

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

COMMITTEE ON STANDARD ENGLISH AND SCIENTIFIC NAMES

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INTRODUCTION

In 1953, the immediate Past-President of the American Society of Ichthyologists and Herpetologists, Charles M. Bogert, formed a committee to compile common names for the North American herpetofauna. The committee consisting of R. Conant, F. R. Cagle, C. J. Goin, C. H. Lowe, W. T. Neill, M. G. Netting, K. P. Schmidt, C. E. Shaw, and R. C. Stebbins was chaired by Conant and the resulting publication summarized their philosophy, methods, and the names (Conant et al., 1956). Subsequent revisions by the committee were published in 1978 and 1982 (Collins et al., 1978, 1982) and subsequently by Collins alone as the coordinator of larger committees named within those publications (Collins, 1990, 1997).

Recently, a committee sanctioned by the Society for the Study of Amphibians and Reptiles, the American Society of Ichthyologists and Herpetologists, and The Herpetologists' League, was appointed to continue the development of standard English names and to report current scientific names of the North American (USA, Hawaii, and Canada) herpetofauna. The work herein has received the approbation of the societies named above; therefore, this is considered the official list for those societies. With recognition of the effort by various workers over the past years in developing earlier lists (Collins et al., 1978, 1982; Collins, 1990, 1997; Conant et al., 1956; Schmidt, 1953), our goal is to build upon this work, including two important innovations: (1) adopt guidelines for the formation of standard English names, and (2) reference the relevant literature to our decisions about newly proposed and controversial scientific names. The first innovation, adopting guidelines for the formation of standard English names, will add consistency to the standard English names used now, and will provide a framework for the creation of future names. The second innovation will make the list more useable by non-specialists interested in using the appropriate scientific names. By referring to the papers cited in the list, non-specialists will be able to read for themselves why certain changes have or have not been incorporated without doing a timeconsuming literature search.

The present paper details the direction the committee is taking on the problem of creating guidelines for the formation of Standard English names. Perhaps these guidelines should be considered a work in progress, because we expect members of the herpetological community to be critical and provide suggestions to help improve our ideas. In other words, the committee welcomes comments, criticisms, and suggestions, which should be sent to the committee chair (BIC).

Forming Standard English Names: Some Guidelines for Reptiles and Amphibians

As implied above, the formation of Standard English names for reptiles and amphibians has been without guidelines and the result has been an inconsistent list of names. For example, compare the Black-collared Lizard and the White-lipped Frog with the Blackmask Racer and the Blackhead Snake. Or compare rattlesnake with water snake and treefrog with chorus frog. These examples represent two different problems involving: (1) the formation of the descriptive or modifying part of the name and (2) the formation of the group name that it modifies. The guidelines below cover both problems. They draw heavily from the work of K. C. Parkes (1978), who proposed the rules followed by the American Ornithologists' Union, the rules adopted by the International Ornithological Congress English Names Committee (Frank B. Gill, pers. comm.), and from ideas put forth by Harry Greene (1997). Perhaps the major change we recommend is capitalizing the English names, which follows the ornithologists' rule.

These guidelines, for the desired result of consistency and standardization, **may** cause a number of well-worn spellings/formulations of names to change. It is important to separate "consistency" and "standardization". Consistency is necessary for the formation of new names, whereas standardization concerns the application and usage of the same name for a taxon by all people. We anticipate resistance to these changes, but we also think that consistency and standardization are requisite in order to achieve the goal of making a list of Standard English Names for North America and the world.

Some workers will decry the effort on standard English names with the argument that only scientific names matter. In defense of this effort, we acknowledge the wisdom of the first committee (Conant et al., 1956) and quote from their paper (pp. 172–173):

"Workers who hold that common names have no place in the scientific zoological literature may ignore them. Such workers, however, might do well to read the following paragraph quoted from George Wald (Biochemical Evolution, in Trends in Physiology and Biochemistry, Edited by E. S. Guzman Barron, Academic Press, N. Y., 1952:337–376).

"In the original version of this table, Nuttall mentions *Cynocephalus mormon* and *sphinx*, omitting their common names. I have learned since that one is the mandrill and the other the guinea baboon. Since Nuttall wrote in 1904, these names have undergone the following vagaries: *Cynocephalus mormon* became *Papio mormon*, otherwise *Papio maimon*, which turned to *Papio sphinx*. This might well have been confused with *Cynocephalus*, now become *Papio sphinx*, had not the latter meanwhile been turned into *Papio papio*. This danger averted, *Papio sphinx* now became *Mandrillus sphinx*, while *Papio papio* became *Papio comatus*. All I can say to this is, thank heavens one is called the mandrill and the other the guinea baboon. Anyone who supposes, as Nuttall apparently did, that he improves matters by giving their taxonomic designations is only asking for trouble, and is more likely to mislead the reader than to inform him."

PRINCIPLES

1. Long-established names in widespread use should be retained, regardless of any inaccuracy of description, behavior, habitat, location or family relationship suggested by the name, unless there is a compelling and special reason.
2. The full English name of every species shall be different from the names of every other species in North America.
3. The English name of a species need not repeat or reflect its taxonomic name.
4. Names will be given to genera (=group names), species, and subspecies.
5. A name given to a species may, but need not, be the same name as the name of any of its subspecies.
6. A name given to a subspecies is not required to have any part of it the same as the species it belongs to.
7. Each word of a name shall be a word in the English language unless in unusual circumstances the committee finds it appropriate to use a word from foreign language or directly adopted from scientific nomenclature.
8. Accepted English names should not be replaced by a local vernacular (but see 7).
9. Patronyms should neither be encouraged nor discouraged.
10. A patronym should be stated in the possessive case.
11. Names should be changed if they are offensive to a substantial group of people, but should not be altered merely to reflect a change in the name of a country, region, or island.
12. Reference to geographical places and names may vary in form (e.g., Chihuahua vs. Chihuahuan) as deemed appropriate with respect to previous usage and clarity.
13. A geographical word in a name that refers to a small island or group of small islands should include the word "island" or "islands" in the name if to do so brings clarity or avoids being misleading. In all other cases inclusion of "island" or "islands" in a name should depend primarily on prior usage.
14. A group name (defined as a word or words that applies to two or more species) may be applied to two or more unrelated groups.
15. Two or more different group names may be formulated within a single genus.
16. Group names of more than one word should neither be encouraged nor discouraged.
17. Words should be spelled consistently throughout the list.

18. Words with accent marks in the language of their origin should be spelled with those marks only if reasonably necessary to indicate correct pronunciation in English.
19. A group name consisting of two words should generally be spelled as one word except when: (1) It may be spelled as two words with a hyphen where, and only where, the two words have been in general use. (2) The hyphen may be omitted in cases where it would be inappropriate for a special reason. The first letter of the word after the hyphen should not be capitalized.
20. Names should be as short as possible.
21. The full name of one species or subspecies should not be included in the longer name of another species or subspecies.

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LIST OF STANDARD ENGLISH AND CURRENT SCIENTIFIC NAMES

Anura—Frogs

Compiled by Darrel Frost.

Acris Duméril and Bibron, 1841—CRICKET FROGS

A. crepitans Baird, 1854—Northern Cricket Frog

Three subspecies are named, and have not been formally rejected, though they are infrequently used. Whether these represent arbitrary or historical units is unknown and requires further investigation.

A. c. blanchardi Harper, 1947—Blanchard's Cricket Frog

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 occasionally recognized, although whether they are arbitrary or historical units is arguable.

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

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

Ascaphus Stejneger, 1899—TAILED FROGS

A. truei Stejneger, 1899—Tailed Frog

Metter (1964, Copeia 1964: 181–195) rejected subspecies but noted extensive geographic variation over relatively short geographic distances, which may indicate the need for further investigation. See Metter (1968, Cat. Am. Amph. Rept. 69) for review.

Bufo Laurenti, 1768—TOADS

B. alvarius Girard, 1859—Colorado River Toad

Reviewed by Fouquette (1970, Cat. Am. Amph. Rept. 93).

B. americanus Holbrook, 1836—American Toad

There is no seeming consensus, or much ongoing work on geographic variation of this taxon, although we suggest that careful evaluation of call and/or molecular data would provide considerable evidence of divergent lineages within the complex. For instance, the status of the nominal subspecies is far from clear, especially against the background of introgressive hybridization, which appears to be relatively common along species boundaries. See comments under *Bufo fowleri*, *B. woodhousii*, *Bufo hemiophrys*, *B. baxteri*, and *B. terrestris*.

B. a. americanus Holbrook, 1836—Eastern American Toad

B. a. charlesmithi Bragg, 1954—Dwarf American Toad

B. baxteri Porter, 1968—Wyoming Toad

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

B. boreas Baird and Girard, 1852—Western Toad

See Schuierer (1963, *Herpetologica* 18: 262–267). Three nominal subspecies are generally recognized, although the geographic variation within *Bufo boreas* is poorly studied and may mask a number of cryptic species.

B. b. boreas Baird and Girard, 1853—Boreal Toad

B. b. halophilus Baird and Girard, 1853—California Toad

B. b. nelsoni Stejneger, 1893—Amargosa Toad

B. 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 resurrection and justification.

B. canorus Camp, 1916—Yosemite Toad

Reviewed by Karlstrom (1973, *Cat. Am. Amph. Rept.* 132).

B. cognatus Say, 1823—Great Plains Toad

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

B. 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). The nominal subspecies are unlikely to be more than arbitrarily defined sections of clines and therefore indefensible, although this remains to be investigated carefully.

B. d. debilis Girard, 1854—Eastern Green Toad

B. d. insidior Girard, 1854—Western Green Toad

B. exsul Myers, 1942—Black Toad

Considered by some authors to be a subspecies of *Bufo boreas*. See comments by Schuierer (1963, *Herpetologica* 18: 262–267).

B. fowleri Hinckley, 1882—Fowler's Toad

Green (1996, *Israel J. Zool.* 42: 95–109), provided a lucid discussion of the problem of interspecific hybridization in the *Bufo americanus* complex and briefly addressed the unfortunate publication by Sanders (1987, *Evol. Hybrid. Spec. N. Am. Indig. Bufonids*), in which Sanders recognized a number of dubiously delimited taxa within the *Bufo americanus* complex (*B. hobarti* and *B. velatus* which would be in the synonymy of *B. fowleri*; *B. copei*, which would be in *B. americanus*, and *B. planiorum* and *B. antecessor*, both of which would be in the synonymy of *B. woodhousii woodhousii*). None have been formally synonymized, but neither have they attracted any recognition by those working on the complex.

B. hemiophrys Cope, 1886—Canadian Toad

See comment associated with *Bufo baxteri*. Cook (1983, *Publ. Nat. Sci. Natl. Mus. Canada* 3) regarded *Bufo hemiophrys* and *B. 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 philosophical rather than a data issue.

B. houstonensis Sanders, 1953—Houston Toad

No geographic variation documented for this endangered species of toad. Reviewed by Brown (1973, *Cat. Am. Amph. Rept.* 133).

B. marinus (Linnaeus, 1758)—Cane Toad

No subspecies currently diagnosed, although the possibility exists of cryptic species concealed under this name, as one would expect from any nominal species with a range from South Texas and Sonora, Mexico, to Brazil and Peru. Reviewed by Easteal (1986, *Cat. Am. Amph. Rept.* 395). Relationship with *Bufo poeppigii* (extralimital) unclear, possibly conspecific.

B. microscaphus Cope, 1867 “1866”—Arizona Toad

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

B. punctatus Baird and Girard, 1852—Red-spotted Toad

On the basis of considerable geographic variation (mostly extralimital) in morphology we suggest that this binominal may represent a composite of geographically vicariant species which might be elucidated with careful evaluation of calls and/or molecular evidence.

B. quercicus Holbrook, 1840—Oak Toad

No geographic variation documented. Reviewed by Ashton and Franz (1979, Cat. Am. Amph. Rept. 222).

B. retiformis Sanders and Smith, 1951—Sonoran Green Toad

No geographic variation reported. Approaches *Bufo debilis* very closely in Arizona, with no evidence of approaching morphological similarity. Reviewed by Hulse (1978, Cat. Am. Amph. Rept. 207).

B. speciosus Girard, 1854—Texas Toad

No geographic variation reported. Older literature confused this species with *Bufo cognatus*, *B. mexicanus* (extralimital), and *B. compactilis*.

B. terrestris (Bonnaterre, 1789)—Southern Toad

No geographic variation reported as such in the literature, although extensive geographic variation is evident on examination of specimens. Hybridization with *Bufo 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).

B. valliceps Wiegmann, 1833—Gulf Coast Toad

Considered to be strongly geographically variable with recognizable subspecies until work by Mendelson (1994, Occas. Pap. Mus. Nat. Hist. Univ. Kansas 166: 1–21; 1997, Herpetologica 53: 14–30) showed that a number of cryptic species were concealed under the name *Bufo valliceps*. Further cryptic (and not-so-cryptic) species should be expected to be recognized within this complex, although it is unlikely that those populations that occur in the USA will form more than one lineage.

B. woodhousii Girard, 1854—Woodhouse’s Toad

See comments under *Bufo fowleri*. The unjustified emendation of the specific epithet to *woodhousei* has been used widely. The status of taxa recognized by Sanders (1987, Evol. Hybrid. Spec. N. Am. Indig. Bufonids: 1–110), has not been evaluated closely by any author, although they have neither enjoyed any recognition. Three nominal subspecies are frequently recognized, although these warrant detailed study as to their evolutionary status. Detailed study of calls and molecules will likely prove fruitful within this widely distributed species.

