and Hillis, 1990, Herpetologica 46: 87–104) to as many as 11 or more species (e.g., Highton, 1998, Herpetologica 54: 254–278), whereas others (e.g., Wake, 1997, Proc. Natl. Acad. Sci. USA, 94: 7761–7767; Wake and Schneider, 1998, Herpetologica 54: 279–298) consider evidence for evolutionary independence of segments of the complex to be inadequate or equivocal. Narrow hybrid zones have been demonstrated to exist between populations assigned to the subspecies *xanthoptica* and *platensis*, and between *klauberi* and *eschscholtzii*, and one site of sympatry with no hybridization between the latter pair has been reported (Wake et al., 1989, *in* D. Otte and J. A. Endler, [eds.], Speciation and its Consequences, Sinauer, Pp. 134–157). Broader zones of genetic admixture and reticulation between units of the complex in many areas raise questions about evolutionary independence, and borders of taxa are elusive.
E. e. croceater (Cope, 1867)—Yellow-blotched Ensatina
E. e. eschscholtzii Gray, 1850—Monterey Ensatina
E. e. klauberi Dunn, 1929—Large-blotched Ensatina
E. e. oregonensis (Girard, 1856)—Oregon Ensatina
E. e. picta Wood, 1940—Painted Ensatina
E. e. platensis (Espada, 1875)—Sierra Nevada Ensatina
E. e. xanthoptica Stebbins, 1949—Yellow-eyed Ensatina

Eurycea Rafinesque, 1822—BROOK SALAMANDERS
E. aquatica Rose and Bush, 1963—Dark-sided Salamander
Recognized as a distinct lineage and a full species by Kozak et al. (2006, Mol. Ecol. 15: 191–207) on the basis of molecular data.
E. bislineata (Green, 1818)—Northern Two-lined Salamander
E. chamberlaini Harrison and Guttman, 2003—Chamberlain's Dwarf Salamander
E. chisholmensis Chippindale, Price, Wiens, and Hillis, 2000—Salado Salamander
E. cirrigera (Green, 1830)—Southern Two-lined Salamander
E. wilderae and E. cirrigera occur in sympatry (Camp et al., 2000, Copeia 2000: 572–578) and undergo very little gene exchange where they are parapatric (Kozak and Montanucci, 2001, Copeia 2001: 25–34).
E. guttolineata (Holbrook, 1838)—Three-lined Salamander
E. junaluska Sever, Dundee and Sullivan, 1976—Junaluska Salamander

E. latitans Smith and Potter, 1946— Cascade Caverns Salamander
Resurrected from synonymy under *Eurycea neotenes* by Chippindale et al. (2000, Herpetol. Monogr. 14: 1–80). They review the problematical nature of this taxon, which they refer to as the "*Eurycea latitans* complex" and which may not constitute a monophyletic group.

E. longicauda (Green, 1818)—Long-tailed Salamander
E. l. longicauda (Green, 1818)—Long-tailed Salamander
E. l. melanopleura (Cope, 1893)—Dark-sided Salamander

E. lucifuga Rafinesque, 1822—Cave Salamander

E. multiplicata (Cope, 1869)—Many-ribbed Salamander
Formerly subdivided into the subspecies *E. m. griseogaster* and *E. m. multiplicata*. Biochemical data indicate that populations assigned to *E. m. griseogaster* are conspecific with *E. tynerensis*, while those of the nominate subspecies fall into two or three divergent clades that may represent distinct species (Bonett and Chippindale, 2004, Mol. Ecol. 13: 1189–1203).

E. nana Bishop, 1941—San Marcos Salamander

E. naufragia Chippindale, Price, Wiens, and Hillis, 2000—Georgetown Salamander

E. neotenes Bishop and Wright, 1937—Texas Salamander
Chippindale et al. (2000, Herpetol. Monogr. 14: 1–80) recommend restricting this name to spring populations in the vicinity of the type locality.

E. pterophila Burger, Smith, and Potter, 1950—Fern Bank Salamander
Resurrected from synonymy under *Eurycea neotenes* by Chippindale et al. (2000, Herpetol. Monogr. 14: 1–80) on the basis of allozymic evidence. They restrict the name to populations at the type locality and elsewhere in the Blanco River drainage.

E. quadridigitata (Holbrook, 1842)—Dwarf Salamander

E. rathbuni (Stejneger, 1896)—Texas Blind Salamander

E. robusta (Longley, 1978)—Blanco Blind Salamander

E. sosorum Chippindale, Price and Hillis, 1993—Barton Springs Salamander

E. spelaea Stejneger, 1892—Grotto Salamander
Formerly placed in the genus *Typhlotriton*. Molecular data indicate that this taxon nests within *Eurycea* (Bonett and Chippindale, 2004, Mol. Ecol. 13: 1189–1203).

E. tonkawae Chippindale, Price, Wiens, and Hillis, 2000— Jollyville Plateau Salamander

E. tridentifera Mitchell and Reddell, 1965—Comal Blind Salamander

E. troglodytes Baker, 1957—Valdina Farms Salamander.
Resurrected from synonymy under *Eurycea neotenes* by Chippindale et al. (2000, Herpetol. Monogr. 14: 1–80). They regard this taxon as a monophyletic collection of populations that probably contains additional undescribed species, and refer to it as the "*Eurycea troglodytes* complex."

E. tynerensis Moore and Hughes, 1939—Oklahoma Salamander

E. waterlooensis Hillis**,** Chamberlain, Wilcox and Chippendale, 2001 Austin Blind Salamander

E. wilderae Dunn, 1920—Blue Ridge Two-lined Salamander
E. wilderae and *E. cirrigera* occur in sympatry (Camp et al., 2000, Copeia 2000: 572–578) and undergo very little gene exchange where they are parapatric (Kozak and Montanucci, 2001, Copeia 2001: 25–34).

Gyrinophilus Cope, 1869—SPRING SALAMANDERS

G. gulolineatus Brandon, 1965—Berry Cave Salamander

G. palleucus McCrady, 1954—Tennessee Cave Salamander

G. p. necturoides Lazell and Brandon, 1962—Big Mouth Cave Salamander

G. p. palleucus McCrady, 1954—Pale Salamander

G. porphyriticus (Green, 1827)—Spring Salamander

G. p. danielsi (Blatchley, 1901)—Blue Ridge Spring Salamander

G. p. dunni Mittleman and Jopson, 1941—Carolina Spring Salamander

G. p. duryi (Weller, 1930)—Kentucky Spring Salamander

G. p. porphyriticus (Green, 1827)—Northern Spring Salamander

G. subterraneus Besharse and Holsinger, 1977—West Virginia Spring Salamander

Considered an extreme variant of *G. porphyriticus* by Blaney and Blaney (1978, Proc. W. Virginia Acad. Sci., 50: 23). See Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) for discussion of the controversy.

Haideotriton Carr, 1939—GEORGIA BLIND SALAMANDERS

Considered a junior synonym of *Eurycea* by Dubois (2005, Alytes, 23: 20). Frost et al. (2006, Bull. Am. Mus. Nat. Hist., 297) argue that recognition of this morphologically distinctive taxon renders *Eurycea* paraphyletic but data supporting this assertion have not yet been published.

H. wallacei Carr, 1939—Georgia Blind Salamander

Hemidactylium Tschudi, 1838—FOUR-TOED SALAMANDERS

H. scutatum (Temminck and Schlegel in Von Siebold, 1838)—Four-toed Salamander

Hydromantes Gistel, 1848—WEB-TOED SALAMANDERS

H. brunus Gorman, 1954—Limestone Salamander

H. platycephalus (Camp, 1916)—Mount Lyell Salamander

H. shastae Gorman and Camp, 1953—Shasta Salamander

Necturus Rafinesque, 1819—WATERDOGS and MUDPUPPIES

N. alabamensis Viosca, 1937—Black Warrior River Waterdog

N. beyeri Viosca, 1937—Gulf Coast Waterdog

According to Bart et al. (1997, J. Herpetol. 31: 192–201) this taxon may consist of more than one species.

N. lewisi Brimley, 1924—Neuse River Waterdog

N. maculosus (Rafinesque, 1818)—Mudpuppy

N. m. maculosus (Rafinesque, 1818)—Common Mudpuppy

N. m. louisianensis Viosca, 1938—Red River Mudpuppy

N. punctatus (Gibbes, 1850)—Dwarf Waterdog

Two subspecies, *N. p. lodingi* and *N. p. punctatus* were recognized by Collins (1997, Herpetol. Circ. 25). *Necturus lodingi* was originally described (Viosca, 1937, Copeia 1937: 120–138) from the lowermost tributaries of Mobile Bay and treated as a subspecies

of *N. punctatus* by Hecht (1958, Proc. Staten Island Inst. Arts Sci. 21: 1–38) who applied the name to lower Coastal Plain populations from Mobile Bay to Florida. Bart et al. (1997, J. Herpetol. 31: 192–201) regarded the taxonomic status of these populations as uncertain. Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) treated *N. punctatus* as monotypic and included Mobile Bay within the range of *N. alabamensis*, thus implicitly (without mentioning the name) treating *lodingi* as a synonym under that species.

Notophthalmus Rafinesque, 1820—EASTERN NEWTS
- ***N. meridionalis*** (Cope, 1880)—Black-spotted Newt
  - *N. m. meridionalis* (Cope, 1880)—Texas Black-spotted Newt
- ***N. perstriatus*** (Bishop, 1941)—Striped Newt
- ***N. viridescens*** (Rafinesque, 1820)—Eastern Newt
  - *N. v. dorsalis* (Harlan, 1828)—Broken-striped Newt
  - *N. v. louisianensis* Wolterstorff, 1914—Central Newt
  - *N. v. piaropicola* (Schwartz and Duellman, 1952)—Peninsula Newt
  - *N. v. viridescens* (Rafinesque, 1820)—Red-spotted Newt

Phaeognathus Highton, 1961—RED HILLS SALAMANDERS
- ***P. hubrichti*** Highton, 1961—Red Hills Salamander

Plethodon Tschudi, 1838—WOODLAND SALAMANDERS
- ***P. ainsworthi*** Lazell, 1998—Bay Springs Salamander
- ***P. albagula*** Grobman, 1944—Western Slimy Salamander

The species contains several distinct lineages but taxonomic revision awaits more research (Baird et al., 2006, Copeia 2006: 760–768).
- ***P. amplus*** Highton and Peabody, 2000—Blue Ridge Gray-cheeked Salamander
- ***P. angusticlavius*** Grobman, 1944—Ozark Zigzag Salamander
- ***P. asupak*** Mead, Clayton, Nauman, Olson and Pfrender, 2005—Scott Bar Salamander
- ***P. aureolus*** Highton, 1983—Tellico Salamander
- ***P. caddoensis*** Pope and Pope, 1951—Caddo Mountain Salamander
- ***P. chattahoochee*** Highton, 1989—Chattahoochee Slimy Salamander
- ***P. cheoah*** Highton and Peabody, 2000—Cheoah Bald Salamander
- ***P. chlorobryonis*** Mittleman, 1951—Atlantic Coast Slimy Salamander
- ***P. cinereus*** (Green, 1818)—Eastern Red-backed Salamander
- ***P. cylindraceus*** (Harlan, 1825)—White-spotted Slimy Salamander
- ***P. dorsalis*** Cope, 1889—Northern Zigzag Salamander
- ***P. dunni*** Bishop, 1934—Dunn's Salamander
- ***P. electromorphus*** Highton, 1999—Northern Ravine Salamander
- ***P. elongatus*** Van Denburgh, 1916—Del Norte Salamander
- ***P. fourchensis*** Duncan and Highton, 1979—Fourche Mountain Salamander
- ***P. glutinosus*** (Green, 1818)—Northern Slimy Salamander
- ***P. grobmani*** Allen and Neill, 1949—Southeastern Slimy Salamander
- ***P. hoffmani*** Highton, 1971—Valley and Ridge Salamander

P. hubrichti Thurow, 1957—Peaks of Otter Salamander
P. idahoensis Slater and Slipp, 1940—Coeur d'Alene Salamander
P. jordani Blatchley, 1901—Red-cheeked Salamander
P. kentucki Mittleman, 1951—Cumberland Plateau Salamander
P. kiamichi Highton, 1989—Kiamichi Slimy Salamander
P. kisatchie Highton, 1989—Louisiana Slimy Salamander
P. larselli Burns, 1954—Larch Mountain Salamander
P. meridianus Highton and Peabody, 2000—South Mountain Gray-cheeked Salamander
P. metcalfi Brimley, 1912—Southern Gray-cheeked Salamander
P. mississippi Highton, 1989—Mississippi Slimy Salamander
P. montanus Highton and Peabody, 2000—Northern Gray-cheeked Salamander
P. neomexicanus Stebbins and Riemer, 1950—Jemez Mountains Salamander
P. nettingi Green, 1938—Cheat Mountain Salamander
P. ocmulgee Highton, 1989—Ocmulgee Slimy Salamander
P. ouachitae Dunn and Heinze, 1933—Rich Mountain Salamander
P. petraeus Wynn, Highton and Jacobs, 1988—Pigeon Mountain Salamander
P. punctatus Highton, 1971—Cow Knob Salamander
P. richmondi Netting and Mittleman, 1938—Southern Ravine Salamander
P. savannah Highton, 1989—Savannah Slimy Salamander
P. sequoyah Highton, 1989—Sequoyah Slimy Salamander
P. serratus Grobman, 1944—Southern Red-backed Salamander
P. shenandoah Highton and Worthington, 1967—Shenandoah Salamander
P. sherando Highton, 2004—Big Levels Salamander
P. shermani Stejneger, 1906—Red-legged Salamander
P. stormi Highton and Brame, 1965—Siskiyou Mountains Salamander
P. teyahalee Hairston, 1950—Southern Appalachian Salamander

Hairston (1993, Brimleyana 18: 65–69) believed that the name *Plethodon teyahalee* is based on a hybrid and is therefore not available. He proposed a substitute name, *Plethodon oconoluftee* for the southern Appalachian species of the *Plethodon glutinosus* complex. The glossary of the International Code of Zoological Nomenclature defines a "hybrid" as an offspring of a mating between two different species, that is, as an F_1 hybrid. The population at the type-locality possesses genes from two species, *P. shermani* and *P. teyahalaee*, but genetically it appears to be predominantly the latter (Highton, unpublished data), and to be a panmictic population that contains no pure individuals of either species. Thus, the type specimen cannot be an F_1 hybrid under the definition of "hybrid" employed in the Code, and the older name *Plethodon teyahalee* is therefore available for the species the population most resembles.

P. vandykei Van Denburgh, 1906—Van Dyke's Salamander
P. variolatus (Gilliams, 1818)—South Carolina Slimy Salamander
P. vehiculum (Cooper, 1860)—Western Red-backed Salamander
P. ventralis Highton, 1997—Southern Zigzag Salamander
P. virginia Highton, 1999—Shenandoah Mountain Salamander
P. websteri Highton, 1979—Webster's Salamander
P. wehrlei Fowler and Dunn, 1917—Wehrle's Salamander

P. welleri Walker, 1931—Weller's Salamander
P. yonahlossee Dunn, 1917—Yonahlossee Salamander

Pseudobranchus Gray, 1825—DWARF SIRENS
P. axanthus Netting and Goin, 1942—Southern Dwarf Siren
P. a. axanthus Netting and Goin, 1942—Narrow-striped Dwarf Siren
P. a. belli Schwartz, 1952—Everglades Dwarf Siren
P. striatus (LeConte, 1824)—Northern Dwarf Siren
P. s. lustricolus Neill, 1951—Gulf Hammock Dwarf Siren
P. s. spheniscus Goin and Crenshaw, 1949—Slender Dwarf Siren
P. s. striatus (LeConte, 1824)—Broad-striped Dwarf Siren

Pseudotriton Tschudi, 1838—RED and MUD SALAMANDERS
P. montanus Baird, 1849—Mud Salamander
P. m. diastictus Bishop, 1941—Midland Mud Salamander
P. m. flavissimus Hallowell, 1856—Gulf Coast Mud Salamander
P. m. floridanus Netting and Goin, 1942—Rusty Mud Salamander
P. m. montanus Baird, 1849—Eastern Mud Salamander
P. ruber (Latreille, 1801)—Red Salamander
P. r. nitidus Dunn, 1920—Blue Ridge Red Salamander
P. r. ruber (Latreille, 1801)—Northern Red Salamander
P. r. schencki (Brimley, 1912)—Black-chinned Red Salamander
P. r. vioscai Bishop, 1928—Southern Red Salamander

Rhyacotriton Dunn, 1920—TORRENT SALAMANDERS
R. cascadae Good and Wake, 1992—Cascade Torrent Salamander
R. kezeri Good and Wake, 1992—Columbia Torrent Salamander
R. olympicus (Gaige, 1917)—Olympic Torrent Salamander
R. variegatus Stebbins and Lowe, 1951—Southern Torrent Salamander

Siren Linnaeus, 1766—SIRENS
S. intermedia Barnes, 1826—Lesser Siren
S. i. texana was synonymized with *S. intermedia nettingi* by Flores-Villela and Brandon (1992, Ann. Carnegie Mus. 61: 289–291). The status of the remaining subspecies remains unclear and deserves careful evaluation.
S. i. intermedia Barnes, 1826—Eastern Lesser Siren
S. i. nettingi Goin, 1942—Western Lesser Siren
S. lacertina Linnaeus, 1766—Greater Siren
The status of the two distantly allopatric populations (see Flores-Villela and Brandon, 1992, Ann. Carnegie Mus. 61: 289–291) in (1) south Texas and adjacent Mexico and (2) peninsular Florida is unclear and deserves evaluation.

Stereochilus Cope, 1869—MANY-LINED SALAMANDERS
S. marginatus (Hallowell, 1856)—Many-lined Salamander

Taricha Gray, 1850—PACIFIC NEWTS

T. granulosa (Skilton, 1849)—Rough-skinned Newt

Stebbins (2003, A Field Guide to Western Reptiles and Amphibians, 3rd Ed., Houghton Mifflin, Boston) regarded *T. granulosa* as monotypic.

T. rivularis (Twitty, 1935)—Red-bellied Newt

T. torosa (Rathke, 1833)—California Newt

Molecular data indicate substantial genetic divergence between the subspecies of *T. torosa* (Kuchta and Tan, 2006, Biol. J. Linn. Soc., 89: 213–239).

T. t. sierrae (Twitty, 1942)—Sierra Newt

T. t. torosa (Rathke, 1833)—Coast Range Newt

Squamata — Lizards

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Anniella Gray, 1852—North American Legless Lizards

Taxonomy for *Anniella* follows Hunt (1983, Copeia 1983: 79–89), with nomenclatural modifications (ICZN, 1993, Bull. Zool. Nomencl. 50: 186–187).

A. pulchra Gray, 1852—California Legless Lizard

Pearse and Pogson (2000, Evolution 54: 1041–1046) presented evidence that the melanistic form previously designated *Anniella pulchra nigra* is polyphyletic, its Monterey Bay and Morro Bay populations having been derived independently from the silvery form previously designated *A. p. pulchra*. Although Pearse and Pogson did not propose any taxonomic changes, their results indicate that the subspecies *A. p. pulchra* and *A. p. nigra* do not correspond with separated or partially separated lineages, and therefore we do not recognize subspecies within *A. pulchra*. The existence and extent of genetic continuity between populations of melanistic and silvery legless lizards, as well as between northern and southern mtDNA haplotype clades, deserves further study.

Anolis Daudin, 1802—ANOLES

Taxonomy for *Anolis* follows Williams (1976, Breviora 440: 1–21) with addition of subspecies from Schwartz and Henderson (1991, Amphibians and Reptiles of the West Indies, University of Florida Press) and modifications by Vance (1991, Bull. Maryland Herpetol. Soc. 27: 43–89; description of *A. carolinensis seminolus*). Some authors (e.g., Guyer and Savage, 1986, Syst. Zool. 35: 509–531; 1992, Syst. Biol. 41: 89–110; Savage and Guyer, 1989, Amphibia-Reptilia 10: 105–116) divide *Anolis* into the following five genera: *Anolis*, *Ctenonotus*, *Dactyloa*, *Norops*, and *Xiphosurus* (=*Semiurus*). However, according to the analysis of Poe (2004, Herpetol. Monogr. 18: 37–89), only *Norops* is monophyletic among these five taxa. Nicholson (2002, Herpetol. Monogr. 16: 93–120) treated *Anolis* (in the broad sense) as a genus and *Norops* as a subclade, while Brandley and de Queiroz (2004, Herpetol. Monogr. 18: 90–126) treated *Anolis* (in the broad sense) and a differently circumscribed *Ctenonotus* (e.g., no longer including the *cybotes* superspecies of Williams [op. cit.]) not as genera but as a clade (*Anolis*) and one of its subclades (*Ctenonotus*). We have included names of subclades parenthetically, where applicable.

The potential natural occurrence of *Anolis (Ctenonotus) distichus* in Florida is an unresolved issue. Current populations show evidence of hybridization between introduced *A. d. dominicensis* and another form (see note on *A. distichus* in the section on alien species), but the origin of the other form is currently unknown. Smith and McCauley (1948, Proc. Biol. Soc. Washington 61:159-166) named it as the subspecies *A. d. floridanus* based on differences from Bahamian and Hispaniolan specimens. Schwartz (1968, Bull. Mus. Comp. Zool. Harvard 137:255-310) reviewed variation in *A.*

distichus and confirmed differences between Florida versus Bahamian and Hispaniolan populations. He considered *A. d. floridanus* to have colonized Florida recently, either by natural dispersal or human introduction, and that the Bimini chain (*A. d. biminiensis*) and Andros Island (*A. d. distichoides*) represented the most likely sources. A detailed study of genetic variation in *A. distichus*, similar to that done for *A. sagrei* (Kolbe et al., 2004, Nature 431:177-181), would help to clarify this issue.

A. carolinensis (Voigt, 1832)—Green Anole

In addition to its native occurrence in the southeastern United States, *Anolis carolinensis* is established in the Hawaiian Islands (McKeown, 1996, A Field Guide to Reptiles and Amphibians in the Hawaiian Islands, Diamond Head Publishing); the subspecific identification of the introduced populations apparently has not been reported.

A. c. carolinensis (Voigt, 1832)—Northern Green Anole

A. c. seminolus Vance, 1991—Southern Green Anole

Aspidoscelis Fitzinger, 1843—WHIPTAILS

Reeder et al. (2002, Am. Mus. Novit. 3365: 1–61) presented evidence that *Cnemidophorus*, as previously circumscribed, is not monophyletic, and they resurrected *Aspidoscelis* for the clade composed of the species native to North America. Taxonomy for *Aspidoscelis* (often as *Cnemidophorus*) follows Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60) and Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81) with modifications by Trauth (1992, Texas J. Sci. 44: 437–443; description of *A. sexlineata stephensae*), Wright and Lowe (1993, J. Arizona-Nevada Acad. Sci. 27: 129–157; descriptions of *A. inornatus gypsi*, *A. i. junipera*, *A. i. llanuras*, and *A. i. pai*), Walker et al. (1997, Herpetologica 53: 233–259; description of *A. neotesselata*), and those described in additional notes below. Maslin and Secoy (op. cit.) and Wright (op. cit.) are the sources for information on reproductive mode.

A. arizonae (Van Denburgh, 1896)—Arizona Striped Whiptail

Aspidoscelis arizonae was treated as a subspecies of *A. inornata* by Wright and Lowe (1993, J. Arizona-Nevada Acad. Sci. 27: 129–157; see also Maslin and Secoy, 1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60; Wright, 1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81), but Collins (1997, SSAR Herpetol. Circ. 25) treated it as a separate species, presumably because of its geographic separation and morphological diagnosability relative to the other subspecies of *A. inornata* recognized by Wright and Lowe (op. cit.).

A. burti (Taylor, 1938)—Canyon Spotted Whiptail

A. b. stictogramma (Burger, 1950)—Giant Spotted Whiptail

A. dixoni (Scudday, 1973)—Gray Checkered Whiptail (unisexual)

Aspidoscelis dixoni was treated as a synonym of *A. tesselata* by Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60), but it was recognized as a species by Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81) and Walker et al. (1994, Texas J. Sci. 46: 27–33) because its origin was thought to have resulted from a separate hybridization event than the one involved in the origin of the clone represented by the type of *A. tesselata*. Cordes and Walker (2006, Copeia 2006: 14–26) presented evidence in the form of histocompatibility indicating the origin of *A. dixoni* and at least one of the pattern classes of *A. tesselata* (E) from a single hybridization event, but they nonetheless treated these forms as different species on the basis of diagnosability.

A. exsanguis (Lowe, 1956)—Chihuahuan Spotted Whiptail (unisexual)

A. flagellicauda (Lowe and Wright, 1964)—Gila Spotted Whiptail (unisexual)

A. gularis (Baird and Girard, 1852)—Common Spotted Whiptail

See comment under *A. scalaris*.

A. g. gularis (Baird and Girard, 1852)—Texas Spotted Whiptail

A. gypsi (Wright and Lowe, 1993)—Little White Whiptail

Aspidoscelis gypsi was originally described as a subspecies of *A. inornata* by Wright and Lowe (1993, J. Arizona-Nevada Acad. Sci. 27: 129–157), but Collins (1997, SSAR Herpetol. Circ. 25) treated it as a separate species, presumably because of its geographic separation and morphological diagnosability relative to the other subspecies of *A. inornata* recognized by Wright and Lowe (1993, J. Arizona-Nevada Acad. Sci. 27: 129–157). Although Rosenblum (2004, Am. Nat. 164: 1–15) found intermixing of mtDNA haplotypes between *Aspidoscelis* populations currently assigned to *A. gypsi* and *A. inornatus llanuras*, her data could not reject (statistically) the absence of gene flow between light (*gypsi*) and dark (*inornatus llanuras*) forms however, the test was not particularly powerful owing to low levels of genetic differentiation between populations. The status of *A. gypsi* deserves further study.