B. w. australis Shannon and Lowe, 1955—Southwestern Woodhouse’s Toad

B. w. velatus Bragg and Sanders, 1951—East Texas Toad

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

Eleutherodactylus Duméril and Bibron, 1841—RAINFROGS

The largest vertebrate genus, but poorly represented in USA. Likely paraphyletic with respect to *Ischnocnema*, *Phrynopus*, *Barycholos*, *Euparkerella*, *Geobatrachus*, *Holoaden*, *Adelastes*, and *Phyzelaphryne* (all extralimital).

E. augusti (Dugès, 1879)—Barking Frog

Reviewed by Zweifel (1967, Cat. Am. Amph. Rept. 41). Placed in *Hylactophryne* by Lynch (1968, Univ. Kansas Publ. Mus. Nat. Hist. 17: 503–515), the combination *H. augusti* still receives considerable use. Hedges (1989, Biogeography of the West Indies, C. Woods, ed., Sandhill Crane Press) placed *Hylactophryne* in the synonymy of *Eleutherodactylus*. The status of the subspecies is unknown.

E. a. cactorum Taylor, 1939 “1938”—Western Barking Frog

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

E. coqui Thomas, 1966—Coqui (Introduced)

Introduced into Florida (reports of introduction into Louisiana, USA are based on misinformation; H. A. Dundee, pers. comm.)

E. cystignathoides (Cope, 1878 “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. Formerly placed in *Syrrophus*, that nominal genus was placed in the synonymy of *Eleutherodactylus* by Hedges (1989, Biogeography of the West Indies, C. Woods, ed., Sandhill Crane Press).

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

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

Geographic variation is poorly known. Formerly placed in *Syrrophus*, this nominal genus was placed in the synonymy of *Eleutherodactylus* by Hedges (1989, Biogeography of the West Indies, C. Woods, ed., Sandhill Crane Press). Some authors (e.g. Morafka, 1977, Biogeographica 9: 69) consider *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 not well studied, but unlikely to hide any cryptic species. Formerly placed in *Syrrophus*, that nominal genus was placed in the synonymy of *Eleutherodactylus* by Hedges (1989, Biogeography of the West Indies, C. Woods, ed., Sandhill Crane Press). See comment under *E. guttilatus*.

E. planirostris (Cope, 1862)—Greenhouse Frog (Introduced)

Extralimital subspecies recently elevated to species status.

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). Monophyly with respect to *Hypopachus* is not documented.

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”)—Great Plains 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—TREEFROGS

The huge majority of nominal *Hyla* species are extralimital to this list. It should be noted that no evidence of *Hyla* monophyly exists, and that the type species of *Hyla* is *H. arborea*, a European species with strong morphological similarities to a group of North American species, including *H. andersonii* and *Pseudacris*. Therefore, it should be expected that most, if not all of Neotropical “*Hyla*” will ultimately be transferred to other genera, such as has already taken place with the removal of the former *Hyla rubra* group to

Scinax and the recognition of genera such as *Duellmanohyla*, *Ptychohyla*, *Pternohyla*, *Plectrohyla*, *Trachycephalus*, *Tripriion*, *Pternohyla*, *Osteocephalus*, *Tepuihyla*, *Sphaenorhynchus*, *Xenohyla*, *Osteopilus*, and *Smilisca* that clearly are satellites of a paraphyletic *Hyla*.

H. andersonii Baird, 1854—Pine Barrens Treefrog

The widely disjunct populations have been examined with allozymes and only subtle (no fixed differences) geographic variation was documented (Karlín et al., 1982, Copeia 1982: 175–178).

H. arenicolor Cope, 1866—Canyon Treefrog

Barber (1999, Molec. Ecol. 8: 563–576) recently examined geographic variation in this taxon and suggested it is composed of three cryptic species.

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 associated with *Hyla versicolor*. *Hyla chrysoscelis* is possibly a composite deserving of considerable more work; see Maxson, Pepper, and Maxson (1977, Science, 197: 1012–13) and Johnson (1966, Texas J. Sci. 18: 361). 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. eximia Baird, 1854—Mountain Treefrog

Discussed, in part, by Jameson, Mackey, and Richmond (1966, Proc. California Acad. Sci. 33: 594), by Duellman (1970, Monogr. Mus. Nat. Hist. Univ. Kansas 1: 499–505), and by Blair (1960, Southwest. Nat. 5: 129–135). No subspecies currently recognized, although this is a strong candidate for being composed of several sibling species and considerable undocumented geographic variation is apparent upon casual inspection of specimens. The Arizona Treefrog, *Hyla wrightorum*, formerly a synonym of *H. eximia*, has been recognized by some authors (e.g., Sullivan, 1986, Great Bas. Nat. 46: 378–381) but no recent discussion of evidence in support of this has been published.

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

Nominal *Hyla versicolor* is possibly polyphyletic and further work is needed to elucidate the historical components of this complex. *Hyla versicolor* and *H. chrysoscelis* are sibling species that can only be distinguished readily by call, karyotypes, or cell volume. The actual range of each species is poorly understood. Ptacek, Gerhardt, and Sage (1994, Evolution 48: 898–908), suggested that “*H. versicolor*” is a set of at least three lineages, independently derived from the two documented lineages of “*H. chrysoscelis*”. See also

evidence for a single origin of *H. versicolor* in Ralin, Roman, and Kilpatrick (1983, *Herpetologica* 39: 212–225).

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, rejection of subspecies, and synonymy. Although only two species are currently recognized within this genus, *very* strong geographic variation in coloration, call, and toe structure argues that several species are masquerading under this particular name. Given that the type locality of *Hypopachus variolosus* is in Costa Rica, one can look forward to the name applied to the U.S. form to change.

Leptodactylus Fitzinger, 1826—NEOTROPICAL GRASS FROGS

L. labialis (Cope, 1878 “1877”)—Mexican White-lipped Frog

No report of geographic variation. Reviewed by Heyer (1971, *Cat. Am. Amph. Rept.* 104; 1978, *Sci. Bull. Nat. Hist. Mus. Los Angeles Co.* 29: 31) who suggested that *Cystignathus labialis* Cope, 1877, was a junior synonym of *Leptodactylus mystacinus*, and that *L. fragilis* was the appropriate name for this species. This arrangement was rejected by Dubois and Heyer (1992, *Copeia* 1992: 584–585).

Osteopilus Fitzinger, 1843—WEST INDIAN TREEFROGS

O. septentrionalis (Duméril and Bibron, 1841)—Cuban Treefrog
(Introduced)

Introduced into Florida. Considerable inter-island variation exists in the Caribbean, although this has not been studied closely. Reviewed by Duellman and Crombie (1970, *Cat. Am. Amph. Rept.* 92) (as *Hyla septentrionalis*). See also Powell, Passaro, and Henderson (1992, *Carib. J. Sci.* 28: 234–235). See discussion of species nomenclature by Mittleman (1950, *Herpetologica* 6: 24–26), in which he suggests that *H. septentrionalis* Schlegel, 1837, is not a *nomen nudum* and applies to *H. chalconota*. If correct, the nomenclature of this species could be expected to change.

Pseudacris Fitzinger, 1843—CHORUS FROGS

Dubois (1981, *Monit. Zool. Ital.*, N.S. 16: 9–65) regarded *Pseudacris* as a subgenus of *Hyla*, an arrangement that has not met general acceptance. See comments under *Pseudacris regilla*, *P. ocularis*, and *P. crucifer*.

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

No geographic variation documented. Reviewed by Hoffmann (1980, *Cat. Am. Amph. Rept.* 234).

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

No geographic variation documented. Reviewed by Hoffmann (1983, *Cat. Am. Amph. Rept.* 311).

P. cadaverina (Cope, 1866)—California Treefrog

Reviewed by Gaudin (1979, *Cat. Am. Amph. Rept.* 225). Hedges (1986, *Syst. Zool.* 35: 11) placed former *Hyla cadaverina* in *Pseudacris*. Cocroft (1994, *Herpetologica* 50: 420–437) provided a phylogenetic reanalysis of *Pseudacris* and disputed Hedges’ results, although Silva (1997, *J. Herpetol.* 31: 609–613) provided additional evidence and discussion for placing this species within *Pseudacris*.

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

No geographic variation documented. Reviewed by Pierce and Whitehurst (1990, *Cat. Am. Amph. Rept.* 458).

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

Transfer to *Pseudacris* by Hedges (1986, Syst. Zool. 35: 11) was disputed by Cocroft (1994, Herpetologica 50: 420–437) although Silva (1997, J. Herpetol. 31: 609–613) provided additional evidence and discussion for placing this species within *Pseudacris*. Hardy and Borrough (1986, Bull. Maryland Herpetol. Soc. 22: 80) placed this species in the monotypic *Parapseudacris*, although this has enjoyed little support. Two nominal subspecies generally recognized, but whether these represent historical or arbitrary elements is not known.

P. c. bartramiana (Harper, 1939)—Southern Spring Peeper

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

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

Removed from the synonymy of *Pseudacris triseriata* by Hedges (1986, Syst. Zool. 35: 1–21). 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. The contact zone between these named populations deserves careful scrutiny.

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

P. f. kalmi Harper, 1955—New Jersey Chorus Frog

P. maculata (Agassiz, 1850)—Boreal Chorus Frog

Elevated from subspecies status under *Pseudacris triseriata* by Platz (1989, Copeia 1989: 704–712) on the basis of widespread sympatry and differences in call structure (see Platz and Forester, 1988, Copeia 1988: 1062–1066). Further study of geographic variation is warranted.

P. nigrata (LeConte, 1825)—Southern Chorus Frog

Two subspecies recognized although the status of these requires evaluation; for discussion see Smith and Smith (1952, Am. Midl. Nat. 48: 165–180) and Schwartz (1957, Am. Mus. Novit. 1838: 1–12).

P. n. nigrata (LeConte, 1825)—Striped Southern Chorus Frog

P. n. verrucosus (Cope, 1878 “1877”)—Florida Chorus Frog

P. ocularis (Bosc and Daudin, 1801)—Little Grass Frog

No geographic variation documented, although careful work is warranted. Reviewed, as *Limnaoedus ocularis*, by Franz and Chantell (1978, Cat. Am. Amph. Rept. 209). Regarded as a *nomen dubium* by Nieden (1923, Das Tierreich 46: 36). See nomenclatural discussion by Mittleman (1946, Herpetologica 3: 57–60) who considered *Hyla ocularis* Bosc and Daudin, 1801, to be a senior synonym of *Acris gryllus* or *A. crepitans*. Hedges (1986, Syst. Zool. 35: 11) placed this species in *Pseudacris* and discussed phylogenetic relationships. Cocroft (1994, Herpetologica 50: 420–437) provided a phylogenetic analysis of *Pseudacris* that disputed Hedges’ results although Silva (1997, J. Herpetol. 31: 609–613) provided additional evidence and discussion for placing this species within *Pseudacris*.

P. ornata (Holbrook, 1836)—Ornate Chorus Frog

No geographic variation documented. For discussion see Harper (1937, Am. Midl. Nat. 22: 134–149).

P. regilla (Baird and Girard, 1852)—Pacific Treefrog

Transfer to *Pseudacris* by Hedges (1986, Syst. Zool. 35: 11) was disputed by Cocroft (1994, Herpetologica 50: 420–437), although Silva (1997, J. Herpetol. 31: 609–613) provided additional evidence and discussion for placing this species within *Pseudacris*. See Jameson, Mackey, and Richmond (1966, Proc. California Acad. Sci. 33: 551–620) and

Duellman (1970, Monogr. Mus. Nat. Hist. Univ. Kansas 1: 484–493). Several nominal subspecies named, though infrequently used in the literature. Whether these represent sibling species or arbitrarily delimited components of geographic variation is unknown. Further investigation is warranted.

P. r. cascadae (Jameson, Mackey, and Richmond, 1966)—Cascade Mountain Treefrog

P. r. curta (Cope, 1867 “1866”)—California Pacific Treefrog

P. r. deserticola (Jameson, Mackey, and Richmond, 1966)—Desert Treefrog

P. r. pacifica (Jameson, Mackey, and Richmond, 1966)—Western Oregon Treefrog

P. r. palouse (Jameson, Mackey, and Richmond, 1966)—Eastern Oregon Treefrog

P. r. regilla (Baird and Girard, 1852)—Northern Pacific Treefrog

P. r. sierra (Jameson, Mackey, and Richmond, 1966)—Sierran Treefrog

P. streckeri A. A. Wright and A. H. Wright, 1933—Strecker’s Chorus Frog
Reviewed by Smith (1966, Cat. Am. Amph. Rept. 27).

P. s. illinoensis Smith, 1951—Illinois Chorus Frog

Considered a distinct species, *Pseudacris illinoensis* by Collins (1997, SSAR Herpetol. Circ. 25) without discussion, presumably because of the broad geographic disjunction from *P. streckeri* and published mutually diagnostic differences between the nominal races.

P. s. streckeri A. A. Wright and A. H. Wright, 1933—Strecker’s Chorus Frog

P. triseriata (Wied-Neuwied, 1838)—Western Chorus Frog
See comment under *Pseudacris maculata*.

Pternohyla Boulenger, 1882—BURROWING TREEFROGS

P. fodiens Boulenger, 1882—Lowland Burrowing Treefrog

No documented geographic variation, although cryptic species are not expected. Reviewed by Trueb (1969, Cat. Am. Amph. Rept. 77).

Rana Linnaeus, 1758—TRUE FROGS

The monophyly of the nominal family (Ranidae Rafinesque, 1814) with respect to the other firmisternal frogs has not been documented, nor is it remotely clear that within that chaotic firmisternal array that *Rana* is monophyletic, even with the recognition in recent years of many extralimital genera.

R. areolata Baird and Girard, 1852—Crawfish Frog

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

R. a. areolata Baird and Girard, 1852—Southern Crawfish Frog

R. a. circulosa Rice and Davis, 1878—Northern Crawfish Frog

R. aurora Baird and Girard, 1852—Red-legged Frog

Hayes and Miyamoto (1984, Copeia 1984: 1018–1022) suggested that *Rana aurora aurora* and *R. a. draytoni* might be distinct species, and this arrangement was adopted by Dubois (1992, Bull. Mens. Soc. Linn. Lyon 61: 322) without discussion. Nevertheless, the distribution of characters is complex and the status of the nominal subspecies/species is not resolved.

R. a. aurora Baird and Girard, 1852—Northern Red-legged Frog

R. a. draytonii Baird and Girard, 1852—California Red-legged Frog

R. berlandieri Baird, 1854—Rio Grande Leopard Frog

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

R. blairi Mecham, Littlejohn, Oldham, Brown, and Brown, 1973—Plains Leopard Frog

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

R. boylei 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 would prove illuminating.

R. capito LeConte, 1855—Gopher Frog

Rana capito is considered by some to be part of *R. areolata* (but see Case, 1978, Syst. Zool. 27: 299–311, who considered it distinct). Reviewed by Altig and Lohofener (1983, Cat. Am. Amph. Rept. 324). Recent as-yet-unpublished data argue that based on allozyme data *capito* and *areolata* are distinct and *sevosa* is distinct from the rest of the *capito* populations. The allozyme data also indicate that the remaining nominal subspecies are arbitrary units (Brian Crother, pers. comm.).

R. c. aesopus Cope, 1886—Florida Gopher Frog

R. c. capito LeConte, 1855—Carolina Gopher Frog

R. c. sevosa Goin and Netting, 1940—Dusky Gopher Frog

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. catesbeiana Shaw, 1802—American Bullfrog

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

R. chiricahuensis Platz and Mecham, 1979—Chiricahua Leopard Frog

Status of Mexican populations and relationship with *Rana montezumae* needs study. Platz (1993, J. Herpetol. 27: 160) noted that various lines of evidence suggest that *chiricahuensis* is composed of more than one species, with the central Arizona population notably distinctive. The status of this species with respect to extralimital *R. montezumae* remains unresolved.

R. clamitans Latreille, 1801—Green Frog

The status of the nominal subspecies requires investigation to determine whether they are arbitrary or evolutionary units.

R. c. clamitans Latreille, 1801—Bronze Frog

R. c. melanota Rafinesque, 1820—Northern Green Frog

R. fisheri Stejneger, 1893—Vegas Valley Leopard Frog

Extinct. See comment under *Rana onca*.

R. grylio Stejneger, 1901—Pig Frog

R. heckscheri Wright, 1924—River Frog

Reviewed by Sanders (1984, Cat. Am. Amph. Rept. 348).

R. luteiventris Thompson, 1913—Columbia Spotted Frog

Green, Sharbel, Kearsley, and Kaiser (1996, Evolution 50: 374–390) and Cuellar (1996, Biogeographica 72: 145–150) suggested that *Rana pretiosa* was composed of two sibling

species. Subsequently Green, Kaiser, Sharbel, Kearsley, and McAllister (1997, *Copeia* 1997: 1–8) recognized *Rana luteiventris* as a distinct species from the eastern and northern form.

R. muscosa Camp, 1917—Mountain Yellow-legged Frog

See Zweifel (1968, *Cat. Am. Amph. Rept.* 65) for review. Geographic variation warrants detailed study.

R. okaloosae Moler, 1985—Florida Bog Frog

Reviewed by Moler (1993, *Cat. Am. Amph. Rept.* 561).

R. onca Cope, 1875—Relict Leopard Frog

The status of this taxon is controversial, with some workers regarding the Vegas Valley Leopard Frog, *Rana fisheri* Stejneger, 1893 (extinct), as conspecific with the Relict Leopard Frog, *R. onca* (likely now extinct). Others regard *R. fisheri* as most closely related to *R. chiricahuensis* and *R. onca* to not be a member of the *R. chiricahuensis*-group. The systematic discussion is not over although the relevant populations may be both extinct. Reviewed by Jennings (1988, *Cat. Am. Amph. Rept.* 417).

R. palustris LeConte, 1825—Pickerel Frog

Geographic variation studied by Pace (1974, *Misc. Publ. Mus. Zool. Univ. Michigan* 148: 1–140). Reviewed by Schaaf and Smith (1971, *Cat. Am. Amph. Rept.* 117). Schaaf and Smith, (1970, *Herpetologica*, 26: 240–254), reported on geographic variation and although they rejected subspecies did find coherent variation which corresponds to geographic boundaries among more recently recognized species in other taxa. A second look is warranted.

R. pipiens Schreber, 1782—Northern Leopard Frog

Synonymy and discussion in Pace (1974, *Misc. Publ. Mus. Zool. Univ. Michigan* 148: 1–140). Cryptic species are possible along the western part of the range.

R. pretiosa Baird and Girard, 1853—Oregon Spotted Frog

See comment under *Rana luteiventris*.

R. septentrionalis Baird, 1854—Mink Frog

Reviewed by Hedeon (1977, *Cat. Am. Amph. Rept.* 202). Cryptic species are not expected.

R. sphenocephala Cope, 1886—Southern Leopard Frog

Pace (1974, *Misc. Publ. Mus. Zool. Univ. Michigan* 148: 1–140) 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 where the subspecies name *utricularia* has priority over the younger species name, *sphenocephala*. The status of the nominal subspecies requires detailed examination (see Brown, Smith, and Funk, 1977, *Bull. Zool. Nomencl.* 33: 199–200; Zug, 1982, *Bull. Zool. Nomencl.* 39: 80–81; and Uzzell, 1982, *Bull. Zool. Nomencl.* 39: 83).

R. s. sphenocephala Cope, 1886—Florida Leopard Frog

R. s. utricularia Harlan, 1825—Southern Leopard Frog

R. subaquavocalis Platz, 1993—Ramsey Canyon Leopard Frog

The status of this taxon with respect to populations in Mexico, including *Rana montezumae*, needs study.

R. sylvatica 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).

R. tarahumarae Boulenger, 1917—Tarahumara Frog

Extinct in the USA although persisting in Mexico.

R. virgatipes Cope, 1891—Carpenter Frog

Reviewed by Gosner and Black (1968, Cat. Am. Amph. Rept. 67). Cryptic species are not expected.

R. yavapaiensis Platz and Frost, 1984—Lowland Leopard Frog***Rhinophrynus*** Duméril and Bibron, 1841—BURROWING TOADS***R. dorsalis*** Duméril and Bibron, 1841—Mexican 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 holbrookii holbrookii*. Frequently considered conspecific with the allopatric and diagnosable *S. hurterii*.

S. hurterii Strecker, 1910—Hurter's Spadefoot

Considered by some to be an allopatric, well-differentiated subspecies of *Scaphiopus holbrookii*, even though it is diagnosable and allopatric. Reviewed by Wasserman (1968, Cat. Am. Amph. Rept. 70) as *S. holbrookii hurterii*.

Smilisca Cope, 1865—SMILISCAS

For review see Duellman (1968, Cat. Am. Amph. Rept. 58).

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.

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 *Spea multiplicatus* in parts of their ranges (Brown, 1976, Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 286). Geographic variation poorly documented.

S. hammondi (Baird, 1859 “1857”)—Western Spadefoot

This name formerly covered populations now referred to *Spea 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 (as *Scaphiopus intermontanus*) by Hall (1999, *Cat. Am. Amph. Rept.* 650).

S. multiplicata (Cope, 1863)—Mexican Spadefoot

Considered a species distinct from *Spea hammondi* 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. hammondi* 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 *S. hammondi*, 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)—New Mexico Spadefoot***Xenopus*** Wagler, 1827—CLAWED FROGS***X. laevis*** (Daudin, 1802)—African Clawed Frog (Introduced)

“*Xenopus laevis*” is clearly a composite of many undescribed species in Africa and the actual identity of introduced populations in the U.S. has not been clearly determined. One can expect the identification of these introduced frogs to change.

Caudata — Salamanders

Compiled by Richard Highton, Stephen G. Tilley (Chair), David B. Wake.

***Ambystoma* Tschudi, 1838—MOLE SALAMANDERS**

A. annulatum Cope, 1886—Ringed Salamander

A. barbouri Kraus and Petranka, 1989—Streamside Salamander

A. californiense Gray, 1853—California Tiger Salamander

Treated as a subspecies of *Ambystoma tigrinum* by Gehlbach (1967, Cat. Am. Amph.

Rept. 52). Collins (1997, SSAR Herpetol. Circ. 25), Irschick and Shaffer (1997,

Herpetologica 53: 30–49), and Petranka (1998, Salamanders of the United States and

Canada, Smithsonian Institution Press) treat the taxon as a species, following Shaffer and McKnight (1996, Evolution 50: 417–433).

A. cingulatum Cope, 1867—Flatwoods Salamander

A. gracile (Baird, 1859)—Northwestern Salamander

Titus (1990, J. Herpetol. 24: 107–108), on the basis of allozymic evidence, recommended

against recognizing subspecies. Petranka (1998, Salamanders of the United States and

Canada, Smithsonian Institution Press) retains the subspecies, but acknowledges that their recognition “may not be warranted.”

A. jeffersonianum (Green, 1827)—Jefferson Salamander

A. laterale Hallowell, 1856—Blue-spotted Salamander

A. mabeei Bishop, 1928—Mabee’s Salamander

A. macrodactylum Baird, 1850 “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, 1850 “1849”—Western Long-toed Salamander

A. m. sigillatum Ferguson, 1961—Southern Long-toed Salamander

A. maculatum (Shaw, 1802)—Spotted Salamander

A. opacum (Gravenhorst, 1807) Marbled Salamander

A. talpoideum (Holbrook, 1838) Mole Salamander

A. texanum (Matthes, 1855) Small-mouthed Salamander

A. tigrinum (Green, 1825) 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 Collins (1997, SSAR Herpetol. Circ. 25) treated the western forms as

subspecies of *Ambystoma mavortium*. Irschick and Shaffer (1997, Herpetologica 53: 30–

49) provided further information on patterns of intergradation in this complex, but declined

to recognize *A. mavortium* as a separate, polytypic species. Petranka (1998, Salamanders

of the United States and Canada, Smithsonian Institution Press) followed their taxonomy,

treating *mavortium* and the other western taxa as subspecies of *A. tigrinum*.

A. t. diaboli Dunn, 1940 Gray Tiger Salamander

A. t. mavortium Baird, 1850 Barred Tiger Salamander

A. t. melanostictum (Baird, 1860) Blotched Tiger Salamander

A. t. nebulosum Hallowell, 1852 Arizona Tiger Salamander

- A. t. stebbinsi* Lowe, 1954 Sonoran Tiger Salamander
A. t. tigrinum (Green, 1825) Eastern Tiger Salamander

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

See note under *Plethodon* regarding parphyly.

- 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 Moreschalchi (1975, *Evolutionary Biology* 8: 339–387).

- A. ferreus* Cope, 1869—Clouded Salamander

- A. flavipunctatus* (Strauch, 1870)—Black Salamander

Lynch (1981, *Smithsonian Contrb. Zool.* 324:1–53), followed by Collins (1997, *SSAR Herpetol. Circ.* 25, treated *Aneides flavipunctatus* as polytypic, whereas Petranka (1998, *Salamanders of the United States and Canada*, Smithsonian Institution Press) treated it as monotypic. 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 “1998”—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, *Contr. Sci. Natur. Hist. Mus. Los Angeles Co.* 463: 1–12), who named the species for the San Gabriel Mountains, not for Saint Gabriel.

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

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

- B. major* Camp, 1915—Garden Slender Salamander

A recent revision by Wake and Jockusch (2000, pp. 95–119 in Bruce, R.C., et al., *The Biology of Plethodontid Salamanders*, Kluwer Academic/Plenum Publishers) raised the rank of this taxon and recognized two subspecies.

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

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

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

Petranka (1998, *Salamanders of the United States and Canada*, Smithsonian Institution Press) incorrectly attributes the name to Yanev.

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

Until recently this was treated as a polytypic species following Yanev (1980, in The California Islands: Proceedings of a multidisciplinary symposium, D. M. Power, ed. Santa Barbara Mus. Nat. Hist.). Jockusch, Wake, and Yanev (1998, Contr. Sci. Nat. Hist. Mus. Los Angeles Co., 463:1–12) placed the Sierra Nevada populations in four different species, placed in a new species group, and Wake and Jockusch (2000, pp. 95–119 in Bruce, R.C., et al., The Biology of Plethodontid Salamanders, Kluwer Academic/Plenum Publishers) raised the rank of the populations on the southern California mainland. The only remaining named entity is restricted to the northern Channel Islands, California. However, populations along the central California Coast and adjacent inland regions between Santa Cruz and San Luis Obispo counties, called “undescribed subspecies” by Yanev (1980), and referred to as “*B. sp. A*” and “undescribed species” by Jockusch (1997 Evolution 51: 1966–1982) remain nominally part of *B. pacificus*, pending publication of the new taxonomy.

B. regius Jockusch, Wake, and Yanev, 1998—Kings River Slender Salamander***B. relictus*** Brame and Murray, 1968—Relictual Slender Salamander

Jockusch, Wake, and Yanev (1998, Contr. Sci. Nat. Hist. Los Angeles Co., 472: 1–17) most recently recognized this species, reversing the synonymy with *B. pacificus* by Yanev (1980, in The California Islands: Proceedings of a multidisciplinary symposium, D.M Power, ed. Santa Barbara Mus. Nat. Hist.).