A. hyperythra (Cope, 1863)—Orange-throated Whiptail

A. h. beldingi (Stejneger, 1894)—Belding's Orange-throated Whiptail

According to previous taxonomies (e.g., Maslin and Secoy, 1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60; Wright, 1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81), the subspecies *Aspidoscelis hyperythra beldingi* occurs in the United States. Grismer (1999, Herpetologica 55: 28–42) did not recognize subspecies of *A. hyperythra*; however, his decision seems to have been based at least partly on a philosophical opposition to the recognition of subspecies, though he also stated that Welsh (1988, Proc. California Acad. Sci. 46: 1–72) had previously synonymized the names *A. h. beldingi* and *A. h. schmidti* with *A. h. hyperythra*. In reality, Welsh (op. cit.) did not formally synonymize any of the names in question. Instead, he suggested that differentiation was insufficient to warrant the recognition of three distinct races (which he nevertheless recognized) and that central Baja California was an area of intergradation between *A. h. beldingi* and *A. h. hyperythra*. He also referred specimens from the Sierra San Pedro Mártir region to *A. h. schmidti*. If *A. h. schmidti* represents the intergrading populations, then this form extends from the northern Sierra San Pedro Mártir region (30˚58˚N; Welsh, op. cit.) to San Ignacio (27˚17˚N; Linsdale, 1932, Univ. California Pub. Zool. 38: 345–386), which is roughly one-third of the total range of the species (see Grismer, op. cit.). Given such an extensive area of intergradation, it seems reasonable to interpret the previously recognized taxa as morphotypes rather than subspecies. On the other hand, Wright (1994, *in* P. R. Brown and J. W. Wright [eds.], Herpetology of the North American Deserts, Southwestern Herpetologists Society, Pp. 255–271) had previously identified a diagnostic color pattern difference between *A. h. hyperythra* and *A. h. beldingi* (he considered *A. h. schmidti* a synonym of *A. h. beldingi*) and placed the zone of intergradation between the two subspecies in southern Baja California (see also Thompson et al., 1998, Cat. Am. Amph. Rept. 655). Grismer (op. cit.) did not address this difference, and we have therefore retained the two subspecies.

A. inornata (Baird, 1859 "1858")—Little Striped Whiptail

Wright and Lowe (1993, J. Arizona-Nevada Acad. Sci. 27: 129–157) recognized six subspecies of *Aspidoscelis inornata* in the United States: *arizonae*, *gypsi*, *heptagramma*, *junipera*, *llanuras*, and *pai*, four of which were described as new subspecies by those

authors. Collins (1997, SSAR Herpetol. Circ. 25), recognized *arizonae*, *gypsi*, and *pai* as separate species, presumably because they are geographically separated and morphologically distinguishable both from one another and from the other subspecies of *A. inornata* recognized by Wright and Lowe (op. cit.).

A. i. heptagramma (Axtell, 1961)—Trans-Pecos Striped Whiptail

Based on a highly variable sample of *Aspidoscelis inornata heptagramma* from Chihuahua, Walker et al. (1996, J. Herpetol. 30: 271–275) questioned the usefulness of this taxon for describing variation within *A. inornata*.

A. i. junipera (Wright and Lowe, 1993)—Woodland Striped Whiptail

Walker et al. (1996, J. Herpetol. 30: 271–275) called into question some of the characters used by Wright and Lowe (1993, J. Arizona-Nevada Acad. Sci. 27: 129–157) to separate *Aspidoscelis inornata junipera* from *A. i. heptagramma* but did not explicitly treat the names as synonyms.

A. i. llanuras (Wright and Lowe, 1993)—Plains Striped Whiptail

Walker et al. (1996, J. Herpetol. 30: 271–275) called into question some of the characters used by Wright and Lowe (1993, J. Arizona-Nevada Acad. Sci. 27: 129–157) to separate *Aspidoscelis inornata llanuras* from *A. i. heptagramma* but did not explicitly treat the names as synonyms. See also note under *A. gypsi*.

A. laredoensis (McKinney, Kay and Anderson, 1973)—Laredo Striped Whiptail (unisexual)

Abuhteba et al. (2001, Copeia 2001: 262–266) interpreted histoincompatibility between the members of two pattern classes within *Aspidoscelis laredoensis* as evidence for separate hybrid origins of the corresponding clones. The authors noted that two of them are planning to restrict the name *A. laredoensis* to one of the clones and propose a new species name for the other.

A. marmorata (Baird and Girard, 1852)—Marbled Whiptail

Aspidoscelis marmorata (including *A. marmorata marmorata* and *A. m. reticuloriens* in the United States) was treated as a species by Hendricks and Dixon (1986, Texas J. Sci. 38: 327–402) but as a subspecies of *A. tigris* by Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60) and Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81). Dessauer and Cole (1991, Copeia 1991: 622–637; see also Dessauer et al., 2000, Bull. Am. Mus. Nat. Hist. 246: 1–148) presented evidence of both differentiation and interbreeding between *marmorata* and *tigris* along a transect near the southern part of the border between Arizona and New Mexico, including a narrow (3 km) hybrid zone in which hybrid indices based on color patterns and allele frequencies changed abruptly in concordant step clines. Although those authors interpreted their data as reflecting incomplete speciation between the two forms (i.e., a single species), the same data can be interpreted alternatively as reflecting largely separate gene pools (i.e., two species). Following the terminology of de Queiroz (1998, *in* D. J. Howard and S. H. Berlocher [eds.], Endless Forms: Species and Speciation, Oxford University Press, Pp. 57–75), they are here considered incompletely separated species.

A. m. marmorata (Baird and Girard, 1852)—Western Marbled Whiptail

Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60) and Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81) treated *Aspidoscelis marmorata marmorata* and *A. m. reticuloriens* of Hendricks and Dixon (1986, Texas J. Sci. 38: 327–402) as a single subspecies of *A. tigris* (*A. t. marmorata*); in contrast, Dessauer and Cole (1991, Copeia 1991: 622–637) treated those taxa as separate subspecies of *A.*

tigris (*A. t. marmorata* and *A. t. reticuloriens*). Thus, *A. marmorata marmorata* in this checklist corresponds with *A. tigris marmorata* of Dessauer and Cole (op. cit.) but not with *A. tigris marmorata* of Maslin and Secoy (op. cit.) and Wright (op. cit.).

A. m. reticuloriens (Vance, 1978)—Eastern Marbled Whiptail

Aspidoscelis tigris reticuloriens was described as a new taxon by Hendricks (1975, Ph.D. dissertation, Texas A & M Univ.) in an unpublished dissertation, but the name (attributed to Hendricks) and diagnostic features were incorporated into a key published by Vance (1978, Bull. Maryland Herpetol. Soc. 14: 1–9) prior to the published description of the taxon (as *A. marmorata reticuloriens*) by Hendricks and Dixon (1986, Texas J. Sci. 38: 327–402). Vance et al. (1991, Bull. Maryland Herpetol. Soc. 27: 95–98; see also Maslin and Secoy, 1986, Contrib. Zool. Univ.Colorado Mus. 1: 1–60) discussed authorship of the name *reticuloriens* and concluded that it should be attributed to Vance (op. cit.). Maslin and Secoy (op. cit.) and Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81) treated *marmorata* as a subspecies of *Aspidoscelis tigris* and considered the name *A. t. reticuloriens* a synonym of *A. t. marmorata*; however, Dessauer and Cole (1991, Copeia 1991: 622–637), who also treated *marmorata* as a subspecies of *A. tigris*, recognized the subspecies *A. t. reticuloriens*.

A. neomexicana (Lowe and Zweifel, 1952)—New Mexico Whiptail (unisexual)

Taylor and Walker (1996, Copeia 1996: 945–954) and Walker (1997, J. Herpetol. 31: 103–107) presented evidence that *Aspidoscelis neomexicana* is a junior synonym of *A. perplexa* Baird and Girard 1852. However, because of prevailing use of the name *neomexicana* (Smith et al., 1997, Bull. Zool. Nomencl. 54: 167–171), that name has been granted precedence over *perplexa* (ICZN, 1999, Bull. Zool. Nomencl. 56: 162–163).

A. neotesselata (Walker, Cordes and Taylor, 1997)—Colorado Checkered Whiptail (unisexual)

Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81) applied the name *Aspidoscelis tesselata* to the taxon here called *A. neotesselata*, that is, to triploid members of the *A. tesselata* complex representing Zweifel's (1965, Am. Mus. Novit. 2235: 1–49) pattern classes A and B. Walker et al. (1997, Herpetologica 53: 233–259), following Zweifel (op. cit.), argued that Say's original description of *A. tesselata* was based on lizards of pattern class D. Therefore, they applied the name *A. tesselata* to the diploid members of the *A. tesselata* complex representing Zweifel's (op. cit.) pattern classes C, D, and E, and they proposed a new name, *A. neotesselata*, for the triploid members of the complex representing pattern classes A and B.

A. pai (Wright and Lowe, 1993)—Pai Striped Whiptail

Aspidoscelis pai was originally described as a subspecies of *A. inornata* by Wright and Lowe (1993, J. Arizona-Nevada Acad. Sci. 27: 129–157), but Collins (1997, SSAR Herpetol. Circ. 25) recognized it as a separate species because of allopatry and morphological diagnosability relative to the other subspecies of *A. inornata* recognized by Wright and Lowe (op. cit.).

A. scalaris (Cope, 1892)—Plateau Spotted Whiptail

Aspidoscelis scalaris (as *A. septemvittata*) was treated as a subspecies of *A. gularis* by Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60) but as a species by Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81). Three different specific epithets, *scalaris*, *semifasciata*, and *septemvittata*, have been treated as potential

names for this species (e.g., Burger, 1950, Nat. Hist. Misc. 65: 1–9; Duellman and Zweifel, 1962, Bull. Amer. Mus. Nat. Hist. 123: 155–210; Williams and Smith, 1963, Herpetologica 19: 68–69). Smith et al. (1996 Herpetol. Rev. 27: 129) presented evidence that *scalaris* and *semifasciata* have priority over *septemvittata* (and *sericea*), and they assigned (according to ICZN, 1999: Art. 24.2) precedence to *scalaris* over *semifasciata* (and *septemvittata* over *sericea*).

A. s. septemvittata (Cope, 1892)—Big Bend Spotted Whiptail

A. sexlineata (Linnaeus, 1766)—Six-lined Racerunner

A. s. sexlineata (Linnaeus, 1766)—Eastern Six-lined Racerunner

A. s. stephensae (Trauth, 1992)—Texas Yellow-headed Racerunner

The subspecific name was spelled *stephensi* in the original description (Trauth, 1992, Texas J. Sci. 44: 437–443) but was later corrected to *stephensae* (Trauth, 1995, Bull. Chicago Herpetol. Soc. 30: 68).

A. s. viridis (Lowe, 1966)—Prairie Racerunner

A. sonorae (Lowe and Wright, 1964)—Sonoran Spotted Whiptail (unisexual)

A. tesselata (Say, 1823)—Common Checkered Whiptail (unisexual)

Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81) applied the name *Aspidoscelis grahamii* Baird and Girard 1852 to the taxon here called *A. tesselata*, that is, to diploid members of the *A. tesselata* complex representing Zweifel's (1965, Am. Mus. Novit. 2235: 1–49) pattern classes C, D, and E; he applied the name *A. tesselata* to triploid members of the complex representing pattern classes A and B. Walker et al. (1997, Herpetologica 53: 233–259), following Zweifel (op. cit.), argued that Say's original description of *A. tesselata* was based on lizards of pattern class D. Therefore, they applied the name *A. tesselata* to the diploid members of the *A. tesselata* complex representing Zweifel's (op. cit.) pattern classes C, D, and E, and they treated the name *A. grahamii*, based on cotypes representing pattern classes E (the paralectotype; Zweifel, op. cit.) and C (the lectotype; K. de Queiroz, personal observation), as a junior synonym.

A. tigris (Baird and Girard, 1852)—Tiger Whiptail

A. t. munda (Camp, 1916)—California Whiptail

Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81) considered the name *Aspidoscelis tigris munda* a synonym of *A. t. undulata* Hallowell 1854 (see also Reeder et al., 2002, Am. Mus. Novit. 3365: 1–61); however, Camp (1916, Univ. California Pub. Zool. 17: 63–74) proposed the name *A. t. munda* as a replacement name for *A.* (*t.*) *undulata* Hallowell 1854 because the latter name is a junior primary homonym of *A. undulata* Wiegmann 1834 and thus is permanently invalid (see also Maslin and Secoy, 1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60).

A. t. punctilinealis (Dickerson,1919)—Sonoran Tiger Whiptail

This taxon was formerly called *Aspidoscelis tigris gracilis*. Taylor and Walker (1996, Copeia 1996: 140–148) presented evidence that *A. t. gracilis* is a junior synonym of *A. t. tigris*, and they considered *A. t. punctilinealis* the oldest available name for the taxon formerly called *A. t. gracilis*.

A. t. septentrionalis (Burger, 1950)—Plateau Tiger Whiptail

A. t. stejnegeri (Van Denburgh, 1894)—Coastal Whiptail

Some authors (e.g., Smith and Taylor, 1950, Bull. U. S. Natl. Mus. 199: 1–253) have treated the name *Aspidoscelis tigris stejnegeri* as a junior synonym of *A. t. multiscutata*

Cope 1892; others (e.g., Maslin and Secoy, 1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60; Wright, 1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81) have treated those names as the names of different taxa, both of which were considered to occur in (coastal?) southern California. Following Maslin and Walker (1981, Am. Midl. Nat. 105: 84–92), we have treated *A. t. multiscutata* (type locality: Isla Cedros, Baja California) as the name of an insular endemic and *A. t. stejnegeri* (type locality: Ensenada, Baja California) as the name of the subspecies occurring in coastal southern California.

A. t. tigris (Baird and Girard, 1852)—Great Basin Whiptail

A. uniparens (Wright and Lowe, 1965)—Desert Grassland Whiptail (unisexual)

A. velox (Springer, 1928)—Plateau Striped Whiptail (unisexual)

Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60) treated the name *Aspidoscelis* (*sackii*) *innotata* as a synonym of *A. velox*, but Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81) applied the name *A. velox* to populations of triploid parthenogens and treated *A. innotata* as the name of a separate diploid species. Cuellar (1977, Evolution 31: 24–31) found histoincompatibility (rejection of skin grafts) between *A. velox*-like lizards from Colorado, New Mexico, and Utah, which Cuellar and Wright (1992, C. R. Soc. Biogeogr. 68: 157–160) interpreted as potential evidence for different ploidy levels. The type locality of *A. velox* is in Arizona, while that of *A. innotata* is in Utah, and lizards from New Mexico are known to be triploid (Neaves, 1969, J. Exper. Zool. 171: 175–184; Dessauer and Cole, 1989, *in* R. M. Dawley and J. P. Bogart [eds.], Evolution and Ecology of Unisexual Vertebrates, New York State Museum, Pp. 49–71). If lizards from the type locality of *A. innotata* turn out to be diploid, it would be reasonable to recognize a separate diploid species and apply the name *A. innotata* (Plateau Unspotted Whiptail) to it.

A. xanthonota (Duellman and Lowe 1953)—Red-backed Whiptail

Aspidoscelis xanthonota was treated as a subspecies of *Aspidoscelis burti* by Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60) and Wright (1993, *in* J. W. Wright and L. J. Vitt [eds.], Biology of Whiptail Lizards [Genus *Cnemidophorus*], Oklahoma Mus. Nat. Hist., Pp. 27–81), but Collins (1991, Herpetol. Rev. 22: 42–43) treated it as a species because it is allopatric and morphologically diagnosable relative to *A. burti.*

Callisaurus Blainville, 1835—ZEBRA-TAILED LIZARDS

Taxonomy for *Callisaurus* follows de Queiroz (1989, Ph.D. dissertation, Univ. California, Berkeley).

C. draconoides Blainville, 1835—Zebra-tailed Lizard

A molecular phylogeographic study by Lindell et al. (2005, Mol. Phylog. Evol. 36: 682–694) sheds some preliminary light on the relationships and status of the three U.S. subspecies of *C. draconoides*. Both *C. d. myurus* and *C. d. ventralis* were found to be nested within *C. d. rhodostictus*, *ventralis* deeply so; however, both *C. d. myurus* and *C. d. ventralis* were represented by small samples, and there are large geographic gaps between these samples and those representing *C. d. rhodostictus*. The status of the subspecies of *C. draconoides* deserves further study.

C. d. myurus Richardson, 1915—Northern Zebra-tailed Lizard

C. d. rhodostictus Cope, 1896—Western Zebra-tailed Lizard

C. d. ventralis (Hallowell, 1852)—Eastern Zebra-tailed Lizard

***Cnemidophorus*:** See *Aspidoscelis*.

Coleonyx Gray, 1845—BANDED GECKOS
Taxonomy for *Coleonyx* follows Grismer (1988, *in* Phylogenetic Relationships of the Lizard Families, R. Estes and G. Pregill [eds.], Stanford Univ. Press, Pp. 369–469).

C. brevis Stejneger, 1893—Texas Banded Gecko
C. reticulatus Davis and Dixon, 1958—Reticulate Banded Gecko
C. switaki (Murphy, 1974)—Switak's Banded Gecko
C. s. switaki (Murphy, 1974)—Peninsular Banded Gecko
C. variegatus (Baird, 1859 "1858")—Western Banded Gecko
C. v. abbotti Klauber, 1945—San Diego Banded Gecko
C. v. bogerti Klauber, 1945—Tucson Banded Gecko
C. v. utahensis Klauber, 1945—Utah Banded Gecko
C. v. variegatus (Baird, 1859)—Desert Banded Gecko

Cophosaurus Troschel, 1852 "1850"—GREATER EARLESS LIZARDS
Taxonomy for *Cophosaurus* follows Peters (1951, Occas. Pap. Mus. Zool. Univ. Michigan 537: 1–20) who treated all species and subspecies as members of *Holbrookia*. Separation of *Cophosaurus* from *Holbrookia* follows Clarke (1965, Emporia St. Res. Stud. 13: 1–66), Cox and Tanner (1977, Great Basin Nat. 37: 35–56) and de Queiroz (1989, Ph.D. dissertation, Univ. California, Berkeley).

C. texanus Troschel, 1852—Greater Earless Lizard
C. t. scitulus (Peters, 1951)—Chihuahuan Greater Earless Lizard
C. t. texanus Troschel, 1852—Texas Greater Earless Lizard

Crotaphytus Holbrook, 1842—COLLARED LIZARDS
Taxonomy for *Crotaphytus* follows McGuire (1996, Bull. Carnegie Mus. Nat. Hist. 32: 1–143).

C. bicinctores Smith and Tanner, 1972—Great Basin Collared Lizard
C. collaris (Say, 1823)—Eastern Collared Lizard
C. nebrius Axtell and Montanucci, 1977—Sonoran Collared Lizard
C. reticulatus Baird, 1859 "1858"—Reticulate Collared Lizard
C. vestigium Smith and Tanner, 1972—Baja California Collared Lizard
Although the name *Crotaphytus vestigium* Smith and Tanner 1972 is not the oldest name for this species, the name *C. fasciatus* Mocquard, 1899 is a junior primary homonym of *C. fasciatus* Hallowell (a junior synonym of *Gambelia wislizenii*) and is therefore invalid (ICZN, 1999: Article 57.2). In addition, *C. vestigium* Smith and Tanner 1972 has been granted precedence over the seldom used name *C. fasciolatus* Mocquard 1903 (see McGuire, 1996, Bull. Carnegie Mus. Nat. Hist. 32: 1–143; McGuire, 2000, Bull. Zool. Nomencl. 57: 158–161; ICZN, 2002, Bull. Zool. Nomencl. 59: 228–229).

Dipsosaurus Hallowell, 1854—DESERT IGUANAS
Taxonomy for *Dipsosaurus* follows de Queiroz (1995, Publ. Espec. Mus. Zool. Univ. Nac. Autón. México 9: 1–48).

D. dorsalis (Baird and Girard, 1852)—Desert Iguana
D. d. dorsalis (Baird and Girard, 1852)—Northern Desert Iguana

Elgaria Gray, 1838—Western Alligator Lizards
Taxonomy for *Elgaria* follows Good (1988, Univ. California Pub. Zool. 121: 1–139).

E. coerulea (Wiegmann, 1828)—Northern Alligator Lizard
E. c. coerulea (Wiegmann, 1828)—San Francisco Alligator Lizard
E. c. palmeri (Stejneger, 1893)—Sierra Alligator Lizard
E. c. principis Baird and Girard, 1852—Northwestern Alligator Lizard
E. c. shastensis (Fitch, 1934)—Shasta Alligator Lizard

E. kingii Gray, 1838—Madrean Alligator Lizard
E. k. nobilis Baird and Girard, 1852—Arizona Alligator Lizard

E. multicarinata (Blainville, 1835)—Southern Alligator Lizard
A molecular phylogeographic study of Feldman and Spicer (2006, Mol. Ecol. 15: 2201–2222) failed to support currently recognized subspecies boundaries within *E. multicarinata* (Fitch, 1938, Am. Midl. Nat. 20: 381–424). Haplotypes from the central Coast Ranges of California (formerly *multicarinata*) are more closely related to those from southern (*webbii*) rather than northern (*multicarinata*) California, while haplotypes from the Sierra Nevada (formerly *webbii*) are more closely related to those from northern (*multicarinata*) rather than southern (*webbii*) California. In addition, haplotypes representing *E. m. multicariniata* and *E. m. scincicauda* are phylogenetically intermixed, calling their separation into question.
E. m. multicarinata (Blainville, 1835)—California Alligator Lizard
E. m. scincicauda (Skilton, 1849)—Oregon Alligator Lizard
E. m. webbii (Baird, 1859 "1858")—San Diego Alligator Lizard

E. panamintina (Stebbins, 1958)—Panamint Alligator Lizard
The results of Feldman and Spicer (2006, Mol. Ecol. 15: 2201–2222) indicate that *E. panamintina* is derived from within *E. multicarinata*.

Eumeces: See *Plestiodon*

Gambelia Baird 1859 "1858"—LEOPARD LIZARDS
Taxonomy for *Gambelia* follows McGuire (1996, Bull. Carnegie Mus. Nat. Hist. 32: 1–143).

G. copeii (Yarrow, 1882)—Cope's Leopard Lizard

G. sila (Stejneger, 1890)—Blunt-nosed Leopard Lizard
McGuire (1996, Bull. Carnegie Mus. Nat. Hist. 32: 1–143) spelled the specific name *silus*; however, given that the name *Gambelia* is feminine (ICZN, 1999: Article 30.2.4) and that the name *silus* is a Latin adjective or participle, the spelling should be changed to *sila* when combined with *Gambelia* (ICZN, 1999: Article 31.2; Frost and Collins, 1988, Herpetol. Rev. 19: 73–74).

G. wislizenii (Baird and Girard, 1852)—Long-nosed Leopard Lizard

Gerrhonotus Wiegmann, 1828—EASTERN ALLIGATOR LIZARDS
Taxonomy for *Gerrhonotus* follows Good (1994, Herpetol. Monog. 8: 180–202).

G. infernalis Baird, 1859 "1858"—Texas Alligator Lizard

Heloderma Wiegmann, 1829—GILA MONSTERS and BEADED LIZARDS
Taxonomy for *Heloderma* follows Bogert and Martín del Campo (1956, Bull. Am. Mus. Nat. Hist. 109: 1–238).

H. suspectum Cope, 1869—Gila Monster

H. s. cinctum Bogert and Martín del Campo, 1956—Banded Gila Monster

H. s. suspectum Cope, 1869—Reticulate Gila Monster

Holbrookia Girard, 1851—LESSER EARLESS LIZARDS

Taxonomy for *Holbrookia* follows Smith (1946, Handbook of Lizards, Cornell Univ. Press) with modifications by Axtell (1956, Bull. Chicago Acad. Sci 10: 163–179; description of *H. maculata perspicua* and treatment of *H. lacerata* as a species) and those described in additional notes below. Separation of *Cophosaurus texanus* (*Holbrookia texana*) from *Holbrookia* follows Axtell (1958, Ph.D. dissertation, Univ. Texas), Clarke (1965, Emporia St. Res. Stud. 13: 1–66), Cox and Tanner (1977, Great Basin Nat. 37: 35–56) and de Queiroz (1989, Ph.D. dissertation, Univ. California, Berkeley).

H. elegans Bocourt, 1874—Elegant Earless Lizard

Holbrookia elegans was recognized as a species by Lowe (1964, *in* C. H. Lowe [ed.], The Vertebrates of Arizona, Univ. Arizona Press, Pp. 153–174), and corroborating evidence has been provided by Adest (1978, Ph.D. dissertation, Univ. California, Los Angeles) and Wilgenbusch and de Queiroz (2000, Syst. Biol. 49: 592–612); a diagnosis has been provided by Axtell (1998, Interpretive Atlas of Texas Lizards 18: 1–19).

H. e. thermophila Barbour, 1921—Sonoran Earless Lizard

H. lacerata Cope, 1880—Spot-tailed Earless Lizard

H. l. lacerata Cope, 1880—Northern Spot-tailed Earless Lizard

H. l. subcaudalis Axtell, 1956—Southern Spot-tailed Earless Lizard

H. maculata Girard, 1851—Common Lesser Earless Lizard

Based on color and pattern differences, Axtell (1990, Interpretive Atlas of Texas Lizards 18: 1–19) treated *Holbrookia approximans* as a separate species from *H. maculata* and assigned the populations of *H. maculata* in the United States formerly referred to the subspecies *H. m. approximans* to the subspecies *H. m. flavilenta*. We have refrained from adopting this proposal pending an explicit analysis.

H. m. approximans Baird, 1859 "1858"—Speckled Earless Lizard

H. m. bunkeri Smith, 1935—Bunker's Earless Lizard

Occurrence of *Holbrookia maculata bunkeri* in the United States (New Mexico) was reported by Axtell (1958, Ph.D. dissertation, Univ. Texas).