B. simatus Brame and Murray, 1968—Kern Canyon Slender Salamander***B. stebbinsi*** Brame and Murray, 1968—Tehachapi Slender Salamander***B. wrighti*** (Bishop, 1937)—Oregon Slender Salamander

Collins (1997, SSAR Herpetol. Circ. 25) followed Applegarth’s (1994, Publ. US Dept. Int. Bureau of Land Management, Eugene, Oregon) emendation to *B. wrightorum*. Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) employed the original nomenclature. The name *wrighti* honors A. H. and Margaret R. Wright, a father and daughter. It seems reasonable to conclude that Bishop was familiar with the rules of Latin grammar and, contrary to Applegarth (1994, Publ. US Dept. Int. Bureau of Land Management, Eugene, Oregon), intended this name to refer to the Family Wright, a family unit in the singular, rather than to two individuals.

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. 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, 1894—Ouachita Dusky Salamander***D. carolinensis*** Dunn, 1916—Carolina Mountain Dusky Salamander

Resurrected from synonymy under *D. ochrophaeus* by Tilley and Mahoney (1996, Herpetol. Monogr. 10: 1–42) on the basis of molecular data.

D. conanti Rossman, 1958—Spotted Dusky Salamander

Elevated to species rank by Titus and Larson (1996, Syst. Biol. 45: 451–472). Treated as a subspecies of *D. fuscus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). Resolving the relationships among *D. conanti*, *D. fuscus*, and *D. ocoee* will require detailed study of the contact zones among these forms.

D. fuscus (Green, 1818)—Northern Dusky Salamander

Treated as a monotypic species by Titus and Larson (1996, Syst. Biol. 45: 451–472). Treated as a polytypic species consisting of *D. f. conanti*, *D. f. fuscus*, and *D. f. santeetlah* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). Geographic variation in this widely distributed taxon badly needs comprehensive study, as does the putative intergradation zone between *D. fuscus* and *D. conanti*.

D. imitator Dunn, 1927—Imitator Salamander***D. marmoratus*** (Moore, 1899)—Shovel-nosed Salamander

Formerly treated as a monotypic genus (*Leurognathus*). Titus and Larson (1996, Syst. Biol. 45: 451–472) included this species in the genus *Desmognathus* in order to render *Desmognathus* monophyletic. Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) follows their recommendation.

D. monticola Dunn, 1916—Seal Salamander***D. ochrophaeus*** Cope, 1859—Allegheny Mountain Dusky Salamander***D. ocoee*** Nicholls, 1949—Ocoee Salamander

Resurrected from synonymy under *D. ochrophaeus* by Tilley and Mahoney (1996, Herpetol. Monogr. 10: 1–42). This form consists of genetically heterogeneous, allo- and parapatric units that occupy different mountain ranges in the southern Blue Ridge and Cumberland Plateau physiographic provinces. The relationships among these isolates and between them and other desmognathines require much further study.

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).

D. quadramaculatus (Holbrook, 1840)—Black-bellied Salamander***D. santeetlah*** Tilley, 1981—Santeetlah Dusky Salamander

Described as a species by Tilley (1981, Occas. Pap. Mus. Zool. Univ. Michigan 695: 1–23) and treated as such by Conant and Collins (1991, Reptiles and Amphibians of Eastern and Central North America, Houghton Mifflin Co.), Collins (1997, SSAR Herpetol. Circ. 25), and Titus and Larson (1996, Syst. Biol. 45: 451–472). Treated as a subspecies of *D. fuscus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press).

D. welteri Barbour, 1950—Black Mountain Salamander***D. wrighti*** King, 1936—Pigmy Salamander***Dicamptodon*** Strauch, 1870—PACIFIC GIANT SALAMANDERS***D. aterrimus*** (Cope, 1867)—Idaho Giant Salamander

Not recognized by Stebbins (1985, A Field Guide to Western Reptiles and Amphibians, Houghton Mifflin Co.), but treated as a species by Daugherty et al. (1983, Copeia 1983: 679–691), Good (1989, Evolution 43: 728–744) and Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) on the basis of molecular data.

D. copei Nussbaum, 1970—Cope's Giant Salamander***D. ensatus*** (Eschscholtz, 1833)—California Giant Salamander

D. tenebrosus (Baird and Girard, 1852)—Coastal Giant Salamander
Treated as a species by Good (1989, *Evolution* 43: 728–744) and Petranka (1998, *Salamanders of the United States and Canada*, Smithsonian Institution Press) on the basis of molecular data.

Ensatina Gray, 1850—ENSATINAS

E. eschscholtzii Gray, 1850—*Ensatina*

The taxonomy of this complex is debated. 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 *Speciation and Its Consequences*, D. Otte and J. A. Endler, eds., Sinauer). 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. bislineata (Green, 1818)—Northern Two-lined Salamander

Treated as a monotypic species by Jacobs (1987, *Herpetologica* 43: 423–446), Conant and Collins (1991, *Reptiles and Amphibians of Eastern and Central North America*, Houghton Mifflin Co.), and Collins (1997, *SSAR Herpetol. Circ.* 25). Treated as a polytypic species consisting of *Eurycea b. bislineata*, *E. b. cirrigera*, and *E. b. wilderae* by Petranka (1998, *Salamanders of the United States and Canada*, Smithsonian Institution Press). The last two of these taxa are now known to occur in sympatry (Camp, et al., 2000, *Copeia* 2000: 572–578).

E. chisholmensis Chippindale, Price, Wiens, and Hillis, 2000—Salado Salamander

E. cirrigera (Green, 1830)—Southern Two-lined Salamander

Treated as a species by Jacobs (1987, *Herpetologica* 43: 423–446), Conant and Collins (1991, *Reptiles and Amphibians of Eastern and Central North America*, Houghton Mifflin Co.) and Collins (1997, *SSAR Herpetol. Circ.* 25). Treated, together with *Eurycea wilderae*, as a subspecies of *E. bislineata* by Petranka (1998, *Salamanders of the United States and Canada*, Smithsonian Institution Press), but now known to occur in sympatry with *E. wilderae* (Camp, et al., 2000, *Copeia* 2000: 572–578).

E. guttolineata (Holbrook, 1838)—Three-lined Salamander

Treated as a subspecies of *Eurycea longicauda* by Conant and Collins (1991, *Reptiles and Amphibians of Eastern and Central North America*, Houghton Mifflin Co.) and Collins (1997, *SSAR Herpetol. Circ.* 25). Elevated to species status from a subspecies of *E. longicauda* by Carlin (1997, *Herpetologica* 53: 206–217), and treated as such by Petranka (1998, *Salamanders of the United States and Canada*, Smithsonian Institution Press).

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 “*E. 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

E. m. griseogaster Moore and Hughes, 1941—Gray-bellied Salamander

E. m. multiplicata (Cope, 1869)—Many-ribbed Salamander

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

Formerly placed in the genus *Typhlomolge*. Treated as a species of *Eurycea* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press), who followed the taxonomic recommendations of Mitchell and Reddell (1965, Texas J. Sci., 17: 23) and supported by Chippindale, et al. (2000, Herpetol. Monogr. 14: 1–80).

E. robusta Longley, 1978—Blanco Blind Salamander

Formerly placed in the genus *Typhlomolge*. Treated as a species of *Eurycea* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press), who followed the taxonomic recommendations of Mitchell and Reddell (1965, Texas J. Sci., 17: 23) and supported by Chippindale, et al. (2000, Herpetol. Monogr. 14: 1–80), but incorrectly attributed the name to Potter and Sweet.

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

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. wilderae Dunn, 1920—Blue Ridge Two-lined Salamander

Treated as a species by Jacobs (1987, *Herpetologica* 43: 423-446), Conant and Collins (1991, *Reptiles and Amphibians of Eastern and Central North America*, Houghton Mifflin Co.) and Collins (1997, *SSAR Herpetol. Circ.* 25) on the basis of its level of genetic differentiation from other members of the *Eurycea bislineata* complex. Treated, together with *E. cirrigera*, as a subspecies of *E. bislineata* by Petranks (1998, *Salamanders of the United States and Canada*, Smithsonian Institution Press), but now known to occur in sympatry with *E. cirrigera* (Camp, et al., 2000, *Copeia* 2000: 572-578).

Gyrinophilus Cope, 1869—SPRING SALAMANDERS***G. gulolineatus*** Brandon, 1965—Berry Cave Salamander

Treated as a subspecies of *Gyrinophilus pallaucus* by Conant and Collins (1991, *Reptiles and Amphibians of Eastern and Central North America*, Houghton Mifflin Co.) and Petranks (1998, *Salamanders of the United States and Canada*, Smithsonian Institution Press). Collins (1997, *SSAR Herpetol. Circ.* 25) and Brandon, Jacobs, Wynn, and Sever (1986, *J. Tennessee Acad. Sci.* 61: 1-20) treated it as a species but the latter paper is not cited by Petranks (op. cit.).

G. pallaucus McCrady, 1954—Tennessee Cave Salamander

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

G. p. pallaucus McCrady, 1954—Pale Salamander

G. porphyriticus (Green, 1827)—Spring Salamander

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

G. p. dunnii 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 *Gyrinophilus porphyriticus* by Blaney and Blaney (1978, *Proc. W. Virginia Acad. Sci.*, 50: 23). Recognized by Petranks (1998, *Salamanders of the United States and Canada*, Smithsonian Institution Press).

Haideotriton Carr, 1939—GEORGIA BLIND SALAMANDERS***H. wallacei*** Carr, 1939—Georgia Blind Salamander***Hemidactylum*** Tschudi, 1838—FOUR-TOED SALAMANDERS***H. scutatatum*** (Schlegel, 1838)—Four-toed Salamander***Hydromantes*** Gistel, 1848—WEB-TOED SALAMANDERS***H. brunus*** Gorman, 1954—Limestone Salamander***H. platycephalus*** (Camp, 1916)—Mt. Lyell Salamander***H. shastae*** Gorman and Camp, 1953—Shasta Salamander***Necturus*** Rafinesque, 1819—WATERDOGS and MUDPUPPIES***N. alabamensis*** Viosca, 1937—Blackwarrior 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)—Mudpuppies

Collins' (1997, SSAR Herpetol. Circ. 25) treatment of *Necturus m. louisianensis* as a species has not been confirmed by published data and Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) treats it as a subspecies.

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

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

N. punctatus (Gibbes, 1850)—Dwarf Waterdog

Two subspecies, *Necturus p. lodingi* and *N. p. punctatus*, were recognized by Collins (1997, SSAR Herpetol. Circ. 25), but not by Dundee (1998, Catalogue of American Amphibians and Reptiles 663) or Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). *N. 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, H. Herpetol. 31: 192–201) regarded the taxonomic status of these populations as uncertain. Petranka (op. cit.) 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

This taxon may be paraphyletic with respect to *Aneides*, according to Larson, et al. (1981, Evolution 35: 405–422).

P. ainsworthi Lazell, 1998—Catahoula Salamander

P. albagula Grobman, 1944—Western Slimy Salamander

Treated as a full species by Highton (1989, Illinois Biological Monographs No. 57: 1–78). Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press), but the recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. amplus Highton and Peabody, 2000—Blue Ridge Gray-cheeked Salamander

P. angusticlavius Grobman, 1944—Ozark Salamander

Treated as a subspecies of *Plethodon dorsalis* by Conant and Collins (1991, Reptiles and Amphibians of Eastern and Central North America, Houghton Mifflin Co.) and Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). Elevated to species status by Highton (1997, Herpetologica 53: 345–356) and the recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278). The standard English name is here revised from Ozark Zigzag Salamander, since most specimens have straight-edged dorsal stripes.

P. aureolus Highton, 1983—Tellico Salamander***P. caddoensis*** Pope and Pope, 1951—Caddo Mountain Salamander***P. chattahoochee*** Highton, 1989—Chattahoochee Slimy Salamander

Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press), but the recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. cheoah Highton and Peabody, 2000—Cheoah Bald Salamander***P. chlorobryonis*** Mittleman, 1951—Atlantic Coast Slimy Salamander

Treated as a full species by Highton (1989, Illinois Biological Monographs No. 57: 1–78). Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press), but the recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. cinereus (Green, 1818)—Eastern Red-backed Salamander***P. cylindraceus*** (Harlan, 1825)—White-spotted Slimy Salamander

Treated as a full species by Highton (1989, Illinois Biological Monographs No. 57: 1–78). Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press), but the recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. dorsalis Cope, 1889—Northern Zigzag Salamander

Treated as polytypic, consisting of the subspecies *Plethodon d. angusticlavius* and *P. d. dorsalis*, by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). The subspecies *angusticlavius* was elevated to species status by Highton (1997, Herpetologica 53: 345–356). The recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. dunnii 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

Treated as a synonym of *Plethodon ouachitae* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). The recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. glutinosus (Green, 1818)—Northern Slimy Salamander***P. grobmani*** Allen and Neill, 1949—Southeastern Slimy Salamander

Treated as a full species by Highton (1989, Illinois Biological Monographs No. 57: 1–78). Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press), but the recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. hoffmani Highton, 1972 “1971”—Valley and Ridge Salamander

P. hubrichti Thurow, 1957—Peaks of Otter Salamander

P. idahoensis Slater and Slipp, 1940—Coeur d’Alene Salamander

Treated as a subspecies of *Plethodon vandykei* by Stebbins (1985, A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Co.) but as a species by Highton and Larson (1979, Syst. Zool. 28: 587), Howard, et al. (1993, Herpetologica 49: 238–247), and Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) on the basis of molecular data.

P. jordani Blatchley, 1901—Jordan’s Salamander

The taxon was restricted to populations in the Great Smoky Mountains by Highton and Peabody (2000, pp. 31–94 in Bruce, R.C., et al., The Biology of Plethodontid Salamanders, Kluwer Academic/Plenum Publishers.)

P. kentucki Mittleman, 1951—Cumberland Plateau Salamander

P. kiamichi Highton, 1989—Kiamichi Slimy Salamander

Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). The recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. kisatchie Highton, 1989—Louisiana Slimy Salamander

Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). The recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

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

Elevated from synonymy under *Plethodon jordani* by Highton and Peabody (2000, pp. 31–94 in Bruce, R.C., et al., The Biology of Plethodontid Salamanders, Kluwer Academic/Plenum Publishers.)

P. mississippi Highton, 1989—Mississippi Slimy Salamander

Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). The recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

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

Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). The recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. ouachitae Dunn and Heinze, 1933—Rich Mountain Salamander

P. petraeus Wynn, Highton and Jacobs, 1988—Pigeon Mountain Salamander

P. punctatus Highton, 1972 “1971”—Cow Knob Salamander

The publication containing the type description is dated 1971, but appeared in 1972. Standard English name as employed by Conant and Collins (1991, Reptiles and Amphibians of Eastern and Central North America, Houghton Mifflin Co.), revised from that used by Collins (1997, SSAR Herpetol. Circ. 25) and Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). “Cow Knob Salamander” has come to be used extensively in species lists, conservation plans, and by workers in the state of Virginia. The name “White Spotted Salamander” employed by Collins (1997, SSAR Herpetol. Circ. 25) is too easily confused with the name “White-spotted Slimy Salamander” employed by Collins (1997, SSAR Herpetol. Circ. 25) and used here for *Plethodon cylindraceus*.

P. richmondi Netting and Mittleman, 1938—Southern Ravine Salamander

The standard English name contrasts this form with *Plethodon electromorphus*, the Northern Ravine Salamander.

P. savannah Highton, 1989—Savannah Slimy Salamander

Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). The recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. sequoyah Highton, 1989—Sequoyah Slimy Salamander

Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). The recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. serratus Grobman, 1944—Southern Red-backed Salamander***P. shenandoah*** Highton and Worthington, 1967—Shenandoah Salamander***P. shermani*** Stejneger, 1906—Red-legged Salamander

Elevated from synonymy under *Plethodon jordani* by Highton and Peabody (2000, pp. 31–94 in Bruce, R.C., et al., The Biology of Plethodontid Salamanders, Kluwer Academic/Plenum Publishers.)

P. stormi Highton and Brame, 1965—Siskiyou Mountains Salamander

Regarded as a subspecies of *Plethodon elongatus* by Stebbins (1985, A Field Guide to Western Reptiles and Amphibians, Houghton Mifflin Co.), but as a species by Leonard, et al. (1993, Amphibians of Washington and Oregon, Seattle Audubon Soc., The Trailside Series, Seattle) and Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press).

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, *P. oconoluftee* for the southern Appalachian species of the *P. glutinosus* complex. Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) followed Hairston’s proposed nomenclature for this form. The glossary of the International Code of Zoological Nomenclature defines a “hybrid” as an offspring of a mating between two different species, that is, an F_1 hybrid. The population at the type-locality possesses genes from two species, *P. shermani* and *P. teyahalee*, but appears 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 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

Treated as a full species by Highton (1989, Illinois Biological Monographs No. 57: 1–78). Treated as a synonym of *Plethodon glutinosus* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press), but the recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

P. vehiculum (Cooper, 1860)—Western Red-backed Salamander

P. ventralis Highton, 1997—Southern Zigzag Salamander

Treated as a synonym of *Plethodon dorsalis* by Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press). The recognition of species on the basis of biochemical evidence was defended by Highton (1998, Herpetologica 54: 254–278).

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

Treated as a subspecies of *Pseudobranchus striatus* by Conant and Collins (1991, Reptiles and Amphibians of Eastern and Central North America, Houghton Mifflin Co.). Elevated to species status by Moler and Kezer (1993, Copeia 1993: 39–47) on the basis of karyotypic data. The status of the remaining nominal subspecies is unclear.

P. a. axanthus Netting and Goin, 1942—Narrow-striped Dwarf Siren

P. a. belli Schwartz, 1952—Everglades Dwarf Siren

Treated as a subspecies of *Pseudobranchus striatus* by Conant and Collins (1991, Reptiles and Amphibians of Eastern and Central North America, Houghton Mifflin Co.). Treated as a subspecies of *P. axanthus* by Moler and Kezer (1993, Copeia 1993: 39–47) and Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press).

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

Collins' (1997, SSAR Herpetol. Circ. 25) treatment of this form as a species has not been confirmed by published data, although the taxon is phenotypically distinctive. We follow Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) in treating this form as a subspecies of *Pseudotriton montanus* until its taxonomic status is evaluated.

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

Siren intermedia texana, recognized by Conant and Collins (1991, Reptiles and Amphibians of Eastern and Central North America, Houghton Mifflin Co.) and Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press), was synonymized with *S. intermedia nettingi* by Flores-Villela and Brandon (1992, Ann. Carnegie Mus. 61: 289–291) (not cited by Petranka, op. cit.). The status of the remaining subspecies remains unclear and deserves careful evaluation as extreme drainage loyalty of the populations is expected.

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) in 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

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

T. g. mazamae (Myers, 1942)—Crater Lake Rough-skinned Newt

Stebbins (1985, A Field Guide to Western Reptiles and Amphibians, Houghton Mifflin Co.) regarded *Taricha granulosa* to be monotypic. Nussbaum and Brodie (1981, Cat. Am. Amph. Rept. 272) recognized *T. g. mazamae* but stated that “The validity of this taxon needs to be reconsidered.” Collins (1997, SSAR Herpetol. Circ. 25) and Petranka (1998, Salamanders of the United States and Canada, Smithsonian Institution Press) continued to recognize two subspecies of *T. granulosa*.

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

T. torosa (Rathke, 1833)—California Newt

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

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

Typhlotriton Stejneger, 1893—GROTTO SALAMANDERS

T. spelaeus Stejneger, 1893—Grotto Salamander

Squamata — Lizards

Compiled by Kevin de Quieroz (Chair), Tod Reeder, Jack Sites, Jr.

Ameiva Meyer, 1795—AMEIVAS (Introduced)

Taxonomy for *Ameiva* follows Peters and Donoso-Barros (1970, Bull. United States Natl. Mus. 297: 1–293).

A. ameiva (Linnaeus, 1758)—Giant Ameiva (Introduced)

Ameiva ameiva is established in Dade County, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein). According to Wilson and Porras (op. cit.), the introduced population may represent the descendants of two different subspecies, *A. a. ameiva* and *A. a. petersi*; however, Echternacht (1971, Univ. Kansas Mus. Nat. Hist. Miscell. Publ. 55: 1–86) did not recognize subspecies for the Central American part of this taxon, and according to Vanzolini (1986, Smithsonian Herpetol. Info. Serv. 70: 1–26+1–25), the subspecies of *A. ameiva* recognized by Peters and Donoso-Barros (1970, Bull. United States Natl. Mus. 297: 1–293) are not biologically meaningful.

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

A. p. nigra Fischer, 1885—Black Legless Lizard

A. p. pulchra Gray, 1852—Silvery Legless Lizard

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; and 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* (*cratatellus*, *cybotes*, *distichus*), *Dactyloa* (none), *Norops* (*garmani*, *sagrei*), and *Xiphosurus* = *Semiurus* (none).

A. carolinensis (Voigt, 1832)—Green Anole

In addition to its native occurrence in the southeastern United States, *Anolis carolinensis* is established in Kauai, Oahu, Molokai, Maui, and Hawaii 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

A. chlorocyanus Duméril and Bibron, 1837—Blue-green Anole
(Introduced)

Anolis chlorocyanus is established in Broward County, Florida (Butterfield et al., 1994, Herpetol. Rev. 25: 77–78).

A. *cristatellus* Duméril and Bibron, 1837—Crested Anole (Introduced)
A. c. cristatellus Duméril and Bibron, 1837—Puerto Rican Crested Anole (Introduced)

Anolis cristatellus cristatellus is established in Dade County, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein). The subspecific identification was not reported by Wilson and Porras (op. cit.) but 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).

A. *cybotes* Cope, 1862—Large-headed Anole (Introduced)

Anolis cybotes is established in Dade and Broward Counties, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein; Butterfield et al., 1994, Herpetol. Rev. 25: 77–78). The Dade County population has been identified as *A. c. cybotes* (Schwartz and Henderson, 1988, Contrib. Biol. Geol. Milwaukee Pub. Mus. 74: 1–264). The subspecific identification for the Broward County population apparently has not been reported.

A. c. cybotes Cope, 1862—Common Large-headed Anole (Introduced)

See note on *A. cybotes*.

A. *distichus* Cope, 1861—Bark Anole

A. d. dominicensis Reinhardt and Lütken, 1863—Green Bark Anole (Introduced)

Anolis distichus dominicensis is established in Miami, Florida (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). Another subspecies, *A. d. ignigularis*, was introduced to Dade County, Florida (King and Krakauer, op. cit.) and is listed as occurring there 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); however, according to Wilson and Porras (op. cit.), this population is no longer extant. Hybridization appears to have occurred between *A. d. dominicensis* and *A. d. floridanus* (Miyamoto et al., 1986, Copeia 1986: 76–86; see next note).

A. d. floridanus Smith and McCauley, 1948—Florida Bark Anole
 Schwartz (1968, Bull. Mus. Comp. Zool. 137: 255–310) reviewed the evidence and discussed alternative hypotheses concerning the occurrence of *Anolis distichus floridanus* in Florida and concluded that this taxon was most likely introduced from Andros Island in the Bahamas; nevertheless, Wilson and Porras (1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89) considered it a native component of the Florida herpetofauna. Although the specimens of *A. d. floridanus* examined by Schwartz (op. cit.) are distinguishable from those of *A. d. dominicensis*, more recent samples of Bark Anoles from Florida form a continuum, suggesting intergradation between the two subspecies (Miyamoto et al., 1986, Copeia 1986: 76–86).

A. *equestris* Merrem, 1820—Knight Anole (Introduced)

A. e. equestris Merrem, 1820—Western Knight Anole (Introduced)

Anolis equestris equestris is established in Dade and possibly Broward Counties, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89) and on Oahu in the Hawaiian Islands (McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing). The subspecific identification for the Florida population was not reported by Wilson and Porras (op. cit.) but 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).

A. garmani Stejneger, 1899—Jamaican Giant Anole (Introduced)

Anolis garmani is established in Miami, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89).

A. porcatius Gray, 1840—Cuban Green Anole (Introduced)

Anolis porcatius is established in Dade County, Florida (Meshaka et al., 1997, Herpetol. Rev. 28: 101–102).

A. sagrei Duméril and Bibron, 1837—Brown Anole (Introduced)

A. s. sagrei Duméril and Bibron, 1837—Cuban Brown Anole (Introduced)

Anolis sagrei is established in Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein), Texas (King et al., 1987, Texas J. Sci. 39: 289–290), Louisiana (Thomas et al., 1990, Herpetol. Rev. 21: 22), and Hawaii (McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing). The populations introduced to southern Florida have spread northward into Georgia (Campbell, 1996, Herpetol. Rev. 27: 155–157 and references therein). 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), however, 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*). According to McKeown (op. cit.), Hawaiian Brown Anoles were introduced from Florida.

Basiliscus Laurenti, 1768—BASILISKS (Introduced)

Taxonomy for *Basiliscus* follows Lang (1989, Bonner Zool. Monog. 28: 1–172).

B. vittatus Wiegmann, 1828—Brown Basilisk (Introduced)

Basiliscus vittatus is established in Dade and Broward Counties, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89).

Callisaurus Blainville, 1835—ZEBRA-TAILED LIZARDS

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

C. draconoides Blainville, 1835—Zebra-tailed Lizard

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

Chamaeleo Laurenti, 1768—CHAMELEONS (Introduced)

Taxonomy for *Chamaeleo* follows Klaver and Böhme (1997, Das Tierreich 112: 1–85).

C. jacksonii Boulenger, 1896—Jackson's Chameleon (Introduced)

C. j. xantholophus Eason, Ferguson, and Hebrard, 1988—Yellow-crested Jackson's Chameleon (Introduced)

Chamaeleo jacksoni xantholophus is established on Oahu, Hawaii, Maui, Kauai, and Lanai in the Hawaiian Islands (McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing) and in Los Angeles, San Diego, and San Luis Obispo Counties, California (McKeown, 1997, Bull. Chicago Herpetol. Soc. 32: 101).

***Cnemidophorus* Wagler, 1830—WHIPTAILS**

Taxonomy for *Cnemidophorus* follows Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60) and Wright (1993, pp. 27–81 in *Biology of Whiptail Lizards* [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.) with modifications by Trauth (1992, Texas J. Sci. 44: 437–443; description of *C. sexlineatus stephensae*), Wright and Lowe (1993, J. Arizona-Nevada Acad. Sci. 27: 129–157; descriptions of *C. inornatus gypsi*, *C. i. juniperus*, *C. i. llanurus*, and *C. i. pai*), Walker et al. (1997, Herpetologica 53: 233–259; description of *C. neotesselatus*), and those described in subsequent notes. Maslin and Secoy (op. cit.) and Wright (op. cit.) are also the sources for information on reproductive mode.

***C. arizonae* Van Denburgh, 1896—Arizona Striped Whiptail**

Cnemidophorus arizonae was treated as a subspecies of *C. inornatus* 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, pp. 27–81 in *Biology of Whiptail Lizards* [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.), 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 *C. inornatus* recognized by Wright and op. cit.).