H. m. maculata Girard, 1851—Great Plains Earless Lizard

H. m. perspicua Axtell, 1956—Prairie Earless Lizard

H. m. pulchra Schmidt, 1921—Huachuca Earless Lizard

Holbrookia maculata pulchra was considered a synonym of *H. m. thermophila* by Duellman (1955, Occ. Pap. Mus. Zool. Univ. Michigan 569: 1–14) and Axtell (1958, Ph.D. dissertation, Univ. Texas); however, this taxon has been recognized as a separate subspecies or species in all previous versions of this list and its precursors that were published subsequent to the original description of *H. pulchra* (i.e. Stejneger and Barbour 1923, 1933, 1939, 1943, A Checklist of North American Amphibians and Reptiles, Harvard Univ. Press, Cambridge, editions 1–4; Schmidt, 1953, A Check List of North American Amphibians and Reptiles. Univ. Chicago Press, Chicago; Conant et al., 1956, Copeia 1956: 172–185; Collins et al., 1978, SSAR Herpetol. Circ. 7; 1982, SSAR Herpetol. Circ. 12; Collins 1990, Herpetol. Circ. 19; 1997, Herpetol. Circ. 25). We have retained this taxon pending further data and analysis.

H. m. ruthveni Smith, 1943—Bleached Earless Lizard

Rosenblum (2004, Am. Nat. 164: 1–15) found intermixing of mtDNA haplotypes between *Holbrookia* populations currently assigned to *H. m. ruthveni* and *H. m. approximans*. Although no gene flow was detected between the light (*ruthveni*) and dark (*approximans*) forms, the populations exhibited high levels of differentiation even within putative subspecies. The status of *H. m. ruthveni* deserves further study.

H. propinqua Baird and Girard 1852—Keeled Earless Lizard

H. p. propinqua Baird and Girard 1852—Northern Keeled Earless Lizard

Ophisaurus Daudin, 1803—GLASS LIZARDS

Taxonomy for *Ophisaurus* follows McConkey (1954, Bull. Florida St. Mus. Biol. Sci. 2: 13–23) with modifications by Palmer (1987, Herpetologica, 43: 415–423; description of *O. mimicus*). Macey et al. (1999, Mol. Phylog. Evol. 12: 250–272) presented evidence that *Ophisaurus*, if it includes North American, European, African, and Asian species, is not monophyletic. Although they favored placing all species in *Anguis*, this action is both nomenclaturally disruptive and makes *Anguis* redundant with Anguinae; we have therefore adopted their alternative proposal of retaining *Ophisaurus* for the North American and Southeast Asian species.

O. attenuatus Cope, 1880—Slender Glass Lizard

O. a. attenuatus Cope, 1880—Western Slender Glass Lizard

O. a. longicaudus McConkey, 1952—Eastern Slender Glass Lizard

O. compressus Cope, 1900—Island Glass Lizard

O. mimicus Palmer, 1987—Mimic Glass Lizard

O. ventralis (Linnaeus, 1766)—Eastern Glass Lizard

Neoseps: See *Plestiodon*.

Petrosaurus Boulenger, 1885—CALIFORNIA ROCK LIZARDS

Taxonomy for *Petrosaurus* follows Jennings (1990, Cat. Am. Amph. Rept. 494; 1990, Cat. Am. Amph. Rept. 495).

P. mearnsi (Stejneger, 1894)—Banded Rock Lizard

P. m. mearnsi (Stejneger, 1894)—Mearns' Rock Lizard

Phrynosoma Wiegmann, 1828—HORNED LIZARDS

Taxonomy for *Phrynosoma* follows Reeve (1952, Univ. Kansas Sci. Bull. 34: 817–960) with modifications by Zamudio et al. (1997, Syst. Biol. 46: 284–305; treatment of *P. hernandesi* as a separate species from *P. douglasii* and implied treatment of *P. d. brevirostre*, *P. d. ornatissum*, and *P. d. ornatum* as synonyms of *P. hernandesi*), and those described in additional notes below. Based on the results of phylogenetic analyses of mitochondrial and nuclear genes, Leaché and McGuire (2006, Mol. Phylog. Evol. 39: 628–644) named four subclades of *Phrynosoma*. We have included names of subclades parenthetically, where applicable.

P. cornutum (Harlan, 1825)—Texas Horned Lizard

P. (Anota) blainvillii Gray, 1839—Blainville's Horned Lizard

Montanucci (2004, Herpetologica 60: 117–139) presented evidence that the taxon formerly named *Phrynosoma coronatum* (e.g., Brattstrom, 1997, J. Herpetol. 31: 434–436) is composed of four species, one of which, *P. blainvillii*, occurs in the United

States. The others may be given the following standard English names: *P. cerroense*—Vizcaíno Horned Lizard, *P. coronatum*—Cape Horned Lizard, and *P. wigginsi*—Concepción Horned Lizard.

P. (Tapaja) douglasii (Bell, 1829)—Pygmy Short-horned Lizard

Hammerson and Smith (1991, Bull. Maryland Herpetol. Soc. 27: 121–127) selected one of two alternative spellings of the specific epithet in Bell's original description of *P. douglasii* as correct (i.e., the one with a single "s"). They also argued for the use of a single terminal "i." We have retained the original "ii" in accordance with the Zoological Code (ICZN, 1999: Article 33.4).

P. (Doliosaurus) goodei Stejnejer, 1893—Goode's Horned Lizard

Based on geographic contiguity, mtDNA haplotype monophyly, and morphological differences, Mulcahy et al. (2006, Mol. Ecol. 15: 1807–1826) recognized *Phrynosoma goodei* as a separate species from *P. platytrhinos*, as well as documenting its occurrence in the United States (see also Jones, 1995, Ph.D. dissertation, Univ. Nevada, Las Vegas).

P. (Tapaja) hernandesi Girard, 1858—Greater Short-horned Lizard

Girard is sometimes cited parenthetically as the describer of *Phrynosoma hernandesi*, presumably because he used the combination *Tapaya hernandesi* in the heading of his description (Girard, 1858, United States Exploring Expedition, Volume 20. Herpetology. J. B. Lippincott and Co.). However, Girard (op. cit.) explicitly treated *Phrynosoma* as a genus and *Tapaya* as a subgenus, and he used the combination *Phrynosoma hernandesi* elsewhere in the same publication (p. 392). Therefore, his name is not cited parenthetically here (see ICZN, 1999: Article 51.3). Smith et al. (1999, Herpetol. Rev. 30: 111) concluded that the correct spelling of the specific epithet is *hernandesi* rather than *hernandezi*.

P. (T.) h. hernandesi Girard, 1858—Hernandez's Short-horned Lizard

Zamudio et al. (1997, Syst. Biol. 46: 284–305) did not explicitly propose to eliminate the previously recognized subspecies taxa within *P. hernandesi* (i.e., those subspecies formerly within *P. douglasii* that now make up *P. hernandesi*), though they presented evidence that the subspecies *brevirostre*, *hernandesi*, and *ornatissimum*, as previously circumscribed, are artificial assemblages of populations. They also did not sample the Mexican taxon formerly known as *P. d. brachycercum*, which they noted shares morphological characters with *P. hernandesi*. The possibilities remain that *brachycercum* constitutes 1) a lineage that is related to but fully separated from *P. hernandesi*, 2) a partially separated lineage within *P. hernandesi*, or 3) an unseparated (artificial) part of the *hernandesi* lineage. Until the status of this taxon is addressed explicitly, we have treated it as a valid subspecies taxon, and for this reason, we have treated the remaining populations of *P. hernandesi*, including all those occurring in the United States, as the subspecies *P. h. hernandesi*.

P. (Anota) mcallii (Hallowell, 1852)—Flat-tailed Horned Lizard

P. (Doliosaurus) modestum Girard, 1852—Round-tailed Horned Lizard

P. (Doliosaurus) platyrhinos Girard, 1852—Desert Horned Lizard

According to Pianka (1991, Cat. Am. Amph. Rept. 517), the putative diagnostic characters for the subspecies of *Phrynosoma platyrhinos* are not reliable, which calls the taxa themselves into question. Phylogenetic analysis of mtDNA sequences by Mulcahy et al. (2006, Mol. Ecol. 15: 1807–1826) raised the possibility of an additional species or subspecies from the Yuma Proving Ground.

P. (D.) p. calidiarum (Cope, 1896)—Southern Desert Horned Lizard

P. (D.) p. platyrhinos Girard, 1852—Northern Desert Horned Lizard

P. (Anota) solare Gray, 1845—Regal Horned Lizard

Phyllodactylus Gray, 1828—LEAF-TOED GECKOS

Taxonomy for *Phyllodactylus* follows Dixon (1969, Cat. Am. Amph. Rept. 79; 1973, Cat. Am. Amph. Rept. 141) with modifications by Murphy (1983, Occ. Pap. California Acad. Sci. 137: 1–48; treatment of *P. nocticolus* as a species separate from *P. xanti*).

P. nocticolus Dixon, 1964—Peninsular Leaf-toed Gecko

Plestiodon Duméril and Bibron, 1839—TOOTHY SKINKS

Brandley et al. (2005, Syst. Biol. 54: 373–390; see also Griffith, 1991, Ph.D. dissertation, Univ. Toronto; Griffith et al., 2000, Russ. J. Herpetol. 7: 1–16; Schmitz et al., 2004, Hamadryad 28: 73–89) presented evidence that *Eumeces* as formerly circumscribed is not monophyletic, and they resurrected the name *Plestiodon* for a clade containing all of the North American species north of Mexico (and East Asian species), for which Schmitz et al. (op. cit.) had incorrectly resurrected the name *Pariocela*. Taxonomy for *Plestiodon* (often as *Eumeces*) follows Taylor (1935, Univ. Kansas Sci. Bull. 23: 1–643) with modifications by Rodgers (1944, Copeia 1944: 101–104; description of *P. gilberti placerensis*), Smith (1946, Univ. Kansas Pub. Mus. Nat. Hist. 1: 85–89; resurrection of *P. anthracinus pluvialis*), Rodgers and Fitch (1947, Univ. California Pub. Zool. 48: 169–220; description of *P. gilberti cancellosus* and treatment of *P. skiltonianus brevipes* as a synonym of *P. gilberti gilberti*), Smith and Slater (1949, Trans. Kansas Acad. Sci. 52: 438–448; description of *P. septentrionalis pallidus*), McConkey (1957, Bull. Florida St. Mus. (Biol. Sci.) 2: 13–23; description of *P. egregius similis*), Lowe and Shannon (1954, Herpetologica 10: 185–187; description of *P. gilberti arizonensis*), Lowe (1955b, Herpetologica 11: 233–235; treatment of *P. gaigeae* as a subspecies of *P. multivirgatus*), Mecham (1957, Copeia 1957: 111–123; treatment of *P. taylori* as a synonym of *P. m. gaigeae*), Tanner (1958, Great Basin Nat. 17: 59–94; descriptions of *P. skiltonianus utahensis* and *P. s. interparietalis*), Axtell (1961, Texas J. Sci. 13: 345–351; see also Axtell and Smith, 2004, Southwest. Nat. 49: 100; priority of *P. multivirgatus epipleurotus* over *P. m. gaigeae*), Mount (1965, The Reptiles and Amphibians of Alabama, Auburn Univ. Agric. Exper. Station; descriptions of *P. egregius lividus* and *P. e. insularis*), Lieb (1985, Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 357: 1–19; treatment of *P. brevilineatus*, *P. callicephalus*, and *P. tetragrammus* as subspecies of a single species), and those described in additional notes below. With the restriction of *Eumeces* to the former *E. schneideri* group (Brandley et al., op. cit.), the standard English name Great Skinks is appropriate for the members of that clade.

P. anthracinus (Baird, 1850)—Coal Skink

P. a. anthracinus (Baird,1850)—Northern Coal Skink

P. a. pluvialis Cope, 1880—Southern Coal Skink

P. callicephalus Bocourt, 1879—Mountain Skink

Plestiodon callicephalus was treated as a subspecies of *Plestiodon tetragrammus* by Lieb (1985, Contrib. Sci. Nat. Hist. Mus. Los Angeles Cnty. 357: 1–19) but is here recognized as a separate species based on allopatry and morphological diagnosability relative to *P. t. tetragrammus* and *P. t. brevilineatus* (see Tanner, 1987, Great Basin Nat. 47: 383–421).

P. egregius (Baird, 1859 “1858”)—Mole Skink

Branch et al. (2003, Conserv. Gen. 4: 199–212) found that the mainland subspecies *P. e. lividus, P. e. onocrepsis,* and *P. e. similis* exhibit intermixing of mtDNA haplotypes, suggesting that continued recognition of these taxa may not be warranted. Further study is needed, particularly with regard to assessing gene flow between mainland and insular subspecies.

P. e. egregius (Baird, 1859)—Florida Keys Mole Skink

P. e. insularis Mount, 1965—Cedar Key Mole Skink
P. e. lividus Mount, 1965—Blue-tailed Mole Skink
P. e. onocrepis (Cope, 1871)—Peninsula Mole Skink
P. e. similis McConkey, 1957—Northern Mole Skink

P. fasciatus (Linnaeus, 1758)—Common Five-lined Skink

P. "gilberti" Van Denburgh, 1896—Gilbert's Skink

Richmond and Reeder (2002, Evolution 56: 1498–1513) presented evidence that populations previously referred to *Plestiodon gilberti* represent three lineages that separately evolved large body size and the loss of stripes in late ontogenetic stages. Although they considered those three lineages to merit species recognition, they did not propose specific taxonomic changes. We have placed the name "*gilberti*" in quotation marks to indicate that it refers to a species complex.

P. g. arizonensis Lowe and Shannon, 1954—Arizona Skink
P. g. cancellosus Rodgers and Fitch, 1947—Variegated Skink
P. g. gilberti Van Denburgh, 1896—Greater Brown Skink
P. g. placerensis Rodgers, 1944—Northern Brown Skink
P. g. rubricaudatus Taylor, 1935—Western Red-tailed Skink

P. inexpectatus Taylor, 1932—Southeastern Five-lined Skink

P. laticeps (Schneider, 1801)—Broad-headed Skink

P. multivirgatus (Hallowell, 1857)—Many-lined Skink
P. m. epipleurotus Cope, 1880—Variable Skink

Hammerson (1999, Amphibians and Reptiles in Colorado, Univ. Press of Colorado) argued, based on diagnosability and the apparent absence of intergrades, that *Plestiodon multivirgatus epipleurotus* (under the name *P. gaigeae*) is a different species than *P. m. multivirgatus*. We have refrained from adopting this proposal pending an explicit analysis.

P. m. multivirgatus (Hallowell, 1857)—Northern Many-lined Skink

P. obsoletus (Baird and Girard, 1852)—Great Plains Skink

P. reynoldsi Stejneger, 1910—Florida Sand Skink

Brandley et al. (2005, Syst. Biol. 54: 373–390; see also Griffith et al., 2000, Russ. J. Herpetol. 7: 1–16; Richmond and Reeder, 2002, Evolution 56: 1498–1513; Schmitz et al., 2004, Hamadryad 28: 73–89) presented evidence that *Neoseps reynoldsi* is nested within *Plestiodon* (formerly *Eumeces*), closely related to *P. egregius*.

P. septentrionalis (Baird, 1859 "1858")—Prairie Skink

Plestiodon septentrionalis septentrionalis and *P. s. obtusirostris* have sometimes been recognized as species based on allopatry and morphological diagnosability (e.g., Collins, 1991, Herpetol. Rev. 22: 42–43; 1993, Univ. Kansas Mus. Nat. Hist. Public Edu. Ser. No. 13). Fuerst and Austin (2004, J. Herpetol. 38: 257–268) presented mtDNA evidence of 6–7% sequence divergence between *P. s. septentrionalis* and *P. s. obtusirostris*; however, their geographic sampling was inadequate to address genetic continuity versus discontinuity between these taxa. In addition, the name *P. s. pallidus*, absent from the literature of the last 40 years, apparently has never been explicitly treated as a synonym of either *P. s. septentrionalis* or *P. s. obtusirostris*. We have retained the older arrangement of a single species with three subspecies until a rearrangement is proposed based on a study of all three taxa and thorough geographic sampling.

P. s. obtusirostris Bocourt, 1879—Southern Prairie Skink
P. s. pallidus Smith and Slater, 1949—Pallid Skink
P. s. septentrionalis (Baird, 1859)—Northern Prairie Skink

P. skiltonianus (Baird and Girard, 1852)—Western Skink

Richmond and Reeder (2002, Evolution 56: 1498–1513) presented evidence that the subspecies of *Plestiodon skiltonianus*, as currently circumscribed, do not correspond with the boundaries of haplotype clades based on mitochondrial DNA. However, because those authors did not propose a revised subspecies taxonomy, and because resolution of that taxonomy requires more extensive geographic sampling, we have retained the existing subspecies taxonomy (e.g., Tanner, 1988, Cat. Am. Amph. Rept. 447).

P. s. interparietalis Tanner, 1958 "1957"—Coronado Skink

P. s. skiltonianus (Baird and Girard, 1852)—Skilton's Skink

P. s. utahensis Tanner, 1958 "1957"—Great Basin Skink

P. tetragrammus (Baird, 1859 "1858")—Four-lined Skink

Lieb (1985, Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 357: 1–19) treated *Plestiodon callicephalus* as a subspecies of *P. tetragrammus* (see note on *P. callicephalus*).

P. t. brevilineatus Cope, 1880—Short-lined Skink

P. t. tetragrammus (Baird, 1859)—Long-lined Skink

Rhineura Cope, 1861—WIDE-SNOUTED WORMLIZARDS

Taxonomy for *Rhineura* follows Gans (1967, Cat. Am. Amph. Rept. 42; 1967, Cat. Am. Amph. Rept. 43).

R. floridana (Baird, 1859 "1858")—Florida Wormlizard

Mulvaney et al. (2005, J. Herpetol. 39: 118–124) found evidence of substantial divergence between northern and southern populations of *Rhineura floridana* and indicated that these groups of populations may be candidates for recognition as separate species.

Sauromalus Duméril, 1856—CHUCKWALLAS

Taxonomy for *Sauromalus* follows Hollingsworth (1998, Herpetol. Monog. 12: 38–191).

S. ater Duméril, 1856—Common Chuckwalla

A proposal to grant the name *Sauromalus obesus* (Baird) 1858 precedence over *S. ater* Duméril 1856 (Montanucci et al., 2001, Bull. Zool. Nomencl. 58: 37–40) was rejected by the International Commission on Zoological Nomenclature (2004, Bull. Zool. Nomencl. 61: 74–75). Although all mainland populations of *Sauromalus* are currently considered to constitute a single species, intergradation or the lack thereof between geographically contiguous mitochondrial DNA haplotype clades (Petren and Case, 2002, *in* T. J. Case, M. L. Cody, and E. Ezcurra [eds.], A New Island Biogeography of the Sea of Cortés, Oxford Univ. Press, Pp. 574–579) deserves further study.

Sceloporus Wiegmann, 1828—SPINY LIZARDS

Taxonomy for *Sceloporus* follows Schmidt (1953, A Check List of North American Amphibians and Reptiles, Univ. Chicago Press, Chicago) with modifications by Bell (1954, Herpetologica 10: 31–36; resurrection of *S. occidentalis bocourtii* and *S. o. longipes*), Shannon and Urbano (1954, Herpetologica 10: 189–191; description of *S. clarki vallaris*), Phelan and Brattstrom (1955, Herpetologica 11: 1–14; description of *S. magister uniformis*, *S. m. bimaculosus*, and *S. m. transversus*), Tanner (1955, Great Basin Nat. 15: 32–34; description of *S. magister cephaloflavus*), Lowe and Norris (1956, Herpetologica 12: 125–127; description of *S. undulatus cowlesi*), Maslin (1956, Herpetologica 12: 291–294; description of *S. undulatus erythrocheilus*), Smith and Chrapliwy (1958, Herpetologica 13: 267–271; description of subspecies of *S. poinsettii*),

Cole (1963, Copeia 1963: 413–425; treatment of *S. virgatus* as a species separate from *S. undulatus*), Degenhardt and Jones (1972, Herpetologica 28: 212–217; description of *S. graciosus arenicolus*), Olson (1973, Herpetologica 29: 116–127; description of *S. merriami longipunctatus*), Sites and Dixon (1981, J. Herpetol. 15: 59–69; treatment of *disparilis* as a synonym of *microlepidotus*), Smith et al. (1992, Bull. Maryland Herpetol. Soc. 28: 123–149; description of *S. undulatus tedbrowni*), Smith et al. (1996, Bull. Maryland Herpetol. Soc. 32: 70–74; treatment of *S. slevini* as a species separate from *S. scalaris*), and those described in additional notes below.

S. arenicolus Degenhardt and Jones, 1972—Dunes Sagebrush Lizard

Sceloporus arenicolus was originally described as a subspecies of *S. graciosus* (Degenhardt and Jones, 1972, Herpetologica 28: 212–217; see also Censky, 1986, Cat. Am. Amph. Rept. 386) but has been treated as a separate species by several recent authors because of allopatry and a distinctive color pattern relative to other *S. graciosus* (e.g., Collins, 1991, Herpetol. Rev. 22: 42–43; Smith et al., 1992, Bull. Maryland Herpetol. Soc. 28: 123–149, Degenhardt et al., 1996, Amphibians and Reptiles of New Mexico. Univ. New Mexico Press; Wiens and Reeder, 1997, Herpetol. Monog. 11: 1–101). The original spelling *arenicolous* was corrected to *arenicolus* by Smith et al. (1992, Bull. Maryland Herpetol. Soc. 28: 123–149).

S. bimaculosus Phelan and Brattstrom, 1955—Twin-spotted Spiny Lizard

Schulte et al. (2006, Mol. Phylog. Evol. 39: 873–880) presented evidence that the populations formerly referred to *Sceloporus magister* from the Chihuahuan Desert represent a separate species, *S. bimaculosus*, from those of the Sonoran Desert and the southern Colorado Plateau, *S. magister*, and those of the Mohave and western Great Basin Deserts and the Central Valley of California, *S. uniformis*. Evidence that *S. bimaculosus* is separate from *S. magister* is weaker than evidence that *S. magister* is separate from *S. uniformis* because of larger gaps between sampled populations.

S. clarkii Baird and Girard, 1852—Clark's Spiny Lizard

S. c. clarkii Baird and Girard, 1852—Sonoran Spiny Lizard

S. c. vallaris Shannon and Urbano, 1954—Plateau Spiny Lizard

S. consobrinus Baird and Girard, 1853—Prairie Lizard

Leaché and Reeder (2002, Syst. Biol. 51: 44–68) applied the name *S. consobrinus* to the populations formerly referred to *S. undulatus* from the central United States, most (though not all) of which occur in the plains between the Mississippi River and the Rocky Mountains. Their results also suggest that the formerly recognized subspecies *consobrinus* (Southern Prairie Lizard) and *garmani* (Northern Prairie Lizard) are not natural groups, and they did not recognize subspecies within *S. consobrinus*. Leaché and Reeder (op. cit.) noted that the name *S. thayerii* Baird and Girard 1852 (type locality: Indianola, Calhoun Co., TX) may turn out to be the correct name of this species and that populations east of the Mississippi River along the Gulf Coast may represent a separate species. See note for *Sceloporus undulatus*.

S. cowlesi Lowe and Norris, 1956—Southwestern Fence Lizard

Leaché and Reeder (2002, Syst. Biol. 51: 44–68) applied the name *S. cowlesi* to the populations formerly referred to *S. undulatus* from roughly the region of the Chihuahuan Desert. They did not recognize subspecies within *S. cowlesi*. Although the name *S. cowlesi* was originally applied to light colored lizards from the White Sands of New Mexico, Leaché and Reeder (op. cit.) presented evidence that haplotypes from White Sands lizards are deeply nested within a clade of haplotypes from geographically proximate darker lizards, and Rosenblum (2006, Am. Nat. 164: 1–15) found both phylogenetic mixing of haplotypes between light and dark forms and evidence of gene

flow between them. Leaché and Cole (2007, Mol. Ecol. 16: 1035–1054) presented evidence for hybridization between *S. cowlesi* and *S. tristichus*. See note for *Sceloporus undulatus*.

S. cyanogenys Cope, 1885—Blue Spiny Lizard

Olson, 1987, Bull. Maryland Herpetol. Soc. 23: 158–167) treated *Sceloporus cyanogenys* as a subspecies of *S. serrifer* based on apparent integrades between the two forms. However, the results of Wiens and Reeder (1997, Herpetol. Monog. 11: 1–101) suggest that the two forms are not even closest relatives, though relevant relationships are weakly supported. We have retained *S. cyanogenys* pending a more detailed study.

S. graciosus Baird and Girard, 1852—Common Sagebrush Lizard

S. g. gracilis Baird and Girard, 1852—Western Sagebrush Lizard

S. g. graciosus Baird and Girard, 1852—Northern Sagebrush Lizard

S. g. vandenburgianus Cope, 1896—Southern Sagebrush Lizard

Censky (1986, Cat. Am. Amph. Rept. 386) treated *Sceloporus graciosus vandenburgianus* as a subspecies of *S. graciosus*, but Collins (1991, Herpetol. Rev. 22: 42–43) proposed recognizing this taxon as a species, *S. vandenburgianus*. Wiens and Reeder (1997, Herpetol. Monog. 11: 1–101) followed Collins's proposal but noted the morphological similarity and geographic proximity of this taxon to populations of *S. graciosus gracilis*.

S. grammicus Wiegmann, 1828—Graphic Spiny Lizard

Lizards formerly referred to *Sceloporus grammicus* include populations in central Mexico that have been treated as separate species, *S. anahuacus* and *S. palaciosi* (Lara-Gongora, 1983, Bull. Maryland Herpetol. Soc. 19: 1–14), and this proposal has been supported by evidence from allozyme, DNA restriction fragments, and karyotypes (Sites et al., 1988, Herpetologica 44: 297–307; Sites and Davis, 1989, Evolution 43: 296–317). Populations elsewhere in central Mexico and further north, extending into Texas, are part of a complex series of chromosome races that contain additional species (Sites, 1983, Evolution 37: 38–53; Arévalo et al., 1991, Herpetol. Monog. 5: 79–115). Types should be re-examined before these species are named, and it may be that neither the name *grammicus* nor the name *microlepidotus* applies to the populations in southern Texas.