C. burti* Taylor, 1938—Canyon Spotted Whiptail**C. b. stictogrammus* Burger, 1950—Giant Spotted Whiptail*****C. dixonii* Scudday, 1973—Gray Checkered Whiptail (unisexual)**

Cnemidophorus dixonii was treated as a synonym of *C. tessellatus* by Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60), but it was recognized as a species by Wright (1993, pp. 27–81 in *Biology of Whiptail Lizards* [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.) and Walker et al. (1994, Texas J. Sci. 46: 27–33) because its origin is thought to have resulted from a separate hybridization event.

C. exsanguis* Lowe, 1956—Chihuahuan Spotted Whiptail (unisexual)**C. flagellicaudus* Lowe and Wright, 1964—Gila Spotted Whiptail (unisexual)*****C. gularis* Baird and Girard, 1852—Eastern Spotted Whiptail**

See comment under *C. septemvittatus*.

C. g. gularis* Baird and Girard, 1852—Texas Spotted Whiptail**C. gypsi* Wright and Lowe, 1993—Little White Whiptail**

Cnemidophorus gypsi was originally described as a subspecies of *C. inornatus* 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 *C. inornatus* recognized by Wright and Lowe (op. cit.).

C. hyperythrus* Cope, 1863—Orange-throated Whiptail**C. 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, pp. 27–81 in *Biology of Whiptail Lizards* [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.), the subspecies *Cnemidophorus hyperythrus beldingi* occurs in the United States, but Grismer (1999, Herpetologica 55: 28–42) did not recognize subspecies of *C. hyperythrus*. Grismer's 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 *C. h. beldingi* and *C. h. schmidti* with *C. h. hyperythrus*. 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 *C. h. beldingi* and *C. h. hyperythrus*. He also referred specimens for the Sierra San Pedro Mártir region to *C. h. schmidti*. If *C. 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, pp. 255–271 in *Herpetology of the North American Deserts*, P. R. Brown and J. W. Wright [eds.], Southwestern Herpetologists Society) had previously identified a diagnostic color pattern difference between *C. h. hyperythrus* and *C. h. beldingi* (he considered *C. h. schmidti* a synonym of *C. 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.

***C. inornatus* Baird, 1859 “1858”—Little Striped Whiptail**

Wright and Lowe (1993, *J. Arizona-Nevada Acad. Sci.* 27: 129–157) recognized six subspecies of *Cnemidophorus inornatus* in the United States: *arizonae*, *gypsi*, *heptagrammus*, *juniperus*, *llanuras*, and *pai*, four of which were newly described 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 *C. inornatus* recognized by Wright and Lowe (op. cit.).

***C. i. heptagrammus* Axtell, 1961—Trans-Pecos Striped Whiptail**

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

***C. i. juniperus* 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 *Cnemidophorus inornatus juniperus* from *C. i. heptagrammus* but did not explicitly treat the names as synonyms.

***C. 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 *Cnemidophorus inornatus llanuras* from *C. i. heptagrammus* but did not explicitly treat the names as synonyms.

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

***C. lemniscatus* complex (Linnaeus, 1758)—Rainbow Whiptail (unisexual, in part) (Introduced)**

Cnemidophorus lemniscatus has been reported as established in Dade County, Florida (Wilson and Porras, 1983, *Univ. Kansas Mus. Nat. Hist. Spec. Publ.* 9: 1–89 and references therein). However, several species, both uni- and bisexual, have been described for different parts of the taxon 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.

C. marmoratus Baird and Girard, 1852—Marbled Whiptail

Cnemidophorus marmoratus (including *C. marmoratus marmoratus* and *C. 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 *C. tigris* by Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60) and Wright (1993, pp. 27–81 in Biology of Whiptail Lizards [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.). Dessauer and Cole (1991, Copeia 1991: 622–637) presented evidence of both differentiation and interbreeding between *marmoratus* 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, Pp. 57–75 in Endless forms: Species and speciation, D. J. Howard and S. H. Berlocher [eds.], Oxford University Press), they are here considered incompletely separated species.

C. m. marmoratus Baird and Girard, 1852—Western Marbled Whiptail

Maslin and Secoy (1986, Contrib. Zool. Univ. Colorado Mus. 1: 1–60) and Wright (1993, pp. 27–81 in Biology of Whiptail Lizards [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.) treated *Cnemidophorus marmoratus marmoratus* and *C. m. reticuloriens* of Hendricks and Dixon (1986, Texas J. Sci. 38: 327–402) as a single subspecies of *C. tigris* (*C. t. marmoratus*); in contrast, Dessauer and Cole (1991, Copeia 1991: 622–637) treated those taxa as separate subspecies of *C. tigris* (*C. t. marmoratus* and *C. t. reticuloriens*). Thus, *C. marmoratus marmoratus* in this checklist corresponds with *C. tigris marmoratus* of Dessauer and Cole (op. cit.) but not with *C. tigris marmoratus* of Maslin and Secoy (op. cit.) and Wright (op. cit.).

C. m. reticuloriens Vance, 1978—Eastern Marbled Whiptail

Cnemidophorus tigris reticuloriens was described as a new taxon by Hendricks (1975, Ph.D. dissertation, Texas A and 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 *C. marmoratus 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, pp. 27–81 in Biology of Whiptail Lizards [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.) treated *marmoratus* as a subspecies of *Cnemidophorus tigris* and considered the name *C. t. reticuloriens* a synonym of *C. t. marmoratus*; however, Dessauer and Cole (1991, Copeia 1991: 622–637), who also treated *marmoratus* as a subspecies of *C. tigris*, recognized the subspecies *C. t. reticuloriens*.

C. neomexicanus 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 *Cnemidophorus neomexicanus* is a junior synonym of *C. perplexus* Baird and Girard 1852. However, because of prevailing use of the name *C. neomexicanus* (Smith et al., 1997, Bull. Zool. Nomen. 54: 167–171), that name has been granted precedence over *C. perplexus* (ICZN, 1999, Bull. Zool. Nomen. 56: 162–163).

C. neotesselatus Walker, Cordes and Taylor, 1997—Colorado Checkered Whiptail (unisexual)

Wright (1993, pp. 27–81 in *Biology of Whiptail Lizards* [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.) applied the name *Cnemidophorus tessellatus* to the taxon here called *C. neotesselatus*, that is, to triploid members of the *C. tessellatus* 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 *C. tessellatus* was based on lizards of pattern class D. Therefore, they applied the name *C. tessellatus* to the diploid members of the *C. tessellatus* complex representing Zweifel's (op. cit.) pattern classes C, D, and E, and they proposed a new name, *C. neotesselatus*, for the triploid members of the complex representing pattern classes A and B.

C. pai Wright and Lowe, 1993—Pai Striped Whiptail

Cnemidophorus pai was originally described as a subspecies of *C. inornatus* 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 *C. inornatus* recognized by Wright and Lowe (op. cit.).

C. septemvittatus Cope, 1892—Mexican Plateau Spotted Whiptail

Cnemidophorus septemvittatus was treated as a subspecies of *C. gularis* by Maslin and Secoy (1986, *Contrib. Zool. Univ. Colorado Mus.* 1: 1–60) but as a species by Wright (1993, pp. 27–81 in *Biology of Whiptail Lizards* [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.). The correct name of this species is unclear. The specific epithets *septemvittatus*, *scalaris*, and *semifasciatus* were all published in the same paper (Cope, 1892, *Trans. Amer. Philos. Soc.* 17: 27–52), on pages 40, 47, and 49, respectively. Burger (1950, *Nat. Hist. Misc.* 65: 1–9) considered *Cnemidophorus sackii septemvittatus* and *C. s. semifasciatus* (but not *C. s. scalaris*) consubspecific and selected *semifasciatus* over *septemvittatus*, disregarding page precedence because the type locality of *septemvittatus* was erroneous while that of *semifasciatus* apparently was not. He applied the name *C. s. semifasciatus* to a taxon whose distribution did not include the type locality associated with that name. Duellman and Zweifel (1962, *Bull. Amer. Mus. Nat. Hist.* 123: 155–210) considered all three forms conspecific but heterosubspecific and used *septemvittatus* as the name of the species, following page priority in deliberate contradiction to Burger's action. Williams and Smith (1963, *Herpetologica* 19: 68–69) criticized Duellman and Zweifel's decision to ignore the precedence of *semifasciatus* over *septemvittatus* established by Burger, but they selected *scalaris* over *semifasciatus* and ignored the precedence of *septemvittatus* over *scalaris* established by Duellman and Zweifel, using *C. scalaris* as the name of the species. Because the precedence of names in pairs established by these three sets of authors (*semifasciatus* over *septemvittatus* by Burger, *septemvittatus* over *scalaris* by Duellman and Zweifel, *scalaris* over *semifasciatus* by Williams and Smith) did not establish a clear order of precedence when all three names are considered synonyms, we have used the name adopted by Wright (op. cit.).

C. s. septemvittatus Cope, 1892—Big Bend Spotted Whiptail

C. sexlineatus (Linnaeus, 1766)—Six-lined Racerunner

C. s. sexlineatus (Linnaeus, 1766)—Eastern Six-lined Racerunner

C. 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).

C. s. viridis Lowe, 1966—Prairie Racerunner

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

C. tessellatus (Say, 1823)—Common Checkered Whiptail (unisexual)

Wright (1993, pp. 27–81 in *Biology of Whiptail Lizards* [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.) applied the name *Cnemidophorus grahamii* Baird and Girard 1852 to the taxon here called *C. tessellatus*, that is, to diploid members of the *C. tessellatus* complex representing Zweifel's (1965, Am. Mus. Novit. 2235: 1–49) pattern classes C, D, and E; he applied the name *C. tessellatus* 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 *C. tessellatus* was based on lizards of pattern class D. Therefore, they applied the name *C. tessellatus* to the diploid members of the *C. tessellatus* complex representing Zweifel's (op. cit.) pattern classes C, D, and E, and they treated the name *C. 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.

C. tigris Baird and Girard, 1852—Tiger Whiptail

C. t. mundus Camp, 1916—California Whiptail

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

C. t. punctilinealis Dickerson, 1919—Sonoran Tiger Whiptail

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

C. t. septentrionalis Burger, 1950—Plateau Tiger Whiptail

C. 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 *Cnemidophorus tigris stejnegeri* as a junior synonym of *C. t. multiscutatus* Cope 1892; others (e.g., Maslin and Secoy, 1986, *Contrib. Zool. Univ. Colorado Mus.* 1: 1–60; Wright, 1993, Pp. 27–81 in *Biology of Whiptail Lizards* [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.) 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 *C. t. multiscutatus* endemic (type locality: Isla Cedros, Baja California) as the name of an insular and *C. t. stejnegeri* (type locality: Ensenada, Baja California) as the name of the subspecies occurring in coastal southern California.

C. t. tigris Baird and Girard, 1852—Great Basin Whiptail

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

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

Maslin and Secoy (1986, *Contrib. Zool. Univ. Colorado Mus.* 1: 1–60) treated the name *Cnemidophorus (sackii) innotatus* as a synonym of *C. velox*, but Wright (1993, Pp. 27–81 in *Biology of Whiptail Lizards* [Genus *Cnemidophorus*], J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist.) applied the name *C. velox* to populations of triploid

parthenogens and treated *C. innotatus* as the name of a separate diploid species. Cuellar (1977, *Evolution* 31: 24–31) found histoincompatibility (rejection of skin grafts) between *C. velox*-like lizards from Colorado, New Mexico, and Utah, which Cuellar and Wright (1992, *Comp. Rend. Soc. Biogeogr.* 68: 157–160) interpreted as potential evidence for different ploidy levels. The type locality of *C. velox* is in Arizona, while that of *C. innotatus* 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, Pp. 49–71 in *Evolution and ecology of unisexual vertebrates*, R. M. Dawley and J. P. Bogart [eds.], New York State Museum). If lizards from the type locality of *C. innotatus* turn out to be diploid, it would be reasonable to recognize a separate diploid species and apply the name *C. innotatus* (Plateau Spotted Whiptail) to it.

C. xanthonotus Duellman and Lowe 1953—Red-backed Whiptail
Cnemidophorus xanthonotus was treated as a subspecies of *C. burti* by Maslin and Secoy (1986, *Contrib. Zool. Univ. Colorado Mus.* 1: 1–60) and Wright (1993, pp. 27–81 in *Biology of Whiptail Lizards [Genus Cnemidophorus]*, J. W. Wright and L. J. Vitt [eds.], Oklahoma Mus. Nat. Hist), but Collins (1991, *Herpetol. Rev.* 22: 42–43) treated it as a species because it is allopatric and morphologically diagnosable relative to *C. burti*.

Coleonyx Gray, 1845—BANDED GECKOS

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

- 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. abboti* 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 K. de Queiroz (1989, Ph.D. dissertation, Univ. California, Berkeley).

- C. texanus*** Troschel, 1852 “1850”—Greater Earless Lizard
 - C. t. scitulus* (Peters, 1951)—Chihuahuan Greater Earless Lizard
 - C. t. texanus* Troschel, 1852 “1850”—Texas Greater Earless Lizard

Cosymbotus Fitzinger, 1843—ASIAN HOUSE GECKOS (Introduced)

Taxonomy for *Cosymbotus* follows Kluge (1991, *Smithsonian Herpetol. Info. Serv.* 85: 1–35) and Bauer (1994, *Das Tierreich* 109: 1–306).

- C. platyurus*** (Schneider, 1792)—Flat-tailed House Gecko (Introduced)
Cosymbotus platyurus is established in Pinellas County, Florida (Meshaka and Lewis, 1994, *Herpetol. Rev.* 25: 127).