S. g. microlepidotus Wiegmann, 1828—Mesquite Lizard

S. jarrovii Cope, 1875—Yarrow's Spiny Lizard

Wiens et al. (1999, Evolution 53: 1884–1897; see also Wiens and Penkrot, 2002, Syst. Biol. 51: 69–91) presented evidence that several of the previously recognized subspecies of *Sceloporus jarrovii* are not monophyletic and that several clades within the former *S. jarrovii* are more closely related to other species in the *S. torquatus* group than to other populations of the former *S. jarrovii*. Therefore, they recognized five species for the populations formerly referred to *S. jarrovii*, applying the name *S. jarrovii* to the only one of those five species that occurs in the United States (corresponding with the set of populations formerly referred to *S. j. jarrovii*). No subspecies were recognized.

S. magister Hallowell, 1854—Desert Spiny Lizard

Schulte et al. (2006, Mol. Phylog. Evol. 39: 873–880) presented evidence for the recognition of three species within the former *Sceloporus magister* (see notes for *S. bimaculosus* and *S. uniformis*). Because their single sample of *S. m. cephaloflavus* was inferred to be the sister group of the samples representing *S. m. magister*, they retained the two subspecies.

S. m. cephaloflavus Tanner, 1955—Orange-headed Spiny Lizard

S. m. magister Hallowell, 1854—Purple-backed Spiny Lizard

S. merriami Stejneger, 1904—Canyon Lizard

S. m. annulatus Smith, 1937—Big Bend Canyon Lizard

S. m. longipunctatus Olson, 1973—Presidio Canyon Lizard

S. m. merriami Stejneger, 1904—Merriam's Canyon Lizard

S. occidentalis Baird and Girard, 1852—Western Fence Lizard

Smith et al. (1992, Bull. Maryland Herpetol. Soc. 28: 123–149) considered *Sceloporus occidentalis* a superspecies composed of two groups ranked as exerges: I. *S. o.* (exerge *occidentalis*) *occidentalis* and *S. o.* (*occidentalis*) *bocourti* and II. *S. o.* (exerge *biseriatus*) *biseriatus*, *S. o.* (*biseriatus*) *longipes*, *S. o.* (*biseriatus*) *becki*, and *S. o.* (*biseriatus*) *taylori*. A study in progress by Archie (1999, ASIH-HL-SSAR abstract) indicates that at least some of the currently recognized subspecies of *Sceloporus occidentalis* are artificial groups.

S. o. becki Van Denburgh, 1905—Island Fence Lizard

Wiens and Reeder (1997, Herpetol. Monog. 11: 1–101) suggested that *Sceloporus occidentalis becki* should probably be recognized as a species on the basis of diagnosability and allopatry relative to other *S. occidentalis*.

S. o. biseriatus Hallowell, 1854—San Joaquin Fence Lizard

S. o. bocourtii Boulenger, 1885—Coast Range Fence Lizard

S. o. longipes Baird, 1859 "1858"—Great Basin Fence Lizard

S. o. occidentalis Baird and Girard, 1852—Northwestern Fence Lizard

S. o. taylori Camp, 1916—Sierra Fence Lizard

S. olivaceus Smith, 1934—Texas Spiny Lizard

S. orcutti Stejneger, 1893—Granite Spiny Lizard

S. poinsettii Baird and Girard, 1852—Crevice Spiny Lizard

Webb (2006, Bull. Md. Herpetol. Soc. 42: 65–114) recognized five subspecies of *S. poinsettii*, two of which occur in the United States. Given the large area inhabited by lizards not assigned to any of the five subspecies, geographic variation in this taxon deserves further study.

S. p. axtelli Webb, 2006—Texas Crevice Spiny Lizard

S. p. poinsettii Baird and Girard, 1852—New Mexico Crevice Spiny Lizard

S. slevini Smith, 1937—Slevin's Bunchgrass Lizard

S. tristichus Cope *in* Yarrow 1875—Plateau Fence Lizard

Leaché and Reeder (2002, Syst. Biol. 51: 44–68) applied the name *S. tristichus* to the populations formerly referred to *S. undulatus* from roughly the region of the Colorado Plateau. Their results also suggest that the formerly recognized subspecies *tristichus* (Southern Plateau Lizard), *erythrocheilus* (Red-lipped Plateau Lizard), and *elongatus* (Northern Plateau Lizard) are not natural groups, and they did not recognize subspecies within *S. tristichus*. Leaché and Cole (2007, Mol. Ecol. 16: 1035–1054) presented evidence for hybridization between *S. tristichus* and *S. cowlesi*. See note for *Sceloporus undulatus*.

S. undulatus (Bosc and Daudin *in* Sonnini and Latreille, 1801)—Eastern Fence Lizard

Leaché and Reeder (2002, Syst. Biol. 51: 44–68) presented phylogeographic evidence that *Sceloporus undulatus*, as previously circumscribed (e.g., Smith et al., 1992, Bull. Md. Herpetol. Soc. 28: 123–149), is made up of at least four separately evolving lineages, and they applied the name *S. undulatus* to populations east of roughly the 88th meridian. Their results also suggest that the formerly recognized subspecies *undulatus* (Southern

Fence Lizard) and *hyacinthinus* (Northern Fence Lizard) are not natural groups (see also Miles et al., 2002, Herpetologica 58: 277–292), and that the deepest genetic division within *S. undulatus* is not between northern and southern populations but between those east and west of the Appalachian Mountains, though they did not recognize subspecies within *S. undulatus*.

S. uniformis Phelan and Brattstrom, 1955—Yellow-backed Spiny Lizard

Schulte et al. (2006, Mol. Phylog. Evol. 39: 873–880) presented evidence that the populations formerly referred to *Sceloporus magister* from the Mohave and western Great Basin Deserts and the Central Valley of California represent a separate species, *S. uniformis*, from those of the Sonoran Desert and Colorado deserts and the southern Colorado Plateau, *S. magister*, and those of the Chihuahuan Desert, *S. bimaculosus*. They did not recognize the formerly recognized subspecies *S. u. transversus* (Barred Spiny Lizard), which is deeply nested within *S. uniformis*.

S. variabilis Wiegmann, 1834—Rose-bellied Lizard

S. v. marmoratus Hallowell, 1852—Texas Rose-bellied Lizard

Based on patterns of electrophoretically detectable genetic variation, Mendoza-Quijano et al. (1998, Copeia 1998: 354–366) treated *Sceloporus marmoratus* as a species separate from *S. variabilis*; however, their sample of *S. v. marmoratus* was from a single locality separated by more than 500 km from the closest sample of *S. v. variabilis*. More extensive sampling of these taxa from intermediate localities is needed to determine if they constitute separate lineages.

S. virgatus Smith, 1938—Striped Plateau Lizard

S. woodi Stejneger, 1918—Florida Scrub Lizard

Scincella Mittleman, 1950—GROUND SKINKS

Taxonomy for *Scincella* follows Greer (1974, Austral. J. Zool. Suppl. Ser. 31: 1–67).

S. lateralis (Say in James, 1823)—Little Brown Skink

Sphaerodactylus Wagler, 1830—DWARF GECKOS

Taxonomy for *Sphaerodactylus* follows Kluge (1995, Am. Mus. Novit. 3139: 1–23) and Schwartz and Henderson (1988, Contrib. Biol. Geol. Milwaukee Pub. Mus. 74: 1–264).

S. notatus Baird, 1859 "1858"—Reef Gecko

S. n. notatus Baird, 1859 "1858"—Florida Reef Gecko

Uma Baird, 1859 "1858"—FRINGE-TOED LIZARDS

Taxonomy for *Uma* follows Pough (1973, Cat. Am. Amph. Rept. 126; 1974, Cat. Am. Amph. Rept. 155; 1977, Cat. Am. Amph. Rept. 197; see also de Queiroz, 1989, Ph.D. dissertation, Univ. California, Berkeley), with modifications described in additional notes below.

U. inornata Cope, 1895—Coachella Fringe-toed Lizard

U. notata Baird, 1859 "1858"— Colorado Desert Fringe-toed Lizard

Trépanier and Murphy (2001, Mol. Phylog. Evol. 18: 327–334) presented evidence that *Uma notata*, as previously circumscribed, is paraphyletic; the subspecies *U. n. notata* is more closely related to *U. inornata* than to *U. n. rufopunctata* (see also Wilgenbusch and de Queiroz, 2000, Syst. Biol. 49: 592–612). They therefore considered the two previously recognized subspecies to be species.

U. rufopunctata Cope, 1895—Yuman Fringe-toed Lizard

See note for *Uma notata*. Populations formerly assigned to *U. rufopunctata* from the

Mohawk Dunes, Yuma Co., AZ appear to represent a currently undescribed cryptic species (Trépanier and Murphy, 2001, Mol. Phylog. Evol. 18: 327–334).

U. scoparia Cope, 1894—Mohave Fringe-toed Lizard

The spelling of the standard English name has been changed from "Mojave" to "Mohave" for consistency with other names in the list (see note for *Crotalus scutulatus*).

Urosaurus Hallowell, 1854—TREE and BRUSH LIZARDS

Taxonomy for *Urosaurus* follows Mittleman (1942, Bull. Mus. Comp. Zool. 91: 103–181) with modifications by Smith and Taylor (1950, Bull. U. S. Natl. Mus. 199: 1–253; treatment of *U. graciosus* as a species separate from *U. ornatus*; see also Lowe, 1955, Herpetologica 11: 96–101), Murray (1953, Herpetologica 9: 110–112; treatment of *U. ornatus chiricahuae* as a synonym of *U. o. linearis*), Langebartel and Smith (1954, Herpetologica 10: 125–136; treatment of *U. o. linearis* as a synonym of *U. o. schotti*), and Lowe (1955, Herpetologica 11: 96–101; description of *S. graciosus shannoni*).

U. graciosus Hallowell, 1854—Long-tailed Brush Lizard

Wiens (1993, Herpetologica 49: 399–420) did not recognize subspecies of *Urosaurus graciosus*; however, that decision seems to have been based on a philosophical opposition to the recognition of subspecies rather than an analysis indicating that the taxa in question do not represent partially separated lineages. Nevertheless, Vitt and Dickson (1988, Cat. Am. Amph. Rept. 448) called into question the diagnostic characters used to separate these taxa, implying that there is little evidence for the existence of partially separated lineages.

U. g. graciosus Hallowell, 1854—Western Long-tailed Brush Lizard

U. g. shannoni Lowe, 1955—Arizona Long-tailed Brush Lizard

U. nigricaudus (Cope, 1864)—Baja California Brush Lizard

Aguirre et al. (1999, Herpetologica 55: 369–381) and Grismer (1999, Herpetologica 55: 446–469) presented evidence that *Urosaurus microscutatus* and *U. nigricaudus* constitute a single species, for which the name *U. nigricaudus* has priority and within which no subspecies were recognized. The English name Black-tailed Brush Lizard was applied to *U. nigricaudus* when that species was thought to include only populations from southern Baja California; however, that name is descriptively misleading when applied to the species as currently circumscribed. Although the English name Baja California Brush Lizard has been used for *U. lahtelai* (e.g., Stebbins, 1985, A Field Guide to Western Reptiles and Amphibians, Houghton Mifflin Co.; Grismer, 2002, Amphibians and Reptiles of Baja California, Including Its Pacific Islands and the Islands in the Sea of Cortés, Univ. California Press), that species is restricted to a small area in the vicinity of Cataviña (suggesting the English name Cataviña Brush Lizard); in contrast, *U. nigricaudus* is widely distributed in, and more-or-less restricted to, Baja California.

U. ornatus (Baird and Girard, 1852)—Ornate Tree Lizard

Wiens (1993, Herpetologica 49: 399–420) did not recognize subspecies of *Urosaurus ornatus*; however, that decision seems to have been based on a philosophical opposition to the recognition of subspecies rather than an analysis indicating that the taxa in question do not represent partially separated lineages.

U. o. levis (Stejneger, 1890)—Smooth Tree Lizard

U. o. ornatus (Baird and Girard, 1852)—Texas Tree Lizard

U. o. schmidti (Mittleman, 1940)—Big Bend Tree Lizard

U. o. schottii (Baird, 1859 "1858")—Schott's Tree Lizard

U. o. symmetricus (Baird, 1859 "1858")—Colorado River Tree Lizard

U. o. wrighti (Schmidt, 1921)—Northern Tree Lizard

Uta Baird and Girard, 1852—SIDE-BLOTCHED LIZARDS

Taxonomy for *Uta* follows Pack and Tanner (1970, Great Basin Nat. 30: 71–90), McKinney (1971, Copeia 1971: 596–613), and Ballinger and Tinkle (1972, Misc. Pub. Mus. Zool. Univ. Michigan 145: 1–83).

U. stansburiana Baird and Girard, 1852—Common Side-blotched Lizard

Upton and Murphy (1997, Mol. Phylog. Evol. 8: 104–113) presented evidence for a distant relationship between *Uta* specimens from Durango versus those from Baja California and surrounding islands (as well as one locality in western Sonora), and they considered the Durango population to constitute a different species, to which they applied the name *U. stejnegeri*. Upton and Murphy's study did not include any populations from the United States, where *Uta* is widely distributed (including the type localities of both *stansburiana* and *stejnegeri*), and we have therefore refrained from adopting their taxonomic proposal until more information is obtained on the relationships of the United States populations.

U. s. elegans Yarrow, 1882—Western Side-blotched Lizard

U. s. nevadensis Ruthven, 1913—Nevada Side-blotched Lizard

U. s. stansburiana Baird and Girard, 1852—Northern Side-blotched Lizard

U. s. stejnegeri Schmidt, 1921—Eastern Side-blotched Lizard

U. s. uniformis Pack and Tanner, 1970—Plateau Side-blotched Lizard

Xantusia Baird, 1859 "1858"—NIGHT LIZARDS

Taxonomy for *Xantusia* follows Savage (1963, Contrib. Sci. Los Angeles Co. Mus. 71: 1–38) as modified by Bezy (1967, J. Arizona Acad. Sci. 4: 163–167; description of *X. vigilis sierrae*; 1972, Contrib. Sci. Los Angeles Co. Mus. 227: 1–29; inclusion of *Klauberina riversiana* in *Xantusia*), Grismer and Galvan (1983, Trans. San Diego Soc. Nat. Hist. 21: 155–165; description of *X. henshawi gracilis*), and those described in the following notes.

X. arizonae Klauber, 1931—Arizona Night Lizard

Papenfuss et al. (2001, Sci. Pap. Nat. Hist. Mus. Univ. Kansas 23: 1–9) and Sinclair et al. (2004, Am. Nat. 164: 396–414) recognized *Xantusia arizonae* as a separate species from *X. vigilis* (see Bezy, 1967, Copeia 1967: 653–661) based on mtDNA phylogenies and fixed allozyme differences.

X. bezyi Papenfuss, Macey, and Schulte, 2001—Bezy's Night Lizard

X. gracilis Grismer and Galvan, 1986—Sandstone Night Lizard

Lovich (2001, Herpetologica 57: 470–487), presented evidence that the population formerly designated *Xantusia henshawi gracilis* is evolving separately from other populations of *X. henshawi* and recognized it as a species.

X. henshawi Stejneger, 1893—Granite Night Lizard

Lovich (2001, Herpetologica 57: 470–487) presented evidence that the populations of *Xantusia henshawi* represent at least three separately evolving lineages, though he did not propose recognizing them as species.

X. riversiana Cope, 1883—Island Night Lizard

X. r. reticulata Smith, 1946—San Clemente Night Lizard

X. r. riversiana Cope, 1883—San Nicolas Night Lizard

X. sierrae Bezy, 1967—Sierra Night Lizard

Sinclair et al. (2004, Am. Nat. 164: 396–414) tentatively recognized populations formerly recognized as the subspecies *Xantusia vigilis sierrae* as a separate species from *X. vigilis*, despite the nesting of mtDNA haplotypes of the former within those of the latter, based on morphological and allozyme differences that are maintained in close geographic proximity to *X. vigilis*.

X. vigilis Baird, 1859 "1858"—Desert Night Lizard

Sinclair et al. (2004, Am. Nat. 164: 396–414) recognized several species for the populations formerly assigned to *Xantusia vigilis* (see notes for *X. arizonae*, *X. sierrae*, and *X. wigginsi*). They argued that there was no evidence for the validity of *X. v. utahensis*, and the two populations sampled were both deeply nested within and exhibited little divergence from other populations of *X. vigilis*.

X. wigginsi Savage, 1952—Wiggins' Night Lizard

Sinclair et al. (2004, Am. Nat. 164: 396–414) recognized populations formerly assigned to *Xantusia vigilis* from southernmost California and northern Baja California as a separate species, *X. wigginsi*, based on mtDNA haplotype relationships and allozyme differences.

Squamata — Snakes

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Agkistrodon Palisot de Beauvois, 1799—AMERICAN MOCCASINS

A. contortrix (Linnaeus, 1766)—Copperhead

Evidence from mtDNA data suggests that this single species may be composed of multiple independently evolving lineages not concordant with traditional subspecific designations (Guiher and Burbrink, pers. comm.).

A. c. contortrix (Linnaeus, 1766)—Southern Copperhead
A. c. laticinctus Gloyd and Conant, 1934—Broad-banded Copperhead
A. c. mokasen Palisot de Beauvois, 1799—Northern Copperhead
A. c. phaeogaster Gloyd, 1969—Osage Copperhead
A. c. pictigaster Gloyd and Conant, 1943—Trans-Pecos Copperhead

A. piscivorus (Lacépède, 1789)—Cottonmouth

Evidence from mtDNA data suggests that this single species may be composed of multiple independently evolving lineages (Guiher and Burbrink, pers. comm.).

A. p. conanti Gloyd, 1969—Florida Cottonmouth
A. p. leucostoma (Troost, 1836)—Western Cottonmouth
A. p. piscivorus (Lacépède, 1789)—Eastern Cottonmouth

Arizona Kennicott, 1859—GLOSSY SNAKES

Collins (1991, Herpetol. Rev. 22: 42–43) elevated *A. e. occidentalis* to specific status to include all populations in the Sonoran and Mohave Desert region. This arrangement was followed by Liner (1994, SSAR Herpetol. Circ. 23: 1–113) and Collins (1997, SSAR Herpetol. Circ. 25: 1–40). Collins (1991, Herpetol. Rev. 22: 42–43) was the first use of this binomial. Because no discussion of the taxonomic diagnosis was presented (although Dixon [1959, Southwest. Nat. 4: 20–29] found tail length differences between eastern and western groups), we retain *occidentalis* as a nominal subspecies.

A. elegans Kennicott, 1859—Glossy Snake

A. e. arenicola Dixon, 1960—Texas Glossy Snake
A. e. candida Klauber, 1946—Mohave Glossy Snake
A. e. eburnata Klauber, 1946—Desert Glossy Snake

A. e. elegans Kennicott, 1859—Kansas Glossy Snake
A. e. noctivaga Klauber, 1946—Arizona Glossy Snake
A. e. occidentalis Blanchard, 1924—California Glossy Snake
A. e. philipi Klauber, 1946—Painted Desert Glossy Snake

Bogertophis Dowling and Price, 1988—DESERT RATSNAKES
Recognition of *Bogertophis* as distinct from *Elaphe* is supported by mtDNA data (Utiger et al. 2002. Russian J. Herpetol. 9: 105–124). Burbrink and Lawson (2006), using sequences from four mtDNA genes and one nuclear gene, demonstrated that *Bogertophis* is part of the monophyletic New World Lampropeltini and in fact not closely related to the Old World *Elaphe.*

B. rosaliae (Mocquard, 1899)—Baja California Ratsnake
B. subocularis (Brown, 1901)—Trans-Pecos Ratsnake
B. s. subocularis (Brown, 1901)—Trans-Pecos Ratsnake

Carphophis Gervais, 1843—NORTH AMERICAN WORMSNAKES
C. amoenus (Say, 1825)—Eastern Wormsnake
C. a. amoenus (Say, 1825)—Eastern Wormsnake
C. a. helenae (Kennicott, 1859)—Midwestern Wormsnake
C. vermis (Kennicott, 1859)—Western Wormsnake
Clark (1968, Herpetologica 24: 104–112) recommended elevation of *vermis* to species status on the basis of allopatry and morphology, but Rossman (1973, J. Herpetol. 7: 140–141) presented evidence in the form of intergrade populations for the conspecificity of *amoenus* and *vermis*. Collins (1991, Herpetol. Rev. 22: 42–43) considered *C. vermis* to be distinct from *C. amoenus*, the implication being that the intermediate (and isolated) population discussed by Rossman was either considered part of *C. vermis*, or an unnamed taxon.

Cemophora Cope, 1860—SCARLETSNAKES
The recognition of this genus renders *Lampropeltis* paraphyletic (Burbrink and Lawson, 2006). No recent studies using morphological (last reviewed by Williams and Wilson, 1967, Tulane Studies in Zoology 13: 103-124) or molecular data have examined the taxonomy of this wide-ranging species.

C. coccinea (Blumenbach, 1788)—Scarletsnake
C. c. coccinea (Blumenbach, 1788)—Florida Scarletsnake
C. c. copei Jan, 1863—Northern Scarletsnake
C. c. lineri Williams, Brown and Wilson, 1966—Texas Scarletsnake

Charina (Gray 1849)—RUBBER BOAS
Kluge (1993, Zool. J. Linn. Soc. 107: 293–351) placed *Lichanura* in the synonymy of *Charina* because they formed sister taxa. Burbrink (2005, Mol. Phylog. Evo. 34: 167–180) corroborated the sister taxon relationships found by Kluge. However, with the recognition of *C. umbratica* and that both *Charina* and *Lichanura* contain fossil species, *Charina* and *Lichanura* are no longer monotypic sister taxa and as such are treated herein as separate genera.

C. bottae (Blainville, 1835)—Northern Rubber Boa

C. umbratica Klauber, 1943—Southern Rubber Boa

Rodríguez-Robles et al. (2001, Mol. Phylog. Evol. 18: 227–237), used mtDNA sequence and considered allozyme data from a previous study (Weisman, 1988, MS Thesis, CSU Polytechnic Pomona) and found *C. b. umbratica* to represent a morphologically distinct, allopatric entity that they elevated to species status.

Chilomeniscus Cope, 1860—SANDSNAKES

C. stramineus Cope, 1860—Variable Sandsnake

Grismer et al. (2002, Herpetologica 58: 18–31) found *C. cinctus*, *C. punctatissimus*, and *C. stramineus* to represent morphotypes of a single species.

Chionactis Cope, 1860—SHOVEL-NOSED SNAKES

C. occipitalis (Hallowell, 1854)—Western Shovel-nosed Snake

C. o. annulata (Baird, 1859)—Colorado Desert Shovel-nosed Snake

There is some question as to the validity of the name *C. saxatilis* (Funk, 1967, Southwest Nat. 12: 180), the Gila Mountains Shovel-nosed Snake; generally considered to be a synonym of *C. o. annulata* (see John Cross, 1978, Ph.D. dissertation, Univ. Arizona). Mahrdt et al. (2001, Cat. Am. Amph. Rept. 730) considered *C. saxatilis* a synonym of *C. o. annulata.*

C. o. klauberi (Stickel, 1941)—Tucson Shovel-nosed Snake

C. o. occipitalis (Hallowell, 1854)—Mohave Shovel-nosed Snake

C. o. talpina Klauber, 1951—Nevada Shovel-nosed Snake

C. palarostris (Klauber, 1937)—Sonoran Shovel-nosed Snake

C. p. organica Klauber, 1951—Organ Pipe Shovel-nosed Snake

Clonophis Cope, 1889—KIRTLAND'S SNAKES

C. kirtlandii (Kennicott, 1856)—Kirtland's Snake

Coluber Linnaeus, 1758—NORTH AMERICAN RACERS, COACHWHIPS AND WHIPSNAKES

Nagy et al. (2004, J. Zool. Syst. Evol. Res. 42: 223–233) restricted the genus *Coluber* to the new World and hinted at the position of *Masticophis* within *Coluber*. Utiger et al. (2005, Russian J. Herpetol. 12: 39–60) supported Nagy et al. and found *Masticophis* paraphyletic with respect to *Coluber* and synonymized *Masticophis* with *Coluber* (the oldest available name). Burbrink (pers. comm.) has data to reject Nagy et al.'s hypothesis but we await publication of these data before reconsidering the status of *Masticophis*.

C. bilineatus (Jan, 1863)—Sonoran Whipsnake

Contrary to Collins (1997, SSAR Herpetol. Circ. 25: 1–40), Camper and Dixon (1994, Ann. Carnegie Mus. Nat. Hist. 63: 1–48) did not recognize any subspecies for *bilineatus*.

C. constrictor Linnaeus, 1758—North American Racer

Fitch et al. (1981, Trans, Kansas Acad. Sci. 84: 196–203) argued for the elevation of *C. c. mormon*. This recommendation was rejected by Greene (1983, J. Herpetol. 18: 210–211). Greene's rejection of *C. mormon* was supported by Corn and Bury (1986, Herpetologica 42: 258–264) who showed that a broad zone of intergradation exists across Colorado and Utah. Collins (1991, Herpetol. Rev. 22: 42–43) re-elevated *mormon* to specific status, although allopatry was not suitably demonstrated. Anderson (1996, MS thesis, Southeastern Louisiana Univ.) argued that based on allozyme data *C. c. mormon* cannot be differentiated but that *C. c. paludicola* and *C. c. oaxaca* were diagnosable and

should be elevated to species status. We retain *C. c. mormon* and await action on *oaxaca* and *paludicola* until the data are published. Additionally, Burbrink et al. (in rev.) have demonstrated using mtDNA that *C. constrictor* may be composed of six independently evolving lineages not concordant with most recognized subspecies.

C. c. anthicus (Cope, 1862)—Buttermilk Racer
C. c. constrictor Linnaeus, 1758—Northern Black Racer
C. c. etheridgei Wilson, 1970—Tan Racer
C. c. flaviventris Say, 1823—Eastern Yellow-bellied Racer
C. c. foxii (Baird and Girard, 1853)—Blue Racer
C. c. helvigularis Auffenberg, 1955—Brown-chinned Racer
C. c. latrunculus Wilson, 1970—Black-masked Racer
C. c. mormon Baird and Girard, 1852—Western Yellow-bellied Racer
C. c. oaxaca (Jan, 1863)—Mexican Racer
C. c. paludicola Auffenberg and Babbitt, 1953—Everglades Racer
C. c. priapus Dunn and Wood, 1939—Southern Black Racer

C. flagellum Shaw, 1802—Coachwhip

The status of the subspecies with respect to continuous variation or discoverable lineages is unclear. The distribution of *C. f. flagellum* on both sides of the Mississippi River suggests to us that its diagnosis may be pervasively plesiomorphic.