***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. nebris 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

McGuire (1996, Bull. Carnegie Mus. Nat. Hist. 32: 1-143) noted that the name *Crotaphytus vestigium* Smith and Tanner is a junior synonym of *C. fasciatus* Mocquard. Nevertheless, he used the junior synonym as the valid name for the taxon because the senior synonym had not been so used during the last 50 years, while the junior synonym had been used repeatedly. McGuire also noted that *C. fasciatus* Mocquard is a junior (primary) homonym of *C. fasciatus* Hallowell (which is itself a junior synonym of *Gambelia wislizenii*) and that Mocquard, apparently aware of the problem, had provided the new replacement name (nomen novum) *C. fasciolatus*. Because the junior primary homonym *C. fasciatus* Mocquard is invalid (ICZN, 1985: Article 57), the correct name for this taxon is *C. fasciolatus*; however, for the reasons noted above, McGuire (1999, Bull. Zool. Nomencl. submitted) has proposed that *C. fasciolatus* be suppressed. Until the International Commission on Zoological Nomenclature rules on this proposal, we have followed the Zoological Code (ICZN, 1999; Article 82.1) by maintaining the name in most common current use.

***Ctenosaura* Wiegmann, 1828—SPINY-TAILED IGUANAS (Introduced)**

Taxonomy for *Ctenosaura* follows de Queiroz (1995, Publ. Espec. Mus. Zool. Univ. Nac. Autón. México 9: 1-48).

C. pectinata (Wiegmann, 1834)—Western Spiny-tailed Iguana (Introduced)

Ctenosaura pectinata is established in Brownsville, Texas (Smith and Kohler, 1978, Trans. Kansas Acad. Sci. 80: 1-2 and references therein) and Miami, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9:1-89).

***Cryptoblepharus* Wiegmann, 1834—SNAKE-EYED SKINKS**

Taxonomy for *Cryptoblepharus* follows Greer (1974, Australian J. Zool. Suppl. Ser. 31: 1-67).

C. poecilopleurus (Wiegmann, 1834)—Mottled Snake-eyed Skink

According to McKeown (1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing), *Cryptoblepharus poecilopleurus* probably was present in Hawaii before the arrival of Europeans.

***Cyrtopodion* Fitzinger, 1843—BOWFOOT GECKOS (Introduced)**

Taxonomy for *Cyrtopodion* follows Szczerbak and Golubev (1984, Vestnik Zoologii 2: 50-56) with modifications by Kluge (1985, Zool. Meded. 59: 95-100; priority of *Cyrtopodion* over *Tenuidactylus*).

C. scabrum (Heyden, 1827)—Rough-tailed Gecko (Introduced)

Cyrtopodion scabrum is established in Galveston, Texas (Selcer and Bloom, 1984, Southwest. Natur. 29: 499-500). The specific epithet is often spelled *scaber*, as it was in the original combination *Stenodactylus scaber*. However, the name *scaber* is masculine (as is *Stenodactylus*), while *Cyrtopodion* is neuter. Therefore, the correct form of the epithet in combination with *Cyrtopodion* is the neuter form *scabrum* (see ICZN, 1999, Article 31.2).

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

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

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 (Introduced)

Emoia cyanura occurs on Kauai, Hawaiian Islands, where it may or may not have been introduced prior to the arrival of Europeans (see discussion in McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing).

E. impar (Werner, 1898)—Azure-tailed Skink

According to McKeown (1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing), *Emoia impar* probably was present in Hawaii before the arrival of Europeans.

Eumeces Wiegmann, 1834—GREAT SKINKS

Taxonomy for *Eumeces* follows Taylor (1935, Univ. Kansas Sci. Bull. 23: 1–643) with modifications by Rodgers (1944, Copeia 1944: 101–104; description of *E. gilberti placerensis*), Smith (1946, Univ. Kansas Pub. Mus. Nat. Hist. 1: 85–89; resurrection of *E. anthracinus pluvialis*), Rodgers and Fitch (1947, Univ. California Pub. Zool. 48: 169–220; description of *E. gilberti cancellosus* and treatment of *E. skiltonianus brevipes* as a synonym of *E. gilberti gilberti*), Smith and Slater (1949, Trans. Kansas Acad. Sci. 52: 438–448; description of *E. septentrionalis pallidus*), McConkey (1957, Bull. Florida St. Mus. (Biol. Sci.) 2: 13–23; description of *E. egregius similis*), Lowe and Shannon (1954, Herpetologica 10: 185–187; description of *E. gilberti arizonensis*), Lowe (1955b, Herpetologica 11: 233–235; treatment of *E. gaigeae* as a subspecies of *E. multivirgatus*), Meham (1957, Copeia 1957: 111–123; treatment of *E. taylori* as a synonym of *E. m. gaigeae*), Tanner (1958, Great Basin Nat. 17: 59–94; descriptions of *E. skiltonianus utahensis* and *E. s. interparietalis*), Axtell (1961, Texas J. Sci. 13: 345–351; priority of *E.*

multivirgatus epipleurotus over *E. m. gaigeae*), Mount (1965, The reptiles and amphibians of Alabama, Auburn Univ. Agric. Exper. Station; descriptions of *E. egregius lividus* and *E. e. insularis*), Lieb (1985, Contrib. Sci. Nat. Hist. Mus. Los Angeles Co. 357: 1–19; treatment of *E. brevilineatus*, *E. callicephalus*, and *E. tetragrammus* as subspecies of a single species), and those described in subsequent notes. Griffith (1991, Ph.D. dissertation, Univ. Toronto), presented evidence that *Eumeces* is paraphyletic and proposed assignment of all North American species to *Plestiodon*.

E. anthracinus (Baird, 1850)—Coal Skink

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

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

E. callicephalus Bocourt, 1879—Mountain Skink

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

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

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

E. e. insularis Mount, 1965—Cedar Key Mole Skink

Collins (1991, Herpetol. Rev. 22: 42–43) proposed recognizing *Eumeces egregius insularis* as a species but later (Collins, 1997, SSAR Herpetol. Circ. 25) treated it as a subspecies.

E. e. lividus Mount, 1965—Blue-tailed Mole Skink

E. e. onocrepis (Cope, 1871)—Peninsula Mole Skink

E. e. similis McConkey, 1957—Northern Mole Skink

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

E. gilberti Van Denburgh, 1896—Gilbert’s Skink

A study in progress by Richmond (1999, ASIH-HL-SSAR abstract; pers. comm.) indicates that various populations currently referred to *Eumeces gilberti* are more closely related to geographically proximate populations of *E. skiltonianus* than to other populations of *E. gilberti*, suggesting that the taxonomy of both currently recognized species needs to be reassessed.

E. g. arizonensis Lowe and Shannon, 1954—Arizona Skink

Collins (1991, Herpetol. Rev. 22: 42–43) proposed recognizing *Eumeces gilberti arizonensis* as a species but later (Collins, 1997, SSAR Herpetol. Circ. 25) treated it as a subspecies.

E. g. cancellosus Rodgers and Fitch, 1947—Variegated Skink

E. g. gilberti Van Denburgh, 1896—Greater Brown Skink

E. g. placerensis Rodgers, 1944—Northern Brown Skink

E. g. rubricaudatus Taylor, 1935—Western Red-tailed Skink

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

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

E. multivirgatus (Hallowell, 1857)—Many-lined Skink

E. m. epipleurotus Cope, 1880—Variable Skink

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

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

E. septentrionalis (Baird, 1859 “1858”)—Prairie Skink

Eumeces septentrionalis septentrionalis and *E. s. obtusirostris* have sometimes been recognized as species based on allopatry and morphological diagnosability (e.g., Collins, 1991, Herpetol. Rev. 22: 42–43; and 1993, Univ. Kansas Mus. Nat. Hist. Public Edu. Ser. No. 13). However, the name *E. s. pallidus*, absent from the literature of the last 40 years, apparently has never been explicitly treated as a synonym of either *E. s. septentrionalis* or *E. 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.

E. s. obtusirostris Bocourt, 1879—Southern Prairie Skink

E. s. pallidus Smith and Slater, 1949—Pallid Skink

E. s. septentrionalis (Baird, 1859)—Northern Prairie Skink

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

See note for *Eumeces gilberti*.

E. s. interparietalis Tanner, 1958 “1957”—Coronado Skink

E. s. skiltonianus (Baird and Girard, 1852)—Skilton’s Skink

E. s. utahensis Tanner, 1958 “1957”—Great Basin Skink

E. tetragrammus (Baird, 1859 “1858”)—Four-lined Skink

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

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

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

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

Gehyra Gray, 1834—DTELLAS

Taxonomy for *Gehyra* follows Kluge (1991, Smithsonian Herpetol. Info. Serv. 85: 1–35) and Bauer (1994, Das Tierreich 109: 1–306).

G. mutilata (Wiegmann, 1834)—Stump-toed Gecko

According to McKeown (1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing), *Gehyra mutilata* probably was present in Hawaii before the arrival of Europeans. This species is also established in San Diego, California (Smith and Kohler, 1978, Trans. Kansas Acad. Sci. 80: 1–24 and references therein). 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, Herpetologia Mexicana; see Bauer and Adler, in press, Arch. Nat. Hist., for a discussion of the dates of the relevant publications).

Gekko Laurenti, 1768—TROPICAL ASIAN GECKOS (Introduced)

Taxonomy for *Gekko* follows Kluge (1991, Smithsonian Herpetol. Info. Serv. 85: 1–35).

G. gekko (Linnaeus, 1758)—Tokay Gecko (Introduced)***G. g. gekko*** (Linnaeus, 1758)—Common Tokay Gecko

Gekko gekko gekko is established in Dade and Broward Counties, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89) and on Oahu in the Hawaiian Islands (McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing). The subspecific identification for the Florida populations is from Smith and Kohler (1978, Trans. Kansas Acad. Sci. 80: 1–24); the subspecific identification for Hawaiian Tokay Geckos was not given by McKeown (op. cit.); however, if they were introduced from southeast Asia, as stated by McKeown, then the subspecies is also *G. g. gekko*.

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**Gonatodes** Fitzinger, 1843—BENT-TOED GECKOS (Introduced)

Taxonomy for *Gonatodes* follows Kluge (1995, Am. Mus. Novit. 3139: 1–23).

G. albogularis (Duméril and Bibron, 1836)—Yellow-headed Gecko (Introduced)***G. a. fuscus*** (Hallowell, 1855)—Dusky Yellow-headed Gecko (Introduced)

Gonatodes albogularis fuscus is established in Monroe (Key West) and Dade Counties, Florida (Smith and Kohler, 1978, Trans. Kansas Acad. Sci. 80: 1–24; Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein).

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**Hemidactylus** Gray, 1825—HOUSE GECKOS

Taxonomy for *Hemidactylus* follows Kluge (1991, Smithsonian Herpetol. Info. Serv. 85: 1–35) and Bauer (1994, Das Tierreich 109: 1–306).

H. frenatus Duméril and Bibron, 1836—Common House Gecko

(Introduced)

Hemidactylus frenatus is established on all of the larger Hawaiian Islands (Smith and Kohler, 1978, Trans. Kansas Acad. Sci. 80: 1–24 and references therein; McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing) and in Monroe County, Florida (Meshaka et al., 1994, Herpetol. Rev. 25: 127–128).

H. garnotii Duméril and Bibron, 1836—Indo-Pacific Gecko (unisexual)

According to McKeown (1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing), *Hemidactylus garnotii* probably was present in Hawaii before the arrival of Europeans. This species is also widespread in southern Florida, where it has been introduced (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein). Kluge and Eckardt (1969, Copeia 1969: 651–664) presented evidence that *H. garnotii* is parthenogenetic.

H. mabouia (Moreau de Jonnès, 1818)—Amerafrican House Gecko
(Introduced)

Hemidactylus mabouia occurs in several counties in southern Florida, where it has been introduced (Powell et al., 1998, Cat. Am. Amph. Rept. 674. and references therein).

H. turcicus (Linnaeus, 1758)—Mediterranean House Gecko (Introduced)

H. t. turcicus (Linnaeus, 1758)—Turkish House Gecko (Introduced)

Hemidactylus turcicus is established at numerous localities in the southern part of the United States, including the states of Alabama (Mount, 1975, The reptiles and amphibians of Alabama, Auburn Univ. Agric. Exper. Stat.), Arizona (Robinson and Romack, 1973, J. Herpetol. 7: 311–312), Arkansas (Paulissen and Buchanan, 1990, Herpetol. Rev. 21: 22), California (Porter, 1988, San Diego Herpetol. Soc. Newsl. 10: 5), Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein), Georgia (Bechtel, 1983, Herpetol. Rev. 14: 27–28), Louisiana (Etheridge, 1952, Copeia 1952: 47–48), Mississippi (Keiser, 1984, J. Mississippi Acad. Sci. 29: 17–18), Nevada (Saethre and Medica, 1993, Herpetol. Rev. 24: 154–155), New Mexico (Painter et al., 1992, Herpetol. Rev. 23: 62), Oklahoma (Henniger and Black, 1987, Bull. Oklahoma Herpetol. Soc. 12: 20), and Texas (Conant, 1955, Am. Mus. Novit. 1726: 1–6). Subspecific identifications (*H. t. turcicus*) have been reported in some cases, but not in others.

Hemiphyllodactylus Bleeker, 1860—GYPSY GECKOS

Taxonomy for *Hemiphyllodactylus* follows Kluge (1991, Smithsonian Herpetol. Info. Serv. 85: 1–35) and Bauer (1994, Das Tierreich 109: 1–306).

H. typus Bleeker, 1860—Indopacific Tree Gecko

H. t. typus Bleeker, 1860—Common Indopacific Tree Gecko
(unisexual)

According to McKeown (1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing), *Hemiphyllodactylus typus* probably was present in Hawaii before the arrival of Europeans. Zug (1991, Bishop Mus. Bull. Zool. 2: 1–136) and McKeown (op. cit.) reported unisexual reproduction in this taxon.