C. f. cingulum (Lowe and Woodin, 1954)—Sonoran Coachwhip
C. f. flagellum Shaw, 1802—Eastern Coachwhip
C. f. lineatulus (Smith, 1941)—Lined Coachwhip
C. f. piceus (Cope, 1892)—Red Racer
C. f. ruddocki (Brattstrom and Warren, 1953)—San Joaquin Coachwhip
C. f. testaceus Say, 1823—Western Coachwhip

C. fuliginosus (Cope, 1895)—Baja California Coachwhip

On the basis of a sympatric occurrence with *C. flagellum*, Grismer (1994, Herpetol. Nat. Hist. 2: 51; 2002, Amphibians and Reptiles of Baja California, Including Its Pacific Islands and the Islands in the Sea of Cortés, Univ. California Press) elevated *C. f. fuliginosus* to species status.

C. lateralis (Hallowell, 1853)—Striped Racer
C. l. euryxanthus (Riemer, 1954)—Alameda Striped Racer
C. l. lateralis (Hallowell, 1853)—California Striped Racer

C. schotti (Baird and Girard, 1853)—Schott's Whipsnake

Camper and Dixon (1994, Ann. Carnegie Mus. Nat. Hist. 63: 1–48) elevated *schotti* and *ruthveni* from the status as races of *C. taeniatus*.

C. s. ruthveni (Ortenburger, 1923)—Ruthven's Whipsnake
C. s. schotti (Baird and Girard, 1853)—Schott's Whipsnake

C. taeniatus (Hallowell, 1852)—Striped Whipsnake
C. t. girardi (Stejneger and Barbour, 1917)—Central Texas Whipsnake
C. t. taeniatus (Hallowell, 1852)—Desert Striped Whipsnake

Coniophanes Hallowell, 1860—BLACK-STRIPED SNAKES

C. imperialis (Baird and Girard, 1859)—Regal Black-striped Snake
C. i. imperialis (Baird and Girard, 1859)—Tamaulipan Black-striped Snake

Contia Baird and Girard, 1853—SHARP-TAILED SNAKES

C. tenuis (Baird and Girard, 1852)—Sharp-tailed Snake

Hoyer (2001, Northwest. Nat. 82: 116–122) found *C. tenuis* to comprise two morphological species. Molecular data presented by Feldman and Spicer (2002, J. Herpetol. 36: 648–655) support recognition of two species, but the new species remains unnamed.

Crotalus Linnaeus, 1758—RATTLESNAKES

The traditional view of rattlesnake taxonomy that recognizes two monophyletic sister genera (e.g. Brattstrom, 1964, San Diego Soc. Nat. Hist. 13: 185–268), *Crotalus* and *Sistrurus*, has been challenged. Stille (1987, Herpetologica 43: 98–104) and McCranie (1989, Herpetologica 44: 123–126) presented data that suggested *Sistrurus* is not monophyletic and rendered *Crotalus* paraphyletic. Parkinson (1999, Copeia 1999: 576–586) found *Sistrurus* monophyletic but its position rendered *Crotalus* paraphyletic. Knight et al. (1993, Syst. Biol. 42: 356–367) used mtDNA to defend the traditional generic taxonomy, but in order to do so they had to ignore the most parsimonious tree. Murphy et al. (2002, *in* Schuett et al. [eds.] Biology of the Vipers, Eagle Mountain Publishing, Pp. 69–92) resolved the paraphyly by placing *S. ravus* (extralimital) in *Crotalus*.

C. adamanteus Palisot de Beauvois, 1799—Eastern Diamond-backed Rattlesnake

C. atrox Baird and Girard, 1853—Western Diamond-backed Rattlesnake

C. cerastes Hallowell, 1854—Sidewinder

Douglas et al. (2006, Mol. Ecol. 15: 3353–3374), using mtDNA, resolved several clades within *cerastes*, with only one corresponding to a currently recognized subspecies. (*C. c. laterorepens*).

C. c. cerastes Hallowell, 1854—Mohave Desert Sidewinder

C. c. cercobombus Savage and Cliff, 1953—Sonoran Sidewinder

C. c. laterorepens Klauber, 1944—Colorado Desert Sidewinder

C. cerberus (Coues, 1875)—Arizona Black Rattlesnake

See annotation under *C. oreganus*.

C. horridus Linnaeus, 1758—Timber Rattlesnake

Pisani et al. (1972, Trans. Kansas Acad. Sci. 75: 255–263) conducted a multivariate analysis of variation in *C. horridus* and concluded that characters tended to be clinal and recommended against recognition of the two subspecies. Brown and Ernst (1986, Brimleyana 12: 57–74) countered that morphology in the eastern part of the range supported recognition of coastal plain and montane subspecies. Clark et al. (2003, J. Herpetol. 37: 145–154) identified a number of mtDNA haplotypes that did not correspond with the classic arrangement of subspecies within *C. horridus*.

C. lepidus (Kennicott, 1861)—Rock Rattlesnake

C. l. klauberi Gloyd, 1936—Banded Rock Rattlesnake

C. l. lepidus (Kennicott, 1861)—Mottled Rock Rattlesnake

C. mitchellii (Cope, 1861)—Speckled Rattlesnake

C. m. pyrrhus (Cope, 1867)—Southwestern Speckled Rattlesnake

C. molossus Baird and Girard, 1853—Black-tailed Rattlesnake

C. m. molossus Baird and Girard, 1853—Northern Black-tailed Rattlesnake

C. oreganus Holbrook, 1840—Western Rattlesnake

Pook et al. (2000, Mol. Phylog. Evol. 15: 269–282), Ashton and de Queiroz (2001, Mol. Phylog. Evol. 21: 176–189), and Douglas et al. (2004, Biology of the Vipers, Schuett, Hoggren, Douglas, Greene [eds.] Eagle Mountain Press) analyzed mtDNA sequence data and concluded that *Crotalus viridis* comprised at least two clades, *C. viridis* and *C. oreganus*, with *C. cerberus* being the sister taxon to populations of *C. oreganus*. The former two studies did not formally recognize *C. cerberus* as a species, although both suggested that it was an evolutionary species based on sequence differences and allopatry. The latter study did recognize *C. cerberus* as well as four other taxa. We take the conservative action supported by the congruence among all three studies, which is the recognition of *C. viridis*, *C. oreganus* and *C. cerberus*.

C. o. abyssus Klauber, 1930—Grand Canyon Rattlesnake

C. o. concolor Woodbury, 1929—Midget Faded Rattlesnake

C. o. helleri Meek, 1905—Southern Pacific Rattlesnake

C. o. lutosus Klauber, 1930—Great Basin Rattlesnake

C. o. oreganus Holbrook, 1840—Northern Pacific Rattlesnake

C. pricei Van Denburgh, 1895—Twin-spotted Rattlesnake

The status of the two widely allopatric subspecies (one extralimital) requires reevaluation.

C. p. pricei Van Denburgh, 1895—Western Twin-spotted Rattlesnake

C. ruber Cope, 1892—Red Diamond Rattlesnake

The International Commission on Zoological Nomenclature (2000, Bull. Zool. Nomencl. 57: 189–190. Opinion 1960) has ruled that the name *Crotalus ruber* Cope 1892 take precedence over *C. exsul* Garman 1884 when used as a specific epithet.

C. scutulatus (Kennicott, 1861)—Mohave Rattlesnake

The spelling of the word "Mojave" or "Mohave" has been a subject of debate. Lowe in the preface to his "Venomous Reptiles of Arizona" (1986) argued for "Mohave" as did Campbell and Lamar (2004,"The Venomous Reptiles of the Western Hemisphere"). According to linguistic experts on Native American languages, either spelling is correct, but using either the "j" or "h" is based on whether the word is used in a Spanish or English context. Given that this is an English names list, we use the "h" spelling (pers. comm. Pamela Munro, Linguistics, UCLA).

C. s. scutulatus (Kennicott, 1861)—Northern Mohave Rattlesnake

The English name of the nominal subspecies has been changed to reflect the distribution rather than describe rattlesnakes from a small portion of its distribution (pers. comm. D. Hardy and H. Greene).

C. stephensi Klauber, 1930—Panamint Rattlesnake

Elevated to species by Douglas et al. (2007, Copeia 4: in press).

C. tigris Kennicott, 1859—Tiger Rattlesnake

C. viridis (Rafinesque, 1818)—Prairie Rattlesnake

See comments under *C. oreganus*. Douglas et al. (2004, Biology of the Vipers, Schuett, Hoggren, Douglas, Greene [eds.] Eagle Mountain Press) synonymized *C.v. nuntius* with *C. v. viridis*.

C. willardi Meek, 1905—Ridge-nosed Rattlesnake

C. w. obscurus Harris and Simmons, 1976—New Mexico Ridge-nosed Rattlesnake

C. w. willardi Meek, 1905—Arizona Ridge-nosed Rattlesnake

Diadophis Baird and Girard, 1853—RING-NECKED SNAKES

D. punctatus (Linnaeus, 1766)—Ring-necked Snake

Evidence to synonymize the various races into a single species has been poorly presented, although our arrangement follows the traditional subspecies groupings. In particular, the sympatry of *D. p. regalis* and *D. p. arnyi* suggests that more than one lineage exists (Gehlbach, 1974, Herpetologica 30: 140–148). Pinou et al. (1995, J. Herpetol. 29: 105–110) presented immunological distance data from serum albumin that indicated the presence of genetic divergence and perhaps species level differentiation between *edwardsii* and the other subspecies, except *punctatus*. These data appear to support the conclusion reached by Blanchard (1942, Bull. Chicago Acad. Sci. 7: 1–144) over fifty years ago that *Diadophis* is not monotypic in the United States. Although such differentiation probably exists, elevation of taxa is premature in the absence of a range-wide phylogeographic analysis using both nuclear and mtDNA markers. An ongoing molecular genetics project has found the subspecies in California (*amabilis*, *modestus*, *occidentalis*, *pulchellus*, *similis*, and *vandenburghii*) to be nearly indistinguishable and probably do not represent unique evolutionary lineages (Feldman and Spicer, 2006, Mol. Ecol. 15: 2201–2222). Additionally, using sequences from multiple genes sampled from specimens across their range, it seems apparent that this monotypic species may be composed of multiple independently evolving lineages that do not follow the geographic range of the subspecies (F. Fontanella and F. Burbrink, pers. comm.).

D. p. acricus Paulson, 1968—Key Ring-necked Snake
D. p. amabilis Baird and Girard, 1853—Pacific Ring-necked Snake
D. p. arnyi Kennicott, 1859—Prairie Ring-necked Snake
D. p. edwardsii (Merrem, 1820)—Northern Ring-necked Snake
D. p. modestus Bocourt, 1886—San Bernardino Ring-necked Snake
D. p. occidentalis Blanchard, 1923—Northwestern Ring-necked Snake
D. p. pulchellus Baird and Girard, 1853—Coral-bellied Ring-necked Snake
D. p. punctatus (Linnaeus, 1766)—Southern Ring-necked Snake
D. p. regalis Baird and Girard, 1853—Regal Ring-necked Snake
D. p. similis Blanchard, 1923—San Diego Ring-necked Snake
D. p. stictogenys Cope, 1860—Mississippi Ring-necked Snake
D. p. vandenburgii Blanchard, 1923—Monterey Ring-necked Snake

Drymarchon Fitzinger, 1843—INDIGO SNAKES

D. couperi (Holbrook, 1842)—Eastern Indigo Snake

Wuster et al. (2001, Herpetol. J. 11: 157–165) used morphology to support the specific status of *couperi*.

D. melanurus (Duméril, Bibron and Duméril, 1854)—Central American Indigo Snake

Wüster et al. (2001, Herpetol. J. 11: 157–165) found two taxa of *Drymarchon* coexisting in northern Venezuela, representing South American (*D. corais*) and Central/North American (*D. melanurus*) taxa.

D. m. erebennus (Cope, 1860)—Texas Indigo Snake

Drymobius Fitzinger, 1843—NEOTROPICAL RACERS

D. margaritiferus (Schlegel, 1837)—Speckled Racer

D. m. margaritiferus (Schlegel, 1837)—Northern Speckled Racer

Farancia Gray, 1842—MUDSNAKES AND RAINBOW SNAKES

F. abacura (Holbrook, 1836)—Red-bellied Mudsnake

Cundall and Rossman (1984, Herpetologica 40: 388–405) presented skull data that indicated substantial divergence between *F. a. abacura* and *F. a. reinwardtii*.

F. a. abacura (Holbrook, 1836)—Eastern Mudsnake

F. a. reinwardtii Schlegel, 1837—Western Mudsnake

F. erytrogramma (Palisot de Beauvois *in* Sonnini and Latreille, 1801)—Rainbow Snake

F. e. erytrogramma (Palisot de Beauvois *in* Sonnini and Latreille, 1801)—Common Rainbow Snake

F. e. seminola Neill, 1964—Southern Florida Rainbow Snake

Ficimia Gray, 1849—Eastern Hook-nosed Snakes

The previous Standard English names of *Ficimia* and *Gyalopion* made little sense with respect to physical location where these species live. All are distributed in Mexico, but *Ficimia* had the moniker "Mexican" whereas *Gyalopion* had the name "Plateau" yet is clearly not confined to any plateau. Given that *Ficimia* has the easternmost distribution, we call it "Eastern" and call *Gyalopion* "Western."

F. streckeri Taylor, 1931—Tamaulipan Hook-nosed Snake

Gyalopion Cope, 1860—Western Hook-nosed Snakes

See note on *Ficimia*.

G. canum Cope, 1860—Chihuahuan Hook-nosed Snake

G. quadrangulare (Günther, 1893)—Thornscrub Hook-nosed Snake

Heterodon Latreille, 1801—North American Hog-nosed Snakes

H. gloydi Edgren, 1952—Dusty Hog-nosed Snake

Werler and Dixon (2000, Texas Snakes, University of Texas Press, Austin) regarded *H. n. gloydi* to be an allopatric, diagnosable taxon restricted to the low plains - eastern forest ecotone of eastern Texas. Smith et al. (2003, J. Kansas Herpetol. 5: 17–20) countered that it was not diagnosable.

H. kennerlyi Kennicott, 1860—Mexican Hog-nosed Snake

Smith et al. (2003, J. Kansas Herpetol. 5: 17–20), based on two scale characters, separated *H. n. kennerlyi* from *H. n. nasicus* and elevated the former to species.

H. nasicus Baird and Girard, 1852—Plains Hog-nosed Snake

Because the three subspecies of *Heterodon nasicus* have been evelated to species, their respective standard English names remain associated with each. Hence, there is no longer a "Western Hog-nosed Snake."

H. platirhinos Latreille, 1801—Eastern Hog-nosed Snake

H. simus (Linnaeus, 1766)—Southern Hog-nosed Snake

Hypsiglena Cope, 1860—NORTH AMERICAN NIGHTSNAKES

Taxonomy of *Hypsiglena* has received some critical review since Tanner's revision of the genus (1944, Great Basin Nat. 5: 25–92). Dixon (1965, Southwest. Nat. 10: 125–131) and Dixon and Dean (1986, Southwest. Nat. 31: 307–318) studied a morphological contact zone between northern and southern taxa at the Sonora–Sinaloa border in Mexico, finding that it comprised a narrow zone of hybridization with some taxa existing in sympatry.

Hardy and McDiarmid (1969, Univ. Kansas Pub. Mus. Nat. Hist. 18: 39–252) examined specimens across the range of this presumptive contact and elsewhere in western Mexico and concluded that no morphological characters existed to separate *torquata* and *ochrorhyncha*, except maybe nuchal patterns, which they decided (p. 170) was "a case of pattern dimorphism in a single, otherwise uniform, species." Grismer et al. (1994, Bull. So. California Acad. Sci. 93: 45–80) dismissed the recognition of subspecies in Baja California, stating, without evidence, that the subspecies intergrade widely. Mulcahy (2006, PhD dissertation, Utah State University) conducted a comprehensive phylogeographic study of *Hypsiglena* based on an mtDNA analysis of ~175 individuals. Mulcahy (op. cit) recognized six species in what was previously considered *H. torquata*, five of which are consistent with previously described lineages (e.g. subspecies), while one represents a unique lineage that remains to be described. Mulcahy (op. cit.) also recommended maintaining the subspecies designations for several of the widespread, polymorphic species, which may represent incipient species. The nominal species *H. torquata* is now restricted to Mexico, three described forms occur in the USA, and the undescribed form is endemic to the Cochise Filter Barrier area of southeastern Arizona and associated New Mexico.

H. jani (Duges, 1866)—Chihuahuan Nightsnake
H. j. texana (Stejneger, 1893)—Texas Nightsnake
H. chlorophaea Cope, 1860—Desert Nightsnake
H. c. deserticola (Tanner, 1944)—Northern Desert Nightsnake
H. c. loreala (Tanner, 1944)—Mesa Verde Nightsnake
H. c. chlorophaea Cope, 1860—Sonoran Nightsnake
H. ochrorhyncha Cope, 1860—Coast Nightsnake
H. o. nuchalata (Tanner, 1943)—California Nightsnake
H. o. klauberi Tanner, 1944—San Diego Nightsnake

Lampropeltis Fitzinger, 1843—KINGSNAKES

The specific and infraspecific variation within this genus remains uncertain. While Keogh (1996, Herpetologica 52: 406–416) could separate the tri-colored and the bi-colored taxa, he could not distinguish among *pyromelana*, *triangulum*, and *zonata*.

L. alterna (Brown, 1901)—Gray-banded Kingsnake

Garstka (1982, Breviora 466: 1–35) and more recently Bryson et al. (2007, Mol. Phylog. Evol. 43: 674–684) reviewed the *mexicana* species group of *Lampropeltis*. Based on the more recent molecular work it appears that not only are the *mexicana* and *triangulum* groups polyphyletic, but the putative species *mexicana* and *alterna* are also not monophyletic. Until more data are available to resolve the taxonomy of these groups, we withhold making any changes. And given the apparent complexity of *L. alterna*, we do not recognize any subspecies even though Hilken and Schlepper (1998, Salamandra 34: 97–124) argued for recognition of *L. alterna alterna* and *L. a. blairi*.

L. calligaster (Harlan, 1827)— Yellow-bellied Kingsnake
L. c. calligaster (Harlan, 1827)— Prairie Kingsnake
L. c. occipitolineata Price, 1987—South Florida Mole Kingsnake
L. c. rhombomaculata (Holbrook, 1840)—Mole Kingsnake
L. extenuata (Brown, 1890)—Short-tailed Snake

Dowling and Maxson (1990, J. Zool. London 221: 77–85), using immunological distance data, found *Stilosoma* to fall within *Lampropeltis*. Keogh (1996, Herpetologica 52: 406–416), however, did not recover a paraphyletic *Lampropeltis* with respect to

Stilosoma, but found *Stilosoma* as part of the probable sister group to *Lampropeltis*. In corroboration of Dowling and Maxson, Rodriguez-Robles and de Jesus Escobar (1999, Biol. J. Linn. Soc. 68: 355–385) and Bryson et al. (2007, Mol. Phylog. Evol. 43: 674-684) used evidence from phylogenetic analyses of mtDNA sequences and demonstrated that recognition of *Stilosoma* as a genus does render *Lampropeltis* paraphyletic.

L. getula (Linnaeus, 1766)—Common Kingsnake

Blaney (1977, Tulane Stud. Zool. Bot. 19: 47–103) formulated the subspecific taxonomy of *L. getula*. Within that publication he noted three clusters of seemingly smoothly intergrading subspecies: (1) *californiae*; (2) *nigrita — splendida — holbrookia — nigra*; (3) *getula — floridana*. Contact between 2 and 3 is extremely narrow and may constitute a species boundary. The intergrade zone between 1 and 2 is considerably wider, but may also constitute a leaky species boundary. The status of *L. g. sticticeps* (Barbour and Engels, 1942, Proc. New England Zool. Club 20: 101–104) is problematic. Blaney (1977, Tulane Stud. Zool. Bot. 19: 47–103) and Palmer and Braswell (1995, Reptiles of North Carolina, Univ. North Carolina Press) argue that it is indistinguishable from the nominate race, but Lazell and Musick (1973, Copeia 1973: 497–503) considered it distinct due to a suite of morphological characters. Krysko and Judd (2006, Zootaxa 1193: 1–39) used external morphology and mtDNA sequence data and recovered several clades. Additional DNA data and analyses are incongruent with Krysko and Judd (pers. comm. Burbrink and Pyron) so we refrain from making changes at this time.

L. g. californiae (Blainville, 1835)—California Kingsnake
L. g. floridana Blanchard, 1919—Florida Kingsnake
L. g. getula (Linnaeus, 1766)—Eastern Kingsnake
L. g. holbrooki Stejneger, 1903—Speckled Kingsnake
L. g. meansi Krysko and Judd, 2006—Apalachicola Kingsnake
L. g. nigra (Yarrow, 1882)—Eastern Black Kingsnake
L. g. nigrita Zweifel and Norris, 1955—Western Black Kingsnake
L. g. splendida (Baird and Girard, 1853)—Desert Kingsnake

L. pyromelana (Cope, 1867)—Sonoran Mountain Kingsnake

Van Devender et al. (1992, Herpetol. Rev. 23: 10–13) recommended recognition of *infralabialis* but not *woodini*, which they considered a junior synonym of *L. pyromelana*.

L. p. infralabialis Tanner, 1953—Utah Mountain Kingsnake
L. p. pyromelana (Cope, 1867)—Arizona Mountain Kingsnake

L. triangulum (Lacépède, 1789)—Milksnake

The status of *amaura*, *elapsoides*, and *syspila* is in question given that these three subspecies apparently intergrade in Louisiana (Williams, 1978, Milwaukee Publ. Mus. Pub. Biol. Geol. 2: 1–258). The extensive range and geographic variation documented in this species certainly warrants further analysis. Given molecular evidence from Bryson et al. (2007, Mol. Phylog. Evol. 43: 674–684), *L. triangulum* cannot represent a single species if *L. mexicana* and *L. alterna* are recognized.

L. t. amaura Cope, 1860—Louisiana Milksnake
L. t. annulata Kennicott, 1860—Mexican Milksnake
L. t. celaenops Stejneger, 1903—New Mexico Milksnake
L. t. elapsoides (Holbrook, 1838)—Scarlet Kingsnake
L. t. gentilis (Baird and Girard, 1853)—Central Plains Milksnake
L. t. multistriata Kennicott, 1860—Pale Milksnake
L. t. syspila (Cope, 1888)—Red Milksnake
L. t. taylori Tanner and Loomis, 1957—Utah Milksnake
L. t. triangulum (Lacépède, 1789)—Eastern Milksnake

L. zonata (Lockington *ex* Blainville, 1876)—California Mountain Kingsnake
Rodríguez-Robles et al. (1999, Mol. Ecol. 8: 1923–1934) examined mtDNA and color pattern. The DNA suggested distinct northern and southern clades that they left unnamed. The color pattern variation was too variable to differentiate the seven subspecies. We follow these data and do not recognize any subspecies at this time.

Leptodeira Fitzinger, 1843—CAT-EYED SNAKES

L. septentrionalis (Kennicott, 1859)—Cat-eyed Snake
Campbell (1998, The Amphibians and Reptiles of Northern Guatemala, Yucatán, and Belize, Univ. Oklahoma Press) elevated *L. s. polysticta* to species, which leaves *L. septentrionalis* monotypic.

Leptotyphlops Fitzinger, 1843—THREADSNAKES

L. dissectus (Cope, 1896)—New Mexico Threadsnake
See *L. dulcis*.

L. dulcis (Baird and Girard, 1853)—Texas Threadsnake
Dixon and Vaughan (2003, Texas J. Sci. 55: 3–24), using morphological data, elevated *L. d. dissectus* to species status, and diagnosed three subspecies within the nominate race, one of which remains unnamed.

L. d. dulcis (Baird and Girard, 1853)—Plains Threadsnake
L. d. rubellum (Garman, 1884)—South Texas Threadsnake

L. humilis (Baird and Girard, 1853)—Western Threadsnake
L. h. cahuilae Klauber, 1931—Desert Threadsnake
L. h. humilis (Baird and Girard, 1853)—Southwestern Threadsnake
L. h. segregus Klauber, 1939—Trans-Pecos Threadsnake
L. h. utahensis Tanner, 1938—Utah Threadsnake

Lichanura Cope, 1861—ROSY BOAS
See annotation under *Charina*.

L. trivirgata (Cope, 1861)—Rosy Boa
D. Wood (2002, Unpublished M.S. Thesis, SDSU), using mt DNA, found three main clades within *trivirgata* that do not correspond to currently recognized subspecies.

L. t. gracia Klauber, 1931—Desert Rosy Boa
L. t. roseofusca Cope, 1868—Coastal Rosy Boa
L. t. trivirgata Cope, 1861—Mexican Rosy Boa

Masticophis: See *Coluber*.

Micruroides Schmidt, 1928—SONORAN CORALSNAKES
Slowinski (1995, J. Herpetol. 29: 325–338) presented morphological and biochemical data supporting separation of the genera *Micrurus* and *Micruroides*.

M. euryxanthus (Kennicott, 1860)—Sonoran Coralsnake
M. e. euryxanthus (Kennicott, 1860)—Arizona Coralsnake

Micrurus Wagler, 1824—AMERICAN CORALSNAKES

M. fulvius (Linnaeus, 1766)—Harlequin Coralsnake

M. tener (Baird and Girard, 1853)—Texas Coralsnake

Although Castoe et al. and J. Boundy (2006, Joint Meeting Ichthyologists Herpetologists abstracts) presented molecular and morphological evidence, respectively, that *M. fulvius* and *M. tener* are distinct species, these data have not been published. However, this species has been diagnosed by Campbell and Lamar (2004, in J. A. Campbell and W. W. Lamar [eds.], The Venomous Reptiles of the Western Hemisphere, Comstock, Publ. Assoc., Ithaca, Pp. 195–197).

M. t. tener (Baird and Girard, 1853)—Texas Coralsnake

Nerodia Baird and Girard, 1853—NORTH AMERICAN WATERSNAKES

N. clarkii (Baird and Girard, 1853)—Saltmarsh Watersnake

Lawson et al. (1991, Copeia 1991: 638–659) presented allozyme data that supported the separation of *clarkii* and *fasciata*.

N. c. clarkii (Baird and Girard, 1853)—Gulf Saltmarsh Watersnake

N. c. compressicauda Kennicott, 1860—Mangrove Saltmarsh Watersnake

N. c. taeniata (Cope, 1895)—Atlantic Saltmarsh Watersnake

Dunson (1979, Florida Scientist 42: 102–112) synonymized *N. c. taeniata* with *N. c. compressicauda*, concluding that it was a pattern variant of the latter. Lawson et al. (1991, Copeia 1991: 638–659) resurrected *N. c. taeniata* on the basis of allozyme data, although the genetic distances were minute.

N. cyclopion (Duméril, Bibron and Duméril, 1854)—Mississippi Green Watersnake

N. erythrogaster (Forster, 1771)—Plain-bellied Watersnake

N. e. erythrogaster (Forster, 1771)—Red-bellied Watersnake

N. e. flavigaster (Conant, 1949)—Yellow-bellied Watersnake

N. e. neglecta (Conant, 1949)—Copper-bellied Watersnake

N. e. transversa (Hallowell, 1852)—Blotched Watersnake

N. fasciata (Linnaeus, 1766)—Southern Watersnake

Allozyme data indicate that *N. fasciata* forms two clades, differentiated on the mid-Florida Panhandle (Lawson et al., 1991, Copeia 1991: 638–659). Also see note under *N. sipedon*.

N. f. confluens (Blanchard, 1923)—Broad Banded Watersnake

N. f. fasciata (Linnaeus, 1766)—Banded Watersnake

N. f. pictiventris (Cope, 1895)—Florida Watersnake

N. floridana (Goff, 1936)—Florida Green Watersnake

Elevation of *floridana* from the status as a race of *N. cyclopion* is supported by data from Pearson (1966, Bull. Serol. Mus. 36: 8), Lawson (1987, J. Herpetol. 21: 140–157), and Sanderson (1993, Brimleyana 19: 83–94). The disjunct populations of *floridana* were examined by Thompson and Crother (1998, Copeia 1998: 715–719) with allozyme data that revealed no evidence for differentiation.

N. harteri (Trapido, 1941)—Brazos River Watersnake

N. paucimaculata (Tinkle and Conant, 1961)—Concho Watersnake

Suggested to be separated from *harteri* by Rose and Selcer (1989, J. Herpetol. 23: 261–266) and supported by molecular data in Densmore et al. (1992, Herpetologica 48: 60–68).

N. rhombifer (Hallowell, 1852)—Diamond-backed Watersnake

N. r. rhombifer (Hallowell, 1852)—Northern Diamond-backed Watersnake

N. sipedon (Linnaeus, 1758)—Northern Watersnake

Numerous examples exist of hybridization between *sipedon* and *fasciata* (Conant, 1963, Am. Mus. Novit. 2122: 1–38; Blaney and Blaney, 1979, Herpetologica 35: 350–359; Schwaner et al., 1980, Isozyme Bull. 12: 102; Schwaner and Mount, 1976, Occas. Pap. Mus. Nat. Hist. Univ. Kansas 45: 1–44), although *sipedon* and *fasciata* are apparently not sister taxa (Lawson,1987, J. Herpetol. 21: 140–157).

N. s. insularum (Conant and Clay, 1937)—Lake Erie Watersnake

N. s. pleuralis (Cope, 1892)—Midland Watersnake

N. s. sipedon (Linnaeus, 1758)—Common Watersnake

N. s. williamengelsi (Conant and Lazell, 1973)—Carolina Watersnake

N. taxispilota (Holbrook, 1838)—Brown Watersnake

Opheodrys Fitzinger, 1843—GREENSNAKES

O. aestivus (Linnaeus, 1766)—Rough Greensnake

Recognition of the Florida peninsular form described by Grobman (1984, Bull. Florida St. Mus. Biol. Sci. 29: 153–170) is supported by Plummer (1987, Copeia 1987: 483–485). Reviewed by Walley and Plummer (2000, Cat. Am. Amph. Rept. 718).

O. a. aestivus (Linnaeus, 1766)—Northern Rough Greensnake

O. a. carinatus Grobman, 1984—Florida Rough Greensnake

O. vernalis (Harlan, 1827)—Smooth Greensnake

Given that *Liochlorophis* (Oldham and Smith, 1991, Bull. Maryland Herpetol. Soc. 27: 201–215) is the monotypic sister genus to the monotypic genus *Opheodrys*, recognition of the former taxon is unnecessary, and reduces the amount of information conveyed by the names. As such, we retain *vernalis* in *Opheodrys*. The several subspecies described by Grobman (1941, Misc. Pub. Mus. Zool. Univ. Michigan 50: 1–38; 1992, J. Herpetol. 26: 176–186) are based on character clines and have received little recognition. *O. vernalis* and *O. aestivus* also have been found to be sister taxa using mtDNA and nuclear genes (F. Burbrink and F. Fontanella, pers. comm.).

Oxybelis Wagler, 1830—AMERICAN VINESNAKES

O. aeneus (Wagler, 1824)—Brown Vinesnake

Pantherophis Fitzinger, 1843—NORTH AMERICAN RATSNAKES

Utiger et al. (2002, Russian J. Herpetol. 9: 105–124), using molecular data, divided *Elaphe* into eight genera. New World *Elaphe* are part of a clade outside of Old World species, and *Pantherophis* Fitzinger, 1843, was resurrected for most North American species. Burbrink and Lawson (2006), using multiple mtDNA genes and one nuclear gene, demonstrated that the NW *Elaphe* should actually be included with the New World Lampropeltini and are not closely related to Old World *Elaphe.* However, the genus *Pituophis* Holbrook 1842 renders *Pantherophis* a paraphyletic group. Although the name *Pituophis* is one year older than *Pantherophis* and would have priority over the clade name, we retain the use of *Pantherophis* until further data are gathered and analyzed.

P. alleghaniensis (Holbrook, 1836)—Eastern Ratsnake

See under *P. obsoleta*.

P. bairdi (Yarrow, 1880)—Baird's Ratsnake

P. emoryi (Baird and Girard, 1853)—Great Plains Ratsnake
Burbrink (2002, Mol. Phylog. Evol. 25: 465–476), using molecular data, found *P. guttatus* to comprise three clades, which he elevated to species level. *Pantherophis guttatus meahllmorum* was inferred not to be an evolutionary entity, and was synonymized with *P. emoryi*.

P. gloydi Conant, 1940—Eastern Foxsnake
Collins (1991, Herpetol. Rev. 22: 42–43) elevated *gloydi* to specific status due its geographic disjunction from *vulpinus* and the characters noted by Conant (1940, Herpetologica 2: 2). Harding (1997, Amphibians and Reptiles of the Great Lakes Region, Univ. Michigan Press) followed Collins, with additional justification that the two taxa occupy very different ecological niches. Evidence from mt and nuclear DNA also support the species status of *gloydi* and *vulpinus* (Gardner, Crother, and White, unpublished data).

P. guttatus (Linnaeus, 1766)—Red Cornsnake
Burbrink (2002, Mol. Phylog. Evol. 25: 465–476), using molecular data, found *E. guttata* to comprise three clades, which he elevated to species level, restricting *E. guttata* to populations east of the Mississippi River.

P. obsoletus (Say, 1823)—Texas Ratsnake
Burbrink divided *P. obsoletus* into three species, with no subspecies, based on the congruence of morphological (2001, Herpetol. Monogr. 15: 1–53) and mtDNA (Burbrink et al., 2000, Evolution 54: 2107–2118) evidence.

P. slowinskii Burbrink, 2002—Slowinski's Cornsnake
Burbrink (2002, Mol. Phylog. Evol. 25: 465–476), using molecular data, found *P. guttatus* to comprise three clades, which he elevated to species level. The clade comprising populations in western Louisiana and eastern Texas were named *E. slowinskii*.

P. spiloides (Duméril, Bibron and Duméril, 1854)—Gray Ratsnake
See under *P. obsoleta*.

P. vulpinus (Baird and Girard, 1853)—Western Foxsnake
See comment under *P. gloydi*.

Pelamis Daudin, 1803—Yellow-bellied Seasnakes

P. platurus (Linnaeus, 1766)—Yellow-bellied Seasnake

Phyllorhynchus Stejneger, 1890 LEAF-NOSED SNAKES

P. browni Stejneger, 1890—Saddled Leaf-nosed Snake

P. decurtatus (Cope, 1868)—Spotted Leaf-nosed Snake
McDiarmid and McCleary (1993, Cat. Am. Amph. Rept.: 579.1–5), argued that the four subspecies of *P. browni* and five subspecies of *P. decurtatus* not be recognized. Gardner and Mendelson (2004, J. Herpetol. 38: 187–196), based on morphological data, also concluded that no subspecies be recognized.

Pituophis Holbrook, 1842—BULLSNAKES, PINESNAKES, AND GOPHER SNAKES
Rodríguez-Robles et al. (2000, Mol. Phylog. Evol. 14: 35–50) used mtDNA data and corroborated the current view of United States *Pituophis* with three species: *melanoleucus*, *catenifer*, and *ruthveni*. However, the recognition of *ruthveni* rendered *catenifer* paraphyletic. Pending data to corroborate the mtDNA, it is clear that *Pituophis* will undergo taxonomic revision in the near future.

P. catenifer (Blainville, 1835)—Gophersnake

Rodriguez-Robles et al. (2000, Mol. Phylog. Evol. 14: 35–50), used mtDNA data and discovered significant internal structuring among *P. catenifer* populations, which may signify the existence of additional species. Rodriguez-Robles et al. did not attempt reclassification. See annotation under *Pituophis*. For the time being, we retain the subspecies.

P. c. affinis (Hallowell, 1852)—Sonoran Gopher Snake
P. c. annectens Baird and Girard, 1853—San Diego Gopher Snake
P. c. catenifer (Blainville, 1835)—Pacific Gopher Snake
P. c. deserticola Stejneger, 1893—Great Basin Gopher Snake
P. c. pumilus Klauber, 1946—Santa Cruz Island Gopher Snake
P. c. sayi (Schlegel, 1937)—Bullsnake

P. melanoleucus (Daudin, 1803)—Pinesnake
P. m. lodingi Blanchard, 1924—Black Pinesnake
P. m. melanoleucus (Daudin, 1803)—Northern Pinesnake
P. m. mugitus Barbour, 1921—Florida Pinesnake

P. ruthveni Stull, 1929—Louisiana Pinesnake

Reichling (1995, J. Herpetol. 29: 186–198) concluded that *ruthveni* is a distinct species. Rodriguez-Robles et al. (2000, Mol. Phylog. Evol. 14: 35–50), used mtDNA data and argued for the recognition of *P. ruthveni*, despite lack of significant or independent differentiation from some populations of *P. c. sayi*.

Regina Baird and Girard, 1853—CRAYFISH SNAKES

Alfaro and Arnold (2001, Mol. Phylog. Evol. 21: 408–423) used DNA sequence data and found the genus to be grossly polyphyletic. This conclusion corroborates the allozyme-based hypothesis of Lawson (1985, Ph.D. dissertation, Louisiana State University). Taxonomic change is necessary for this genus but Alfaro and Arnold recommended against such change pending further investigation of their relationships.

R. alleni (Garman, 1874)—Striped Crayfish Snake
R. grahamii Baird and Girard, 1853—Graham's Crayfish Snake
R. rigida (Say, 1825)—Glossy Crayfish Snake
R. r. deltae (Huheey, 1959)—Delta Crayfish Snake
R. r. rigida (Say, 1825)—Glossy Crayfish Snake
R. r. sinicola (Huheey, 1959)—Gulf Crayfish Snake
R. septemvittata (Say, 1825)—Queensnake

Rhadinaea Cope, 1863—LITTERSNAKES
R. flavilata (Cope, 1871)—Pine Woods Littersnake

Rhinocheilus Baird and Girard, 1853—LONG-NOSED SNAKES
R. lecontei Baird and Girard, 1853—Long-nosed Snake

Manier (2004, Biol. J. Linn. Soc., 83: 65–85), in a detailed morphological analysis, concluded that no subspecies should be recognized.

Salvadora Baird and Girard, 1853—PATCH-NOSED SNAKES
S. grahamiae Baird and Girard, 1853—Eastern Patch-nosed Snake
S. g. grahamiae Baird and Girard, 1853—Mountain Patch-nosed Snake
S. g. lineata Schmidt, 1940—Texas Patch-nosed Snake

S. hexalepis (Cope, 1866)—Western Patch-nosed Snake

S. h. deserticola Schmidt, 1940—Big Bend Patch-nosed Snake

Recognition of the species *S. deserticola* was done without justification by Bogert and Degenhardt (1961, Am. Mus. Novit. 2064: 13). Bogert (1985, Snake Syst. Newsl. Nov. no. 3) explained that the usage was based on characters discovered previously (Bogert, 1945, Am. Mus. Novit. 1285: 1–14) and on the absence of any intergrades. Although Bogert may be correct, we await a study to demonstrate it and retain *S. h. deserticola* as a subspecies of *S. hexalepis*.

S. h. hexalepis (Cope, 1866)—Desert Patch-nosed Snake

S. h. mojavensis Bogert, 1945—Mohave Patch-nosed Snake

S. h. virgultea Bogert, 1935—Coast Patch-nosed Snake

Seminatrix Cope, 1895—BLACK SWAMPSNAKES

S. pygaea (Cope, 1871)—Black Swampsnake

S. p. cyclas Dowling, 1950—Southern Florida Swampsnake

S. p. paludis Dowling, 1950—Carolina Swampsnake

S. p. pygaea (Cope, 1871)—Northern Florida Swampsnake

Senticolis Dowling and Fries, 1987—GREEN RATSNAKES

Senticolis has been demonstrated to be separate from Old World *Elaphe* and is part of the New World Lampropeltini (Keogh, 1996, Herpetologica 52: 406–416; Utiger et al., 2002, Russian J. Herpetol. 9: 105–124; Burbrink and Lawson, 2007, Mol. Phylog. Evol. 43: 173–189.).

S. triaspis (Cope, 1866)—Green Ratsnake

S. t. intermedia (Boettger, 1883)—Northern Green Ratsnake

Sistrurus Garman, 1884—MASSASAUGA AND PYGMY RATTLESNAKES

See annotation under *Crotalus*.

S. catenatus (Rafinesque, 1818)—Massasauga

The status of the subspecies appears to be arbitrary delimitation of continuous morphological and ecological variation.

S. c. catenatus (Rafinesque, 1818)—Eastern Massasauga

S. c. edwardsii (Baird and Girard, 1853)—Desert Massasauga

S. c. tergeminus (Say, 1823)—Western Massasauga

S. miliarius (Linnaeus, 1766)—Pygmy Rattlesnake

S. m. barbouri Gloyd, 1935—Dusky Pygmy Rattlesnake

Gloyd (1935, Occ. Papers Mus. Zool. Univ. Michigan 322: 1–7) found *S. m. barbouri* distinct from the other two races by having the lateral spots in 3 series vs. 1–2 series for the other two.

S. m. miliarius (Linnaeus, 1766)—Carolina Pygmy Rattlesnake

S. m. streckeri Gloyd, 1935—Western Pygmy Rattlesnake

Sonora Baird and Girard, 1853—NORTH AMERICAN GROUNDSNAKES

S. semiannulata Baird and Girard, 1853—Western Groundsnake

Werler and Dixon (2000, Texas Snakes, University of Texas Press, Austin) recognized the subspecies *S. s. taylori* as a lineage occupying the Tamaulipan biotic province.

S. s. semiannulata Baird and Girard, 1853—Variable Groundsnake

S. s. taylori (Boulenger, 1894)—Southern Texas Groundsnake

Storeria Baird and Girard, 1853—NORTH AMERICAN BROWNSNAKES

S. dekayi (Holbrook, 1836)—Dekay's Brownsnake

S. d. dekayi (Holbrook, 1836)—Northern Brownsnake

S. d. limnetes Anderson, 1961—Marsh Brownsnake

S. d. texana Trapido, 1944—Texas Brownsnake

S. d. wrightorum Trapido, 1944—Midland Brownsnake

S. occipitomaculata (Storer, 1839)—Red-bellied Snake

S. o. obscura Trapido, 1944—Florida Red-bellied Snake

S. o. occipitomaculata (Storer, 1839)—Northern Red-bellied Snake

No evidence of separate lineages has been found between the sympatric brown and grey color morphs (Grudzien and Owens, 1991, J. Herpetol. 25: 90–92).

S. o. pahasapae Smith, 1963—Black Hills Red-bellied Snake

S. victa Hay, 1892—Florida Brownsnake

Christman (1980, Bull. Florida St. Mus. 25: 157–256) presented evidence to suggest species status for *victa*.

Tantilla Baird and Girard, 1853—BLACK-HEADED, CROWNED, AND FLAT-HEADED SNAKES

T. atriceps (Günther, 1895)—Mexican Black-headed Snake

T. coronata Baird and Girard, 1853—Southeastern Crowned Snake

T. cucullata Minton, 1956—Trans-Pecos Black-headed Snake

The taxonomic status of *T. cucullata* and *T. diabola* has been problematic. They have been alternately synonymized (Degenhardt et al., 1976, Texas J. Sci. 17: 225–234; Hillis and Campbell, 1982, Southwest. Nat. 27: 220–221; Irwin and Collins, 1995, Herpetol. Rev. 26: 47) or elevated to species (Collins, 1991, Herpetol. Rev. 22: 42–43). Most recently Wilson (1999, Smithsonian Inform. Serv. 122: 1–34) and Dixon et al. (2000, Southwest Nat. 45) elevated *T. cucullata* as a species distinct from *T. rubra* (extralimital) and synonymized *T. diabola* with the former.

T. gracilis Baird and Girard, 1853—Flat-headed Snake

T. hobartsmithi Taylor, 1937—Smith's Black-headed Snake

T. nigriceps Kennicott, 1860—Plains Black-headed Snake

T. oolitica Telford, 1966—Rim Rock Crowned Snake

T. planiceps (Blainville, 1835)—Western Black-headed Snake

Cole and Hardy (1981, Bull. Am. Mus. Nat. Hist. 17: 201–284) noted local geographic variation but did not recognize any available subspecies of the many disjunct populations.

T. relicta Telford, 1966—Florida Crowned Snake

T. r. neilli Telford, 1966—Central Florida Crowned Snake

T. r. pamlica Telford, 1966—Coastal Dunes Crowned Snake

T. r. relicta Telford, 1966—Peninsula Crowned Snake

T. wilcoxi Stejneger, 1903—Chihuahuan Black-headed Snake

T. yaquia Smith, 1942—Yaqui Black-headed Snake

Thamnophis Fitzinger, 1843—NORTH AMERICAN GARTERSNAKES

The specific and infraspecific status of the taxa listed below is from Rossman et al. (1996, The Garter Snakes: Evolution and Ecology, Univ. Oklahoma Press).

T. atratus (Kennicott, 1860)—Aquatic Gartersnake

Rossman and Stewart (1987, Occ. Pap. Mus. Zool. Louisiana St. Univ. 63: 1–25) recognized *atratus* as distinct from *T. couchii* and recommended against recognizing *T. a. aquaticus*.

T. a. atratus (Kennicott, 1860)—Santa Cruz Gartersnake

T. a. hydrophilus Fitch, 1936—Oregon Gartersnake

T. a. zaxanthus Boundy, 1999—Diablo Range Gartersnake

T. brachystoma (Cope, 1892)—Short-headed Gartersnake

T. butleri (Cope, 1889)—Butler's Gartersnake

T. couchii (Kennicott, 1859)—Sierra Gartersnake

T. cyrtopsis (Kennicott, 1860)—Black-necked Gartersnake

T. c. cyrtopsis (Kennicott, 1860)—Western Black-necked Gartersnake

T. c. ocellatus (Cope, 1880)—Eastern Black-necked Gartersnake

T. elegans (Baird and Girard, 1853)—Terrestrial Gartersnake

Bronikowski and Arnold (2001, Copeia 2001: 508–513) used cytochrome b sequence data to identify several clades within *T. elegans* that did not, in some cases, follow phenotypic subspecies boundaries. Hammerson (1999, Amphibians and Reptiles of Colorado. 2nd ed. University of Colorado Press, Boulder) found phenotypes assignable to *T. e. arizonae* and *T. e. vascotanneri* outside of their purported distributions within Colorado, and recommended that the two names be synonymized with *T. e. vagrans*. Hammerson's data supported similar action for Arizona and New Mexico populations as well (J. Boundy, pers. obs.). Three subspecies are tentatively retained.

T. e. elegans (Baird and Girard, 1853)—Mountain Gartersnake

T. e. terrestris Fox, 1951—Coast Gartersnake

T. e. vagrans (Baird and Girard, 1853)—Wandering Gartersnake

T. eques (Reuss, 1834)— Mexican Gartersnake

T. e. megalops (Kennicott, 1860)—Brown Gartersnake

T. gigas Fitch, 1940—Giant Gartersnake

T. hammondii (Kennicott, 1860)—Two-striped Gartersnake

The extralimital *T. digueti* was synonymized with *T. hammondi* by McGuire and Grismer (1993, Herpetologica 49: 354–365).

T. marcianus (Baird and Girard, 1853)—Checkered Gartersnake

T. m. marcianus (Baird and Girard, 1853)—Marcy's Checkered Gartersnake

T. ordinoides (Baird and Girard, 1852)—Northwestern Gartersnake

T. proximus (Say, 1823)—Western Ribbonsnake

T. p. diabolicus Rossman, 1963—Arid Land Ribbonsnake

T. p. orarius Rossman, 1963—Gulf Coast Ribbonsnake

T. p. proximus (Say, 1823)—Orange-striped Ribbonsnake

T. p. rubrilineatus Rossman, 1963—Red-striped Ribbonsnake

T. radix (Baird and Girard, 1853)—Plains Gartersnake

T. rufipunctatus (Cope, 1875)—Narrow-headed Gartersnake

Based on scale microstructure, Chiasson and Lowe (1989, J. Herpetol. 23: 109–118) suggested this taxon be moved from *Thamnophis* to *Nerodia*. De Queiroz and Lawson (1994, Biol. J. Linn. Soc. 53: 209–229) rejected the suggested reallocation, based on their finding that *rufipunctatus* is nested within *Thamnophis*.

T. sauritus (Linnaeus, 1766)—Eastern Ribbonsnake

T. s. nitae Rossman, 1963—Blue-striped Ribbonsnake

T. s. sackenii (Kennicott, 1859)—Peninsula Ribbonsnake

T. s. sauritus (Linnaeus, 1766)—Common Ribbonsnake

T. s. septentrionalis Rossman, 1963—Northern Ribbonsnake

T. sirtalis (Linnaeus, 1758)—Common Gartersnake

Analyses of mtDNA suggest that this species may be composed of multiple independently evolving lineages often not concordant with the subspecific taxonomy (Lawson and Burbrink, pers. comm.).

T. s. annectens Brown, 1950—Texas Gartersnake

T. s. concinnus (Hallowell, 1852)—Red-spotted Gartersnake

T. s. dorsalis (Baird and Girard, 1853)—New Mexico Gartersnake

T. s. fitchi Fox, 1951—Valley Gartersnake

T. s. infernalis (Blainville, 1835)—California Red-sided Gartersnake

The International Commission on Zoological Nomenclature (2000, Bull. Zool. Nomencl. 57: 191–192. Opinion 1961) has ruled that the name *Coluber infernalis* be re-associated with Pacific Coast populations referred to as *T. s. concinnus* by Crother et al. (2000, Herpetol. Circular 29: 73) as suggested by Boundy and Rossman (1995, Copeia 1995: 236–240).

T. s. pallidulus Allen, 1899—Maritime Gartersnake

T. s. parietalis (Say, 1823)—Red-sided Gartersnake

T. s. pickeringii (Baird and Girard, 1853)—Puget Sound Gartersnake

T. s. semifasciatus Cope, 1892—Chicago Gartersnake

Benton (1980, Zool. J. Linnaean Soc. 68: 307–323) synonymized *semifasciatus* with the nominate race, but Rossman et al. (1996, The Gartersnakes. Evolution and Ecology, Univ. Oklahoma Press) resurrected *semifasciatus*.

T. s. similis Rossman, 1965—Blue-striped Gartersnake

T. s. sirtalis (Linnaeus, 1758)—Eastern Gartersnake

T. s. tetrataenia (Cope, 1875)—San Francisco Gartersnake

Action by the International Commission on Zoological Nomenclature (2000, Bull. Zool. Nomencl. 57: 191–192. Opinion 1961) has retained the name *Eutaenia sirtalis tetrataenia* for San Francisco Peninsula populations of *T. sirtalis*.

Trimorphodon Cope, 1861—LYRESNAKES

T. biscutatus (Duméril, Bibron and Duméril, 1854)—Western Lyresnake

Devitt (2006, Mol. Ecol. 15: 4387–4407), based on mtDNA, identified a number of discrete clades within *T. biscutatus* that correspond to currently recognized subspecies.

T. b. lambda Cope, 1886—Sonoran Lyresnake

T. b. lyrophanes (Cope, 1860)—California Lyresnake

Grismer et al. (1994, Bull. So. California Acad. Sci. 93: 45–80) synonymized *T. b. vandenburghi* Klauber 1924 with *T. b. lyrophanes*.

T. vilkinsonii Cope, 1886—Texas Lyresnake

LaDuc and Johnson (2003, Herpetologica 59: 364–374) re-elevated *T. vilkinsonii* to species status.

Tropidoclonion Cope, 1860—LINED SNAKES

T. lineatum (Hallowell, 1856)—Lined Snake

See comments under *Virginia*.

Virginia Baird and Girard, 1853—NORTH AMERICAN EARTHSNAKES
V. striatula (Linnaeus, 1766)—Rough Earthsnake
V. valeriae Baird and Girard, 1853—Smooth Earthsnake
V. v. elegans Kennicott, 1859—Western Smooth Earthsnake
V. v. valeriae Baird and Girard, 1853—Eastern Smooth Earthsnake
V. v. pulchra (Richmond, 1954)—Mountain Earthsnake

Lawson (1985, Ph.D. dissertation, Louisiana St. Univ.) argued for the possibility that *Virginia* is paraphyletic with respect to *Tropidoclonion* and suggested expanding the genus *Virginia* to include *Tropidoclonion lineatum*. Collins (1991, Herpetol. Rev. 22: 42–43) elevated *pulchra* to specific status. Because no supporting data, aside from allopatric distribution, was published in his list, we retain *V. valeriae pulchra.*

Crocodilia—CROCODILIANS

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Alligator Cuvier, 1807—ALLIGATORS
A. mississipiensis (Daudin, 1801)—American Alligator

Crocodylus Laurenti, 1768—CROCODILES
C. acutus Cuvier, 1807—American Crocodile

Testudines—Turtles

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Actinemys Agassiz, 1857—WESTERN POND TURTLES

See note under *Clemmys*.

A. marmorata (Baird and Girard, 1852)—Western Pond Turtle

Spinks and Shaffer (2005, Mol. Ecol. 14: 2047–2064) have argued that the previously recognized subspecies *A. m. pallida* is not supported on molecular grounds and hence should be abandoned.

Apalone Rafinesque, 1832—NORTH AMERICAN SOFTSHELLS

The generic name *Apalone* Rafinesque was resurrected by Meylan (1987, Bull. Am. Mus. Nat. Hist. 186: 1–101) for the monophyletic group of softshell turtles consisting of *Apalone ferox*, *A. mutica* and *A. spinifera* that was identified by a phylogenetic analysis of living softshells. Meylan's revised taxonomy has been widely adopted (e.g., Iverson, 1992, A Revised Checklist with Distribution Maps of the Turtles of the World, Privately printed; Conant and Collins, 1992, A Field Guide to Reptiles and Amphibians: Eastern and Central North America, Houghton Mifflin Co.; Collins, 1997, SSAR Herpetol. Circ. 25; Ernst and Barbour, 1989, Turtles of the World, Smithsonian Instit. Press). Authors who continue to use *Trionyx* for species of *Apalone* (e.g., Ernst et al., 1994, Turtles of the United States and Canada, Smithsonian Instit. Press; Plummer, 1997, Chel. Conserv. Biol. 2: 514–520) cite Webb (1990, Cat. Am. Amphib. Rept. 487: 1–7) who considered that "total acceptance of his [Meylan, 1987, op cit.] classification is premature". However, no alternative hypothesis of relationships for these species or alternative taxonomy has been offered. To our knowledge there is no evidence that *Apalone* is not monophyletic (e.g., see Engstrom et al., 2004, Syst. Biol. 53: 693–711). In addition, as pointed out by Meylan (1996, Herpetol. Rev. 27: 41–42), the North American softshells are distinctive morphologically and biologically, and diverged from their closest relatives during the Cretaceous (Gardiner et al., 1995, Can. J. Earth Sci. 32: 631–643). The content of *Apalone* follows Webb (1962, Univ. Kansas Publ. Mus. Nat. Hist. 13: 429–611).

A. ferox (Schneider, 1783)—Florida Softshell

A. mutica (Lesueur, 1827)—Smooth Softshell

A. m. mutica (Lesueur, 1827)—Midland Smooth Softshell

A. m. calvata (Webb, 1959)—Gulf Coast Smooth Softshell

A. spinifera (Lesueur, 1827)—Spiny Softshell

A. s. spinifera (Lesueur, 1827)—Eastern Spiny Softshell

A. s. aspera (Agassiz, 1857)—Gulf Coast Spiny Softshell

A. s. emoryi (Agassiz, 1857)—Texas Spiny Softshell

A. s. guadalupensis (Webb, 1962)—Guadalupe Spiny Softshell

A. s. hartwegi (Conant and Goin, 1948)—Western Spiny Softshell

A. s. pallida (Webb, 1962)—Pallid Spiny Softshell

Caretta Rafinesque, 1814—LOGGERHEAD SEA TURTLES

This comment applies to all the standard English names of the sea turtles listed herein. We have returned to the use of "sea turtles" (rather than "seaturtles") as part of the standard English name for marine turtles. The combined name has not been used recently in the literature.

C. caretta (Linnaeus, 1758)—Loggerhead Sea Turtle

Chelonia Brongniart, 1800—GREEN SEA TURTLES

See note under *Caretta*.

C. mydas (Linnaeus, 1758)—Green Sea Turtle

The Black Turtle of the Pacific Ocean has been considered a separate species (*Chelonia agassizii*) by some authors (e.g., Pritchard and Trebbau, 1984, SSAR Contrib. Herpetol. 2: 1–403), a subspecies of *Chelonia mydas* by others (Kamezaki and Matsui, 1995, J. Herpetol. 29: 51–60), and synonymous with *Chelonia mydas* by others (e.g., Bowen et al., 1992, Evolution 46: 865–881). We follow Parham and Zug (1996, Marine Turtle Newsl. 72: 2–5) and Karl and Bowen (1999, Cons. Biol. 13: 990–999) in not recognizing it taxonomically until more work is done.

Chelydra Schweigger, 1812—SNAPPING TURTLES

C. serpentina (Linnaeus, 1758)—Snapping Turtle

This species has previously been called the Common Snapping Turtle (e.g., Collins, 1997, SSAR Herpetol. Circ. 25), but the adjective has been dropped because it might be misinterpreted as referring to the abundance of the species rather than to its being the typical, most widespread species of its family.

C. s. osceola Stejneger, 1918—Florida Snapping Turtle

C. s. serpentina (Linnaeus, 1758)—Eastern Snapping Turtle

Chrysemys Gray, 1844—PAINTED TURTLES

We follow Vogt and McCoy (1980, Ann. Carnegie Mus. Nat. Hist. 49: 93–102) and Seidel and Smith (1986, Herpetologica 42: 242–248) in restricting this genus to the painted turtle complex. Starkey et al. (2003, Evolution 57: 119–128) have argued that the Southern Painted Turtle is genetically divergent and hence should be elevated to the species level. They also questioned the recognition of the remaining subspecies on genetic grounds, but did not take a position on their abandonment.

C. picta (Schneider, 1783)—Painted Turtle

C. p. bellii (Gray, 1831)—Western Painted Turtle

C. p. marginata Agassiz, 1857—Midland Painted Turtle

C. p. picta (Schneider, 1783)—Eastern Painted Turtle

C. dorsalis Agassiz, 1857—Southern Painted Turtle

Clemmys Ritgen, 1828—SPOTTED TURTLES

Work by Bickham et al. (1996, Herpetologica 52: 89–97), Burke et al. (1996, Herpetologica 52: 572–584), Lenk et al. (1999, Mol. Ecol. 8: 1911–1922), Holman and Fritz (2001, Zoolog. Abhand. Staat. Mus. für Tierkunde Dresden 51: 331–354), Feldman and Parham (2002, Mol. Phylog. Evol. 22: 388–398), Seidel (2002, Copeia 2002: 1118–1121), and Stephens and Wiens (2003, Biol J. Linn. Soc. 79: 577–610) provided ample evidence that the genus *Clemmys* as previously recognized (e.g., McDowell, 1964, Proc. Zool. Soc. Lond. 143: 239–279) was paraphyletic with respect to the genera *Emys*

and *Emydoidea*, and sometimes *Terrapene*. The sister genera *Emys* and *Emydoidea* were shown to be sister to *marmorata* (e.g., Stephens and Wiens, op. cit.), with those three taxa sister to the monophyletic group including *insculpta* and *muhlenbergii*, and *guttata* being more basal in the clade. Two taxonomic schemes reflecting these relationships are currently in contention. Both would place *insculpta* and *muhlenbergii* in the genus *Glyptemys* and leave *guttata* in the monotypic genus *Clemmys* (both changes are recognized in this list). However, one scheme (e.g., Feldman and Parham, 2002, op cit.; Spinks and Shaffer, 2005, Mol. Ecol. 14: 2047–2064) would expand the definition of *Emys* to include *marmorata*, *blandingii*, *orbicularis* (European), and *trinacris* (Sicilian). This would involve two taxonomic changes and eliminate the genus *Emydoidea*, which is monotypic as a living taxon, but polytypic if the fossil record is included (Holman, 2002, Michigan Academician 34: 393–394). The other scheme involves only one taxonomic change, placing *marmorata* in the monotypic genus *Actinemys* (but see Spinks and Shaffer, 2005, op. cit., who suggest polytypy in this genus), and retaining the polytypic genus *Emydoidea*, and the polytypic genus *Emys* (for the European forms). The contention hinges on the relative importance of eliminating monotypic genera versus maintaining taxonomic stability (fewer changes being preferable). The former is supported primarily by taxonomists who consider monotypic genera to be redundant names and hence of no value in providing phylogenetic information. Thus, although the former scheme requires more changes, it eliminates the genus *Emydoidea* (which is monotypic if the fossil record is ignored: Holman, 2002, op. cit), although it retains the monotypic genus *Clemmys*. The latter scheme (Holman and Fritz, op cit.; Stephens and Wiens, 2003, op cit.) retains *Emydoidea* (polytypic if fossils are included) and recognizes an old genus name (*Actinemys*) for *marmorata* (which Spinks and Shaffer, op. cit. suggest is also polytypic). Many proponents of this scheme believe that monotypic genera are not taxonomically redundant but rather reflect evolutionary distinctiveness (see Mayr and Bock, 2002, J. Zool. Syst. Evol. Research 40: 169–194 for a general discussion of the values of taxonomic stability and recording anagenesis in classification schemes). For the sake of current stability, and our position that monotypic genera do provide phylogenetic information, we here follow the second scheme, realizing that this contention must ultimately be resolved by usage in the primary literature.

C. guttata (Schneider, 1792)—Spotted Turtle

Reviewed by Ernst (1972, Cat. Am. Amph. Rept. 124).

Deirochelys Agassiz, 1857—CHICKEN TURTLES

D. reticularia (Latreille, 1801)—Chicken Turtle

Geographic variation in this species was reviewed by Schwartz (1956, Fieldiana Zool. 34: 461–503).

D. r. chrysea Schwartz, 1956—Florida Chicken Turtle
D. r. miaria Schwartz, 1956—Western Chicken Turtle
D. r. reticularia (Latreille, 1801)—Eastern Chicken Turtle

Dermochelys Blainville, 1816—LEATHERBACK SEA TURTLES

See note under *Caretta*.

D. coriacea (Vandelli, 1761)—Leatherback Sea Turtle

Emydoidea Gray, 1870—BLANDING'S TURTLES

See note under *Clemmys*.

E. blandingii (Holbrook, 1838)—Blanding's Turtle

Eretmochelys Fitzinger 1843—HAWKSBILL SEA TURTLES
See note under *Caretta*.

E. imbricata (Linnaeus, 1766)—Hawksbill Sea Turtle
E. i. bissa (Rüppell, 1835)—Pacific Hawksbill Sea Turtle
E. i. imbricata (Linnaeus, 1766)—Atlantic Hawksbill Sea Turtle

Although recent authors have abandoned use of Atlantic versus Indo-Pacific Ocean subspecies (Meylan, 2006, Chelon. Res. Monogr. 3: 105–127), the names have not been formally synonymized. Because mitochondrial genome comparisons by Okayama et al. (1999, Chelon. Conserv. Biol. 3: 362–367) suggested genetic divergence between the Caribbean and Indo-Pacific populations, we retain the subspecies names pending further study.

Glyptemys Agassiz 1857—SCULPTED TURTLES
See note under *Clemmys*.

G. insculpta (LeConte 1830) —Wood Turtle
G. muhlenbergii (Schoepff 1801)—Bog Turtle

Gopherus Rafinesque, 1832—GOPHER TORTOISES
We follow Crumly (1994, Fish Wildlife Res. 13: 7–37) in applying the name *Gopherus* to all four of the living North American testudinids (one of which is extralimital).

G. agassizii (Cooper, 1863)—Desert Tortoise
G. berlandieri (Agassiz, 1857)—Texas Tortoise
G. polyphemus (Daudin, 1802)—Gopher Tortoise

Graptemys Agassiz, 1857—MAP TURTLES
Evidence for monophyly and content of this genus was reviewed by Dobie (1981, Tulane Stud. Zool. Bot. 23: 85), Lamb and Osentoski (1997, J. Herpetol. 31: 258–265), and Stephens and Wiens (2003, Biol. J. Linn. Soc. 79: 577–610).

G. barbouri Carr and Marchand, 1942—Barbour's Map Turtle
G. caglei Haynes and McKown, 1974—Cagle's Map Turtle
G. ernsti Lovich and McCoy, 1992—Escambia Map Turtle
G. flavimaculata Cagle, 1954—Yellow-blotched Map Turtle
G. geographica (LeSueur, 1817)—Northern Map Turtle

We have changed the name from Common Map Turtle because of the possibility that the word 'common' might be misinterpreted to imply abundance rather than to the fact that it has a broad geographic distribution.

G. gibbonsi Lovich and McCoy, 1992—Pascagoula Map Turtle
G. nigrinoda Cagle, 1954—Black-knobbed Map Turtle
G. n. delticola Folkerts and Mount, 1969—Southern Black-knobbed Map Turtle
G. n. nigrinoda Cagle, 1954—Black-knobbed Map Turtle
G. oculifera (Baur, 1890)—Ringed Map Turtle
G. ouachitensis Cagle, 1953—Ouachita Map Turtle
G. o. ouachitensis Cagle, 1953—Ouachita Map Turtle

G. o. sabinensis Cagle, 1953—Sabine Map Turtle

It has been suggested (Ward, 1980, PhD. dissertation, North Carolina State Univ., Raleigh) that this subspecies should be recognized as a species. Recent molecular work (Stephens and Wiens, 2003, Biol. J. Linn. Soc. 79: 577–610) provided some support for that position, but further study is necessary.

G. pseudogeographica (Gray, 1831)—False Map Turtle

G. p. kohnii (Baur, 1890)—Mississippi Map Turtle

G. p. pseudogeographica (Gray, 1831)—False Map Turtle

G. pulchra Baur, 1893—Alabama Map Turtle

G. versa Stejneger, 1925—Texas Map Turtle

Kinosternon Spix, 1824—AMERICAN MUD TURTLES

Iverson (1991, Herpetol. Monog. 5: 1–27) is the most recent reviewer of this genus. See also comment under *Sternotherus*.

K. arizonense Gilmore, 1922—Arizona Mud Turtle

Formerly a subspecies of *K. flavescens*, Serb et al. (2001, Mol. Phylog. Evol. 18: 149–162) demonstrated that including this taxon in *K. flavescens* made the latter paraphyletic with respect to *K. baurii* and *K. subrubrum*. They recommended recognition as a species. In addition, Iverson (1989, Southwest. Natur. 34: 356–368) demonstrated the distinctiveness of this form, confirmed its allopatry with *K. flavescens*, and suggested that its reproductive season is asynchronous with that of *K. flavescens*.

K. baurii (Garman, 1891)—Striped Mud Turtle

K. flavescens (Agassiz, 1857)—Yellow Mud Turtle

The validity of the subspecies *Kinosternon flavescens spooneri* Smith, 1951 (Illinois Mud Turtle) has been questioned on morphological and molecular grounds by Houseal et al. (1982, Copeia 1982: 567–580), Berry and Berry (1984, Ann. Carnegie Mus. Nat. Hist. 53: 185–206), and Serb et al. (2001, Mol. Phylog. Evol. 18: 149–162).

K. hirtipes (Wagler, 1830)—Rough-footed Mud Turtle

Collins (1997, SSAR Herpetol. Circ. 25) suggested the name Mexican Mud Turtle for this turtle, but that name is generally applied to *Kinosternon integrum* (Iverson et al., 1998, Cat. Am. Amph. Rept. 652).

K. h. murrayi Glass and Hartweg, 1951—Mexican Plateau Mud Turtle

K. sonoriense LeConte, 1854—Sonora Mud Turtle

K. s. longifemorale Iverson, 1981—Sonoyta Mud Turtle

There is speculation that this taxon might deserve species status; molecular studies are currently in progress to resolve that question (P. Rosen, pers. comm.).

K. s. sonoriense LeConte, 1854—Sonora Mud Turtle

K. subrubrum (Lacépède, 1788)—Eastern Mud Turtle

K. s. hippocrepis Gray, 1855—Mississippi Mud Turtle

K. s. steindachneri (Siebenrock, 1906)—Florida Mud Turtle

K. s. subrubrum (Lacépède, 1788)—Eastern Mud Turtle

Lepidochelys Fitzinger, 1843—RIDLEY SEA TURTLES

See note under *Caretta*. Bowen et al. (1991, Nature 352: 709) reviewed variation within this genus.

L. kempii (Garman, 1880)—Kemp's Ridley Sea Turtle

L. olivacea (Eschscholtz, 1829)—Olive Ridley Sea Turtle

Macrochelys Gray, 1855—Alligator Snapping Turtles

M. temminckii (Troost *in* Harlan, 1835)—Alligator Snapping Turtle

Webb (1995, Chelonian Conserv. Biol. 1: 322–323) demonstrated that the name *Macrochelys* Gray has precedence over the name *Macroclemys* Gray (contra Smith, 1955, Herpetologica 11: 16).

Malaclemys Gray, 1844—Diamond-backed Terrapins

Dobie (1981, Tulane Stud. Zool. Bot. 23: 85) and Lamb and Osentoski (1997, J. Herpetol. 31: 258–265) reviewed evidence for monophyly and content of this genus.

M. terrapin (Schoepff, 1793)—Diamond-backed Terrapin

A detailed study of the geographic variation of these turtles would prove highly informative.

M. t. centrata (Latreille, 1801)—Carolina Diamond-backed Terrapin

M. t. littoralis (Hay, 1904)—Texas Diamond-backed Terrapin

M. t. macrospilota (Hay, 1904)—Ornate Diamond-backed Terrapin

M. t. pileata (Wied-Neuwied, 1865)—Mississippi Diamond-backed Terrapin

M. t. rhizophorarum Fowler, 1906—Mangrove Diamond-backed Terrapin

M. t. tequesta Schwartz, 1955—Eastern Florida Diamond-backed Terrapin

M. t. terrapin (Schoepff, 1793)—Northern Diamond-backed Terrapin

Pseudemys Gray, 1856—COOTERS

Content of this genus follows Seidel and Smith (1996, Herpetologica 42: 242–248).

P. alabamensis Baur, 1893—Alabama Red-bellied Cooter

P. concinna (LeConte, 1830)—River Cooter

Only two subspecies are recognized here: *Pseudemys concinna concinna*, and *P. c. floridana*. Seidel (1994, Chelon. Conserv. Biol. 1: 117–130) demonstrated that *P. c. hieroglyphica* and *P. c. metteri* are not distinct and represent only clinal variation; he elevated *P. c. suwanniensis* to species status (see separate entry); and he relegated *P. floridana* to a subspecies of *P. concinna* (but see comments below).

P. c. concinna (LeConte, 1830)—Eastern River Cooter

P. c. floridana (LeConte, 1830)—Coastal Plain Cooter

This subspecies was formerly recognized as *Pseudemys floridana floridana,* but Seidel (1994, Chelon. Conserv. Biol. 1: 117–130) transferred it to *Pseudemys concinna.* Jackson (1995, Chelon. Conserv. Biol. 1: 329–333) objected to this based on observations that *concinna* and *floridana* are sympatric in northern Florida and South Carolina. Seidel (1995, Chelon. Conserv. Biol. 1: 333) countered that the two forms may be macrosympatric at some locations, but that they intergrade in other areas. Based on morphometric, osteological, biochemical, and pigmentation studies, Seidel (1994, Chelon. Conserv. Biol. 1: 117–130) found no character which reliably separates the two forms in many transition areas (intergrade zones) between the coastal plain and piedmont of the Atlantic slope. However, the two forms are microsympatic throughout the panhandle of Florida (Meylan, 2006, Chelon. Res. Monogr. 3: 28–36). Jackson (2006, Chelon. Res. Monogr. 3: 325–337) and Thomas and Jansen (2006, Chelon. Res. Monogr. 3: 338–347) do not follow this taxonomy in a volume on Florida turtles.

P. gorzugi Ward, 1984—Rio Grande Cooter

This form was originally described by Ward (1984, Spec. Pub. Mus. Texas Tech. Univ. 21: 1–50) as a subpecies of *P. concinna*, but it was elevated to species status by Ernst (1990, Cat. Am. Amphib. Rept. 461: 1–2). That change is appropriate given its clear allopatry with *Pseudemys concinna* (Ward, 1984, Cat. Am. Amph. Rept. 487: 1–7), its morphological distinctiveness (Seidel, 1994, Chelon. Conserv. Biol. 1: 117–130), and its uniquely divergent DNA (Starkey, 1997, Ph.D. dissertation, Texas A&M Univ.; Stephens and Wiens, 2003, Biol. J. Linn. Soc. 79: 577–610).

P. nelsoni Carr, 1938—Florida Red-bellied Cooter

P. peninsularis Carr, 1938—Peninsula Cooter

Formerly considered a subspecies of *P. floridana* (Conant and Collins, 1992, A Field Guide to Reptiles and Amphibians: Eastern and Central North America. Houghton Mifflin Co., Boston.), Seidel (1994, Chelon. Conserv. Biol. 1: 117–130) elevated this form to a species. He demonstrated that *peninsularis* does not intergrade with *P. c. floridana* in northern Florida, that it is sympatric with *P. suwanniensis*, and that there are morphometric and osteological characters (as well as markings) which consistently distinguish it from *P. concinna*. However, Thomas and Jansen (2006, Chelon. Res. Monogr. 3: 338–347) recommended recognition of this form as a subspecies of *P. floridana*.

P. rubriventris (LeConte, 1830)—Northern Red-bellied Cooter

P. suwanniensis Carr, 1937—Suwannee Cooter

Seidel (1994, Chelon. Conserv. Biol. 1: 117–130) elevated this form from a subspecies of *P. concinna* to a species based on his belief that it is allopatric or parapatric with other members of the *concinna* group. However, Jackson (1995, Chelon. Conserv. Biol. 1: 329–333) believed that it may intergrade with *P. c. concinna* in northern Florida and thus does not deserve species status. Recent availability of material from the Gulf Hammock region of northwest Florida is reviewed by Jackson (2006, Chelon. Res Monogr. 3: 325–337), who recommended recognition of this form as a subspecies of *P. concinna*.

P. texana Baur, 1893—Texas Cooter

Sternotherus Gray, 1825—MUSK TURTLES

The monophyly of the genus *Sternotherus* was questioned by Seidel et al. (1986, Copeia 1986: 285–294) and Iverson (1991, Herpetol. Monogr. 5: 1–27); however, recent work by Iverson (1998, Chelon. Conserv. Biol. 3: 113–117) provided support for its monophyly.

S. carinatus (Gray, 1855)—Razor-backed Musk Turtle

S. depressus Tinkle and Webb, 1955—Flattened Musk Turtle

S. minor (Agassiz, 1857)—Loggerhead Musk Turtle

S. m. minor (Agassiz, 1857)—Loggerhead Musk Turtle

S. m. peltifer Smith and Glass, 1947—Stripe-necked Musk Turtle

S. odoratus (Latreille, 1801)—Eastern Musk Turtle

We have changed the name from Common Musk Turtle because of the possibility that the word ‘common’ might be misinterpreted to imply abundance rather than to the fact that it has a broad range.

Terrapene Merrem, 1820—AMERICAN BOX TURTLES

A review of the variation in this genus appeared in Dodd (2001, North American Box Turtles, Univ. Oklahoma Press, Norman).

T. carolina (Linnaeus, 1758)—Eastern Box Turtle

T. c. bauri Taylor, 1894—Florida Box Turtle
T. c. carolina (Linnaeus, 1758)—Eastern Box Turtle
T. c. major (Agassiz, 1857)—Gulf Coast Box Turtle
T. c. triunguis (Agassiz, 1857)—Three-toed Box Turtle

T. ornata (Agassiz, 1857)—Ornate Box Turtle
T. o. luteola Smith and Ramsey, 1952—Desert Box Turtle
T. o. ornata (Agassiz, 1857)—Ornate Box Turtle

Trachemys Agassiz, 1857—SLIDERS

Content of this genus follows Seidel and Smith (1996, Herpetologica 42: 242–248) and Seidel (2002, J. Herpetol. 36: 285–292).

T. gaigeae (Hartweg, 1939)—Mexican Plateau Slider

Price and Hillis (1989, First World Congr. Herpetol. Abstract), Seidel et al. (1999, Herpetologica 55: 470–487), and Seidel (2002, J. Herpetol. 36: 285–292) provided evidence for the specific recognition of this form. Reviewed by Stuart and Ernst (2004, Cat. Amer. Amphib. Rept. 787).

T. g. gaigeae (Hartweg, 1939)—Big Bend Slider

T. scripta (Schoepff, 1792)—Pond Slider
T. s. elegans (Wied-Neuwied, 1838)—Red-eared Slider
T. s. scripta (Schoepff, 1792)—Yellow-bellied Slider
T. s. troostii (Holbrook, 1836)—Cumberland Slider

Alien Species

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Alien species are those species established outside their native ranges by the activities of humans, whether done intentionally or not. Prior versions of this check-list referred to these species as "introduced." I have changed that usage here because an introduction need not imply successful establishment; many additional species have been introduced to the United States that have not become established and are not included here. Species covered in this treatment are those known to be extra-territorial to the United States (e.g., Green Iguana, *Iguana iguana*) and those whose native status within the United States may be open to question (e.g., Bark Anole, *Anolis distichus* in South Florida).

Inclusion in this list is based on evidence or claims of establishment within the United States that have been presented in the literature and which seem to meet the criteria given by Meshaka et al. (2004, The Exotic Amphibians and Reptiles of Florida. Krieger Publishing Co., Malabar, Florida). But scientific standards for reporting newly established alien species are minimal, evidence adduced in favor of these claims varies, correction of published errors is often delayed, and, consequently, some published claims may not be factually accurate. Because of these problems, I note instances known to me for which published claims suggesting establishment are nonetheless disputed or uncertain. Some of the countervailing evidence calling these reports into question is not yet presented in the literature but mention of such instances is included here to highlight where doubt is reasonable. The presence of these several cases argues for the need to have tighter editorial accountability when publishing such claims.

Excluded from this list are those species native within the boundaries of the United States that have been translocated by humans elsewhere in the country. Many such instances are known and include, for example, the Cane Toad (*Rhinella marinus*) and Bullfrog (*Lithobates catesbeianus*). Also excluded are those alien species introduced to the United States but never established (innumerable examples) and those populations previously established but now extinct, such as an earlier Italian Wall lizard (*Podarcis sicula*) colony that persisted for decades in Pennsylvania (Kauffeld, 1931, Copeia 1931: 163–164; Conant, 1959, Copeia 1959: 335–336). Finally, the literature includes mention of additional species that may be established in the United States but for which evidence of self-sustaining populations is less compelling or is not discussed in the original publications. Many of these reports are mentioned in Meshaka et al. (2004, The Exotic Amphibians and Reptiles of Florida, Krieger Publishing Co., Malabar, Florida).

A literature search through December 2006 was used to provide a list of states for which alien species are known to occur. Supporting literature for most of these introductions is not provided here but will be published in a forthcoming database. Sixty-four to sixty-seven alien species of amphibians and reptiles are reported to be established in the United States. Taxonomically, most of these are lizards (n = 52–54), followed by anurans (n = 6), snakes (n = 3–4), turtles (n = 2), and crocodilians (n = 1). Thirty-nine of these species are from the Old World and twenty-eight from the New World.

Alien Species — ANURANS

Dendrobates Wagler, 1830—POISON DART FROGS

The most recent review of this genus and its relatives is Grant et al. (2006, Bull. Amer. Mus. Nat. Hist. 299: 1–262).

D. auratus Girard, 1855—Green-and-black Poison Dart Frog

The Green-and-black Poison Dart Frog is native to Central America and Colombia and is established in Hawaii.

Eleutherodactylus Duméril and Bibron, 1841—RAIN FROGS

E. coqui Thomas, 1966—Coquí

The Coquí is native to Puerto Rico, has been reported from four states, and is reported as established in California, Florida and Hawaii. It is widely established on Hawaii Island but is more restricted and the target of eradication efforts on the other Hawaiian Islands. Populations in California and Florida appear to be limited to nurseries (Dalrymple, 1994, Non-indigenous Amphibians and Reptiles in Florida *in* Schmitz, D.C. and T.C. Brown [eds.], An Assessment of Invasive Non-indigenous Species in Florida's Public Lands, Technical Rpt. TSS-94-100. Florida Department of Env. Protection, Tallahassee, FL., Pp. 67–78; K. Krysko, pers. comm.; D. Schnabel, pers. comm.), it is uncertain to what extent they are maintained by constant re-introduction, and they perhaps should not truly be considered established.

E. planirostris (Cope, 1862)—Greenhouse Frog

The Greenhouse Frog is native to Cuba, the Bahamas, and Cayman Islands and is established in Alabama, Florida, Georgia, Hawaii, Louisiana, and Mississippi.

Glandirana Fei, Ye, and Huang, 1991—WRINKLED FROGS

This genus of Asian frogs was recently removed from a polyphyletic "*Rana*" by Frost et al. (2006, Bull. Am. Mus. Nat. Hist., 297).

G. rugosa (Temminck and Schlegel, 1838)—Japanese Wrinkled Frog

The Japanese Wrinkled Frog is native to Japan and is established in Hawaii.

Osteopilus Fitzinger, 1843—WEST INDIAN TREEFROGS

O. septentrionalis (Duméril and Bibron, 1841)—Cuban Treefrog

The Cuban Treefrog is native to Cuba, the Bahamas, and Cayman Islands, has been introduced into five states, and is established in Florida. It has been claimed to be established in Hawaii (McKeown, 1996, A Field Guide to Reptiles and Amphibians in the Hawaiian Islands, Diamond Head Publishing, Inc., Los Osos, California) but there is no supporting evidence.

Xenopus Wagler, 1827—CLAWED FROGS

X. laevis (Daudin, 1802)—African Clawed Frog

The African Clawed Frog is native to southern Africa, has been reported from nine states, and is established in Arizona and California.

Alien Species — LIZARDS

Agama Daudin, 1802—AGAMAS

A. agama (Linnaeus, 1758)—African Rainbow Lizard

A. a. africana Hallowell, 1844—West African Rainbow Lizard

The African Rainbow Lizard is native to Africa and is established in Florida. Subspecific identification was provided for five populations by Enge et al. (2004, Florida Scientist 67: 303–310).

Ameiva Meyer, 1795—AMEIVAS

A. ameiva (Linnaeus, 1758)—Giant Ameiva

The Giant Ameiva is native to South America and is established in Florida. Both *Ameiva a. ameiva* and *A. a. petersi* have been released in Florida (King and Krakauer, 1966, Quart. J. Fla. Acad. Sci. 29: 144–154) but current populations may be a mix of subspecies and their taxonomic status remains unresolved (Meshaka et al., 2004, The Exotic Amphibians and Reptiles of Florida, Krieger Publishing Co., Malabar, Florida).

Anolis Daudin, 1802—ANOLES

Taxonomy for *Anolis* follows Williams (1976, Breviora 440: 1–21) with addition of subspecies from Schwartz and Henderson (1991, Amphibians and Reptiles of the West Indies: Descriptions, Distributions, and Natural History, University of Florida Press) and modifications by Vance (1991, Bull. Maryland Herpetol. Soc. 27: 43–89; description of *A. carolinensis seminolus*). Some authors (e.g., Guyer and Savage, 1986, Syst. Zool. 35: 509–531; 1992, Syst. Biol. 41: 89–110; Savage and Guyer, 1989, Amphibia-Reptilia 10: 105–116) divide *Anolis* into the following five genera (assignments of species covered in this checklist in parentheses): *Anolis (carolinensis, chlorocyanus, equestris)*, *Ctenonotus (cristatellus, cybotes, distichus)*, *Dactyloa*, *Norops (garmani, sagrei)*, and *Xiphosurus =Semiurus*.

A. chlorocyanus Duméril and Bibron, 1837—Hispaniolan Green Anole

The Hispaniolan Green Anole is native to Hispaniola and is established in Florida.

A. (Ctenonotus) cristatellus Duméril and Bibron, 1837—Crested Anole

A. c. cristatellus Duméril and Bibron, 1837—Puerto Rican Crested Anole

The Puerto Rican Crested Anole is native to Puerto Rico and the Virgin Islands and is established in Florida. Subspecific identifications have been given for the Dade County specimens by Schwartz and Henderson (1988, Contrib. Biol. Geol. Milwaukee Publ. Mus. 74: 1–264; 1991, Amphibians and Reptiles of the West Indies: Descriptions, Distributions, and Natural History, University of Florida Press).

A. cybotes Cope, 1862—Large-headed Anole

The Large-headed Anole is native to Hispaniola and the Bahamas and is established in Florida.

A. c. cybotes Cope, 1862—Common Large-headed Anole

The Dade County population has been identified as *A. c. cybotes* (Schwartz and Henderson, 1988, Contrib. Biol. Geol. Milwaukee Pub. Mus. 74: 1–264). No subspecific identification for the Broward County population has been provided.

A. (Ctenonotus) distichus Cope, 1861—Bark Anole

The Bark Anole is native to Hispaniola and the Bahamas, has been reported from two states, and is established in Florida. Multiple introductions to Florida have occurred,

involving at least the subspecies *A. d. dominicensis* and *A. d. ignigularis* (King and Krakauer, 1966, Quart. J. Florida Acad. Sci. 29: 144–154; Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89) although the latter is apparently no longer extant (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89). Another form, *A. d. floridanus*, was described from Florida (Smith and McCauley, 1948, Proc. Biol. Soc. Wash. 61: 159-166) but it is uncertain whether that form was native or resulted from one or more introductions from the Bahamas, whose endemic subspecies it most closely matched (Schwartz, 1968, Bull. Mus. Comp. Zool. 137: 255–310). Extensive introgression between *A. d. floridanus* and *A. d. dominicensis* appears to have occurred in Florida (Miyamoto et al., 1986, Copeia 1986: 76–86) and those populations now cannot clearly be assigned to either subspecies.

A. equestris Merrem, 1820—Knight Anole

The Knight Anole is native to Cuba and is established in Florida and Hawaii.

A. e. equestris Merrem, 1820—Western Knight Anole

The subspecific identification for the Florida population was given by Schwartz and Henderson (1988, Contrib. Biol. Geol. Milwaukee Pub. Mus. 74: 1–264; 1991, Amphibians and Reptiles of the West Indies: Descriptions, Distributions, and Natural History, University of Florida Press); that for the Hawaiian population was given by Lazell and McKeown (1998, Bull. Chicago Herpetol. Soc. 33: 181).

A. (Ctenonotus) ferreus Cope, 1864—Comb Anole

The Comb Anole is native to Marie-Galante. Bartlett (1994, Reptile and Amphibian Magazine Mar/Apr.: 56–73, 103–109) and Bartlett and Bartlett (1999, A Field Guide to Florida Reptiles and Amphibians. Gulf Publishing Co., Houston, Texas) presented evidence of reproduction over several years in Florida in the early 1990s but population persistence has been disputed by Meshaka et al. (2004, The Exotic Amphibians and Reptiles of Florida. Krieger Publishing Co., Malabar, Florida), K. Enge (pers. comm.), and K. Krysko (pers. comm.), and voucher specimens are lacking.

A. (Norops) garmani Stejneger, 1899—Jamaican Giant Anole

The Jamaican Giant Anole is native to Jamaica and is established in Florida.

A. porcatus Gray, 1840—Cuban Green Anole

The Cuban Green Anole is native to Cuba and is established in Florida.

A. (Norops) sagrei Duméril and Bibron, 1837—Brown Anole

The Brown Anole is native to Cuba and the Bahamas, has been reported from 11 states, and is established in Alabama, Florida, Georgia, Hawaii, Louisiana, South Carolina, and Texas.

A. s. sagrei Duméril and Bibron, 1837—Cuban Brown Anole

According to Conant and Collins (1991, Reptiles and Amphibians of Eastern and Central North America, Houghton Mifflin Co.), two subspecies, *A. s. sagrei* and *A. s. ordinatus* were introduced to southern Florida, but they can no longer be distinguished from one another and differ from both original races. Lee (1992, Copeia 1992: 942–954) presented evidence that the Florida populations bear a much stronger phenotypic resemblance to populations from Cuba (*A. s. sagrei*) than to those from the Bahamas (*A. s. ordinatus*). Kolbe et al. (2004, Nature 431: 177–181) presented evidence for multiple introductions of this species from Cuba to Florida, which suggests that *A. s. greyi* may also have been involved.

Aspidoscelis Fitzinger, 1843—WHIPTAILS

A. motaguae Sackett, 1941—Giant Whiptail

The Giant Whiptail is native to Central America and is established in Florida.

Basiliscus Laurenti, 1768—BASILISKS

B. vittatus Wiegmann, 1828—Brown Basilisk

The Brown Basilisk is native to Central and northern South America and is established in Florida.

Calotes Cuvier, 1817—BLOODSUCKERS

The English name is derived from the brilliant orange or crimson colors that breeding males develop around the head and shoulders.

C. mystaceus Duméril and Bibron, 1837—Indochinese Bloodsucker

The Indochinese Bloodsucker is native to Southeast Asia and is reported as established in two Florida counties by several authors (Butterfield et al., 1997, Nonindigenous amphibians and reptiles, Pp. 123–138 *in* Simberloff, D., D.C. Schmitz, and T.C. Brown [eds.], Strangers in Paradise: Impact and Management of Nonindigenous Species in Florida. Island Press, Washington, DC; Bartlett and Bartlett, 1999, A Field Guide to Florida Reptiles and Amphibians, Gulf Publishing Co., Houston, Texas; Meshaka et al., 2004, The Exotic Amphibians and Reptiles of Florida, Krieger Publishing Co., Malabar, Florida). But K. Krysko (pers. comm.) cautions that voucher specimens or photos of wild animals are entirely lacking, so these reports require scientific confirmation.

C. "versicolor" (Daudin 1802)—Variable Bloodsucker

The Variable Bloodsucker is native to southern and southeastern Asia and is established in Florida. The specific epithet is in quotation marks because Zug et al. (2006, Proc. California Acad. Sci. 57: 35–68) demonstrated that *C.* "*versicolor*" is a complex of several species. The introduced population has yet to be identified in light of this new information.

Chamaeleo Laurenti, 1768—CHAMELEONS

C. calyptratus Duméril and Bibron, 1851—Veiled Chameleon

The Veiled Chameleon is native to the southwestern Arabian Peninsula and is established in Florida and Hawaii.

C. jacksonii Boulenger, 1896—Jackson's Chameleon

Jackson's Chameleon is native to eastern Africa and is established in California and Hawaii.

Chondrodactylus Peters, 1870—SAND GECKOS

Bauer and Lamb (2005, African J. Herpetol. 54: 105–129) revised *Pachydactylus* and placed the *bibronii* group in *Chondrodactylus*.

C. bibronii (Smith, 1846)—Bibron's Sand Gecko

Bibron's Sand Gecko is native to southern Africa and is claimed to be established in Florida (Bartlett and Bartlett, 1999, A Field Guide to Florida Reptiles and Amphibians, Gulf Publishing Co., Houston, Texas; Meshaka et al., 2004, The Exotic Amphibians and Reptiles of Florida, Krieger Publishing Co., Malabar, Florida), but the claim is disputed by others (K. Krysko, pers. comm.).

"*Cnemidophorus*" Wagler, 1830—SOUTH AMERICAN WHIPTAILS

Taxonomy for "*Cnemidophorus*" follows Peters and Donoso-Barros (1970, Bull. United States Natl. Mus. 297(Part II): 1–293). Reeder et al. (2002, Am. Mus. Novit. 3365: 1–61) presented evidence that *Cnemidophorus,* even after the removal of *Aspidoscelis*, is not monophyletic, although they did not propose a taxonomic change to rectify this situation. I have placed the name "*Cnemidophorus*" in quotation marks to indicate the apparently non-monophyletic status of the taxon.

"C." lemniscatus (Linnaeus, 1758)—Rainbow Whiptail

The Rainbow Whiptail is native to South America and is established in Florida. Several species, both uni- and bisexual, have been described for different parts of the taxon that was formerly known as "*C." lemniscatus* (Cole and Dessauer, 1993, Am. Mus. Novit. 3081: 1–30; Markezich et al., 1997, Am. Mus. Novit. 3207: 1–60), and the introduced population has not yet been associated with one or more of those species.

Cryptoblepharus Wiegmann, 1834—SNAKE-EYED SKINKS

C. poecilopleurus (Wiegmann, 1834)—Pacific Snake-eyed Skink

The Pacific Snake-eyed Skink is native to many Pacific islands and is established in Hawaii.

Ctenosaura Wiegmann, 1828—SPINY-TAILED IGUANAS

C. pectinata (Wiegmann ,1834)—Mexican Spiny-tailed Iguana

The Mexican Spiny-tailed Iguana is native to Central America and is established in Florida and Texas.

C. similis (Gray, 1831)—Gray's Spiny-tailed Iguana

Gray's Spiny-tailed Iguana is native to Central America and is established in Florida.

Cyrtopodion Fitzinger, 1843—BOW-FINGERED GECKOS

C. scabrum (Heyden, 1827)—Rough-tailed Gecko

The Rough-tailed Gecko is native to the Middle East and northeastern Africa and is established in Texas.

Emoia Gray, 1845—EMOIAS

Taxonomy for *Emoia cyanura* and *E. impar* follows Ineich and Zug (1991, Copeia 1991: 1132–1136).

E. cyanura (Lesson, 1830)—Copper-tailed Skink

The Copper-tailed Skink is native to the Pacific islands and is established in Hawaii.

E. impar (Werner, 1898)—Azure-tailed Skink

The Azure-tailed Skink is native to the Pacific islands and is established in Hawaii.

Gehyra Gray, 1834—DTELLAS

G. mutilata (Wiegmann, 1834)—Mutilating Gecko

The Mutilating Gecko is native from South Asia through the Pacific islands, has been reported from three states, and is established in Hawaii. The date of publication of the name *Hemidactylus mutilatus* (=*Gehyra mutilata*) is sometimes given as 1835 (e.g., Kluge, 1991, Smithsonian Herpetol. Info. Serv. 85: 1–35) presumably based on the idea that the species was first described in a publication by Wiegmann in Nova Acta Acad. Caes. Leop. Carol. Nat. Cur., the date of which is either 1834 or 1835; however, the first valid use of the name is in Wiegmann (1834, Herpetologica Mexicana; see Bauer and Adler, 2001, Arch. Nat. Hist., 28: 313–326 for a discussion of the dates of the relevant publications).

Gekko Laurenti, 1768—TYPICAL GECKOS

G. gecko (Linnaeus, 1758)—Tokay Gecko

The Tokay Gecko is native to Southeast Asia and has been introduced to Florida and Hawaii. It is established in Florida but the single known incipient population in Hawaii is not well established and is the target of eradication efforts.

Gonatodes Fitzinger, 1843—AMERICAN BENT-TOED GECKOS

G. albogularis (Duméril and Bibron, 1836)—Yellow-headed Gecko

The Yellow-headed Gecko is native to Central and South America and the Caribbean and is established in Florida.

Hemidactylus Gray, 1825—HOUSE GECKOS

H. frenatus Duméril and Bibron, 1836—Common House Gecko

The Common House Gecko is native to South and Southeast Asia and is established in Florida, Hawaii, and Texas.

H. garnotii Duméril and Bibron, 1836—Indo-Pacific House Gecko (unisexual)

The Indo-Pacific Gecko is native to South and Southeast Asia, has been reported from four states, and is established in Florida, Hawaii, and Texas.

H. mabouia (Moreau de Jonnès, 1818)—Wood Slave

The Wood Slave is native to Africa (and perhaps parts of South America and the Caribbean, cf. Kluge, 1969, Misc. Publ. Univ. Michigan Mus. Zool. 138: 1–78) and is established in Florida.

H. platyurus (Schneider, 1792)—Asian Flat-tailed House Gecko

The Asian Flat-tailed House Gecko is native to Southeast Asia and is established in Florida. This species was recently removed from *Cosymbotus* by Carranza and Arnold (2006, Mol. Phylog. Evol. 38: 531–545).

H. turcicus (Linnaeus, 1758)—Mediterranean Gecko

The Mediterranean Gecko is native to the Mediterranean region, has been reported from 20 states, and is established in Alabama, Arizona, Arkansas, California, Florida, Georgia, Kansas, Louisiana, Maryland, Mississippi, Missouri, Nevada, New Mexico, Oklahoma, South Carolina, Texas, Utah, and Virginia.

Hemiphyllodactylus Bleeker, 1860—TREE GECKOS

H. typus Bleeker, 1860—Indo-Pacific Tree Gecko (unisexual)

The Indo-Pacific Tree Gecko is native to Southeast Asia and the Pacific, has been reported from two states, and is established in Hawaii.

Iguana Laurenti, 1768—IGUANAS

I. iguana (Linnaeus, 1758)—Green Iguana

The Green Iguana is native to Central and South America, has been reported from six states, and is established in Florida and Hawaii.

Lacerta Linnaeus, 1758—LACERTAS

L. bilineata Daudin 1802—Western Green Lacerta

The Western Green Lacerta is native to Western Europe, has been reported from two states, and is established in Kansas.

Lampropholis Fitzinger, 1843—SUNSKINKS

L. delicata (De Vis, 1888)— Plague Skink

The Plague Skink is native to eastern Australia and is established in Hawaii.

Leiocephalus Gray, 1827—CURLY-TAILED LIZARDS

L. carinatus Gray, 1827—Northern Curly-tailed Lizard

The Northern Curly-tailed Lizard is native to Cuba, Bahamas, and the Cayman Islands and is established in Florida.

L. schreibersii (Gravenhorst, 1837)—Red-sided Curly-tailed Lizard

The Red-sided Curly-tailed Lizard is native to Hispaniola and is established in Florida.

Leiolepis Cuvier, 1829—BUTTERFLY LIZARDS

L. belliana (Gray, 1827)—Butterfly Lizard

The Butterfly Lizard is native to Southeast Asia and is established in Florida.

Lepidodactylus Fitzinger, 1843—INDO-PACIFIC GECKOS

L. lugubris (Duméril and Bibron, 1836)—Mourning Gecko (unisexual)

The Mourning Gecko is native from South Asia through much of the Pacific, has been reported from four states, and is established in Hawaii. This taxon is a unisexual complex of diploid and triploid populations of apparently independent origins (Moritz et al., 1993, Biol. J. Linn. Soc. 48: 113–133; Volobouev, 1994, Biogeographica 70: 14).

Lipinia Gray, 1845—LIPINIAS

L. noctua (Lesson, 1830)—Moth Skink

The Moth Skink is native to some of the Pacific Islands and is established in Hawaii.

Mabuya Fitzinger, 1826—MABUYAS

M. multifasciata (Kuhl, 1820)—Brown Mabuya

The Brown Mabuya is native to South and Southeast Asia and is established in Florida.

Phelsuma Gray, 1825—DAY GECKOS

P. guimbeaui Mertens, 1963—Orange-spotted Day Gecko

The Orange-spotted Day Gecko is native to Mauritius and is established in Hawaii.

P. laticauda (Boettger, 1880)—Gold Dust Day Gecko

The Gold Dust Day Gecko is native to Madagascar and the Seychelles and is established in Hawaii.

P. madagascariensis Gray, 1831—Madagascar Day Gecko

The Madagascar Day Gecko is native to Madagascar and is established in Florida and Hawaii.

Podarcis Wagler, 1830—WALL LIZARDS

P. muralis (Laurenti, 1768)—Common Wall Lizard

The Common Wall Lizard is native to Europe, has been reported from four states, and is established in Indiana, Kentucky, Ohio, and British Columbia.

P. sicula (Rafinesque, 1810)—Italian Wall Lizard

The Italian Wall Lizard is native to Europe, has been reported from three states, and is established in Kansas and New York. It was formerly established in Pennsylvania but is now extinct there.

Sphaerodactylus Wagler, 1830—DWARF GECKOS

S. argus Gosse, 1850—Ocellated Gecko

The Ocellated Gecko is native to Cuba, Jamaica, and the Bahamas and is established in Florida.

S. elegans MacLeay, 1834—Ashy Gecko

The Ashy Gecko is native to Cuba and Hispaniola and is established in Florida.

Tarentola Gray, 1825—WALL GECKOS

T. annularis (Geoffroy Saint-Hilaire, 1827)—Ringed Wall Gecko

The Ringed Wall Gecko is native to northern Africa and is established in Florida.

T. mauritanica (Linnaeus, 1758)—Moorish Gecko

The Moorish Gecko is native to the Mediterranean region, has been reported from four states, and is claimed to be established in California (Mahrdt, 1998, Herpetol. Rev. 29: 52) and Florida (Bartlett and Bartlett, 1999, A Field Guide to Florida Reptiles and Amphibians, Gulf Publishing Co., Houston, Texas). The claim for establishment in Florida has been disputed by Meshaka et al. (2004, The Exotic Amphibians and Reptiles of Florida, Krieger Publishing Co., Malabar, Florida).

Tupinambis Daudin, 1803—TEGUS

T. merianae Duméril and Bibron 1839—Argentine Giant Tegu

The Argentine Giant Tegu is native to South America and is established in Florida.

Varanus Merrem, 1820—MONITOR LIZARDS

V. niloticus (Linnaeus in Hasselquist, 1762)—Nile Monitor

The Nile Monitor is native to Africa, has been reported from two states, and is established in Florida.

Alien Species — SNAKES

Acrochordus Hornstedt, 1787—FILE SNAKES

A. javanicus Hornstedt, 1787—Javanese File Snake

The Javanese File Snake is native to Southeast Asia and is claimed to be established in Florida (Bartlett and Bartlett, 2005, Guide and Reference to the Snakes of Eastern and Central North America (north of Mexico), University Press of Florida, Gainesville, Florida), although other sources consider the persistence of the species there uncertain or doubtful (Meshaka et al., 2004, The Exotic Amphibians and Reptiles of Florida, Krieger Publishing Co., Malabar, Florida; K. Enge, pers. comm.; K. Krysko, pers. comm.).

Boa Linnaeus, 1758—BOAS

B. constrictor Linnaeus, 1758—Boa Constrictor

The Boa Constrictor is native to Central and South America, has been reported from 11 states, and is established in Florida.

Python Daudin, 1803—PYTHONS

P. molurus (Linnaeus, 1758)—Indian Python

P. m. bivittatus Kuhl, 1820—Burmese Python

The Burmese Python is native to South and Southeast Asia, has been reported from six states, and is established in Florida.

Ramphotyphlops Fitzinger, 1843—AUSTRALASIAN BLINDSNAKES

R. braminus (Daudin, 1803)—Brahminy Blindsnake (Unisexual)

The Brahminy Blind Snake is likely native to South Asia, has been reported from nine states, and is established in Florida, Hawaii, Louisiana, Massachusetts, Texas, and Virginia.

Alien Species — CROCODILIANS

Caiman Spix, 1825—CAIMANS

C. crocodilus (Linnaeus, 1758)—Spectacled Caiman

The Spectacled Caiman is native to South America, has been reported from seven states, and is established in Florida.

Alien Species — TURTLES

Palea Meylan, 1987—WATTLE–NECKED SOFTSHELLS

P. steindachneri (Siebenrock, 1906)—Wattle-necked Softshell

The Wattle-necked Softshell is native to southeastern China and northern Vietnam, has been reported from two states, and is established in Hawaii.

Pelodiscus Gray, 1844—CHINESE SOFTSHELLS

P. sinensis (Weigman, 1835)—Chinese Softshell

The Chinese Softshell is native to eastern Asia, has been reported from two states, and is established in Hawaii.

Notes

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