Holbrookia Girard, 1851—LESSER EARLESS LIZARDS

Taxonomy for *Holbrookia* follows Smith (1946, Handbook of lizards. Lizards of the United States and Canada, 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). 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. 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

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

H. m. bunkerii Smith, 1935—Bunker’s Earless Lizard

Occurrence of *Holbrookia maculata bunkerii* 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).

H. m. ruthveni Smith, 1943—Bleached Earless Lizard***H. m. thermophila*** Barbour, 1921—Sonoran Earless Lizard

Some authors (e.g., Lowe, 1964, Pp. 153–174 in *The vertebrates of Arizona*, C. H. Lowe [ed.], Univ. Arizona Press; see also Adest, 1978, Ph.D. dissertation, Univ. California, Los Angeles; Wilgenbusch and de Queiroz, *Syst. Biol.* 49: 592–612) have treated *Holbrookia maculata thermophila* together with the Mexican endemic *H. maculata elegans* as a separate species. If so, the species is *H. elegans* (Elegant Earless Lizard) and the subspecies is *H. e. thermophila*.

H. propinqua Baird and Girard 1852—Keeled Earless Lizard***H. p. propinqua*** Baird and Girard 1852—Northern Keeled Earless Lizard***Iguana*** Laurenti, 1768—GREEN IGUANAS (Introduced)

Taxonomy for *Iguana* follows Lazell (1973, *Bull. Mus. Comp. Zool.* 145: 1–28) and Etheridge (1982, pp. 7–37 in *Iguanas of the world*, G. M. Burghardt and A. S. Rand [eds.], Noyes Publ. Co.).

I. iguana (Linnaeus, 1758)—Common Green Iguana (Introduced)

Iguana iguana is established on Oahu in the Hawaiian Islands (McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing) and in Dade and Collier Counties, Florida (Wilson and Porras, 1983, *Univ. Kansas Mus. Nat. Hist. Spec. Publ.* 9: 1–89 and references therein). Frost and Collins (1988, *Herpetol. Rev.* 19: 73–74) noted that the original spelling of the specific epithet was “*igvana*” and not “*iguana*”. However, the new version of the Code (ICZN, 1999) places greater weight on use than original spelling. According to Article 33.3.1, when an incorrect subsequent spelling is in prevailing use and is attributed to the publication of the original spelling, the subsequent spelling and attribution are to be preserved and the spelling is deemed to be a correct original spelling. Therefore, given that the prevailing spelling is “*iguana*,” and given that the epithet is normally attributed to Linnaeus, this spelling should be retained and treated as a correct original spelling.

Lacerta Linnaeus, 1758—LACERTAS (Introduced)

Taxonomy for *Lacerta* follows Böhme (1984, *Handbuch der Reptilien und Amphibien Europas*. 2/I. Lacertidae II (*Lacerta*). AULA-Verlag).

L. viridis (Laurenti, 1768)—European Green Lizard (Introduced)

Lacerta viridis is established in Shawnee County, Kansas (Collins, 1993, *Univ. Kansas Mus. Nat. Hist. Public Educ. Ser. No.* 13; Gubanyi and Gubanyi, 1997, *Herpetol. Rev.* 28: 96); the subspecific identification apparently has not been reported (see Smith and Kohler,

1978, Trans. Kansas Acad. Sci. 80: 1–24).

Lampropholis Fitzinger, 1843—METALLIC SKINKS (Introduced)

Taxonomy for *Lampropholis* follows Cogger et al. (1983, Zoological catalogue of Australia. Volume 1. Amphibia and Reptilia, Australian Government Publ. Serv.).

L. delicata (De Vis, 1888)—Rainbow Skink (Introduced)

Lampropholis delicata was probably introduced to Hawaii (Baker, 1979, Pacific Sci. 33: 207–212; McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing).

Leiocephalus Gray, 1827—CURLY-TAILED LIZARDS (Introduced)

Taxonomy for *Leiocephalus* follows Pregill (1992, Misc. Publ. Univ. Kansas Mus. Nat. Hist. 84: 1–69).

L. carinatus Gray, 1827—Northern Curly-tailed Lizard (Introduced)

L. c. armouri Barbour and Shreve, 1935—Little Bahama Curly-tailed Lizard (Introduced)

Leiocephalus carinatus armouri is established in Palm Beach and Dade Counties, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein).

L. schreibersii (Gravenhorst, 1837)—Red-sided Curly-tailed Lizard (Introduced)

According to Schreiber et al. (1995, Cat. Am. Amphib. Rept. 613), *Leiocephalus schreibersii* does not exhibit the tail curling behavior seen in other species of *Leiocephalus*, in which case the standard English name used here is a misnomer.

L. s. schreibersii (Gravenhorst, 1837)—Schreibers' Curly-tailed Lizard (Introduced)

Leiocephalus schreibersii schreibersii is established in Dade County, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein).

Lepidodactylus Fitzinger, 1843—SCALE-TOED GECKOS

Taxonomy for *Lepidodactylus* follows Kluge (1991, Smithsonian Herpetol. Info. Serv. 85: 1–35) and Bauer (1994, Das Tierreich 109: 1–306).

L. lugubris complex (Duméril and Bibron, 1836)—Mourning Gecko (unisexual)

According to McKeown (1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing), *Lepidodactylus lugubris* probably was present in Hawaii before the arrival of Europeans. As currently recognized, *L. lugubris* consists of both diploid and triploid clones. The diploid clones appear to have originated from at least two separate interspecific hybridizations and the triploid clones from crosses between females of one of the diploid clones and males from perhaps three different bisexual populations (see Radtkey et al., 1995, Proc. Royal Soc. London, Series B 259: 145–152; Boissinot et al., 1997, J. Herpetol. 31: 295–298). Cuellar and Kluge (1972, J. Genet. 61: 14–26) reported unisexual reproduction in this taxon.

Lipinia Gray, 1845—LIPINIAS

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

L. noctua (Lesson, 1830)—Moth Skink

According to McKeown (1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing), *Lipinia noctua* probably was present in Hawaii before

the arrival of Europeans.

***Neoseps* Stejneger, 1910—FLORIDA SAND SKINKS**

Taxonomy for *Neoseps* follows Telford (1969, Cat. Am. Amph. Rept. 80).

***N. reynoldsi* Stejneger, 1910—Florida Sand Skink**

***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*).

***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**

***Petrosaurus* Boulenger, 1885—CALIFORNIA ROCK LIZARDS**

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

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

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

***Phelsuma* Gray, 1825—DAY GECKOS (Introduced)**

Taxonomy for *Phelsuma* follows Wermuth (1965, Das Tierreich 80: 1–246) and Kluge (1991, Smithsonian Herpetol. Info. Serv. 85: 1–35).

***P. guimbeaui* Mertens, 1963—Orange-spotted Day Gecko (Introduced)**

P. g. guimbeaui Mertens, 1963—Guimbeau's Day Gecko (Introduced)

Phelsuma guimbeaui guimbeaui is established on Oahu in the Hawaiian Islands (McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing).

***P. laticauda* (Boettger, 1880)—Broad-tailed Day Gecko (Introduced)**

P. l. laticauda (Boettger, 1880)—Gold Dust Day Gecko (Introduced)

Phelsuma laticauda laticauda is established on Oahu, Hawaii, and Maui in the Hawaiian Islands (McKeown, 1996, A field guide to reptiles and amphibians in the Hawaiian Islands, Diamond Head Publishing).

***Phrynosoma* Wiegmann, 1828—HORNED LIZARDS**

Taxonomy for *Phrynosoma* follows Reeve (1952, Univ. Kansas Sci. Bull. 34: 817–960) with modifications by Brattstrom (1997, J. Herpetol. 31: 434–436; treatment of *P. coronatum blainvillii* and *P. c. frontale* as synonyms of *P. coronatum*), 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. ornatisum*, and *P. d. ornatum* as synonyms of *P. hernandesi*), and those described in subsequent notes.

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

***P. coronatum* (Blainville, 1835)—Coast Horned Lizard**

***P. douglasii* (Bell, 1829)—Pigmy 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. hernandesi Girard, 1858—Greater Short-horned Lizard

Girard is sometimes cited parenthetically as the author 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 elsewhere in the same publication (p. 392) he used the combination *Phrynosoma hernandesi*. 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 “*hernandezii*”.

P. 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. mcallii (Hallowell, 1852)—Flat-tailed Horned Lizard***P. modestum*** Girard, 1852—Round-tailed Horned Lizard***P. 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.

P. p. calidiarum (Cope, 1896)—Southern Desert Horned Lizard***P. p. goodei*** Stejneger, 1893—Goode’s Desert Horned Lizard

Pianka (1991, Cat. Am. Amph. Rept. 517) indicated the occurrence of *Phrynosoma platyrhinos goodei* in Arizona; however, he considered the subspecies of *Phrynosoma platyrhinos* unreliable (see note for *P. platyrhinos*) and assigned specimens to the various subspecies according to locality. In the case of *P. p. goodei*, Pianka seems to have followed Reeve’s (1952, Univ. Kansas Sci. Bull. 34: 817–960) distribution map, according to which the occurrence of this taxon in southern Arizona was hypothesized but undocumented.

P. p. platyrhinos Girard, 1852—Northern Desert Horned Lizard***P. solare*** Gray, 1845—Regal Horned Lizard***Phyllodactylus*** Gray, 1828—LEAFTOED 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***Podarcis*** Wagler, 1830—WALL LIZARDS (Introduced)

Taxonomy for *Podarcis* follows Böhme (1986, Handbuch der Reptilien und Amphibien

Europas. 2/II. Lacertidae III [*Podarcis*]. AULA-Verlag).

P. muralis (Laurenti, 1768)—Common Wall Lizard (Introduced)

Podarcis muralis is established in Cincinnati, Ohio (Vigle, 1977, Herpetol. Rev. 8: 19; Hedeon, 1988, Herpetol. Rev. 19: 19).

P. sicula (Rafinesque, 1810)—Italian Wall Lizard (Introduced)

Podarcis sicula is established in Long Island, New York (Smith and Kohler, 1978, Trans. Kansas Acad. Sci. 80: 1–24 and reference therein) and Topeka, Kansas (Collins, 1993, Univ. Kansas Mus. Nat. Hist. Public Edu. Ser. No. 13). According to Smith and Kohler (1978, Trans. Kansas Acad. Sci. 80: 1–24), the New York population is *P. s. sicula*; the subspecific identification of the Kansas population apparently has not been reported. A population of *P. s. campestris* was formerly established in Philadelphia, Pennsylvania, but that population is now thought to be extinct (Smith and Kohler, op. cit.).

Rhineura Cope, 1861—WIDE-SNOUDED WORM LIZARDS

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

R. floridana (Baird, 1859 “1858”)—Florida Worm Lizard

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 in the interest of maintaining nomenclatural stability (Montanucci et al., Bull. Zool. Nomen., submitted) is not followed here because both names were in use prior to their treatment as synonyms by Hollingsworth (1998, Herpetol. Monog. 12: 38–191).

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 vallis*), 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 *S. grammicus disparilis* as a synonym of *S. g. microlepidotus*), Smith et al. (1992, Bull. Maryland Herpetol. Soc. 28: 123–149; description of *S. undulatus tedbrownii*), 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 subsequent notes.

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

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

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

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 of this problem.

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 independent evidence (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 *microlepidotus* nor the name *grammicus* applies to the populations in southern Texas.

S. g. microlepidotus Wiegmann, 1828—Mesquite Lizard

S. jarrovi Cope, 1875—Mountain Spiny Lizard

S. j. jarrovi Cope, 1875—Yarrow’s Spiny Lizard

S. magister Hallowell, 1854—Desert Spiny Lizard

Grismer and McGuire (1996, Herpetologica 52: 416–427) did not recognize subspecies of *Sceloporus magister*; 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 even partially separated lineages.

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

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

- S. m. magister* Hallowell, 1854—Purple-backed Spiny Lizard
S. m. transversus Phelan and Brattstrom, 1955—Barred Spiny Lizard
S. m. uniformis Phelan and Brattstrom, 1955—Yellow-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. bocourti 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

- S. p. poinsettii* Baird and Girard, 1852—Northern Crevice Spiny Lizard

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

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

Smith et al. (1992, Bull. Maryland Herpetol. Soc. 28: 123–149) considered *Sceloporus undulatus* a superspecies composed of three groups ranked as exerges: I. *S. u. (exerge undulatus) undulatus* and *S. u. (undulatus) hyacinthinus*; II. *S. u. (exerge consobrinus) consobrinus*, *S. u. (consobrinus) cowlesi*, *S. u. (consobrinus) garmani*, and *S. u. (consobrinus) tedbrownii*; and III. *S. u. (exerge tristichus) tristichus*, *S. u. (tristichus) elongatus*, and *S. u. (tristichus) erythrocheilus*. The English names Fence Lizard, Prairie Lizard, and Plateau Lizard have been used for the three groups (e.g., Conant, 1958, A field guide to reptiles and amphibians of the United States and Canada east of the 100th meridian, Houghton Mifflin Co.; 1975, A field guide to reptiles and amphibians of eastern and central North America, Houghton Mifflin Co.; Collins, 1990, SSAR Herpetol. Circ. 19; and 1997, SSAR Herpetol. Circ. 25). Wiens and Reeder (1997, Herpetol. Monog. 11: 1–101) presented evidence that some of the subspecies of *S. undulatus* are more closely related to different species (e.g., *S. occidentalis*, *S. virgatus*, *S. woodi*) than to other *S. undulatus*. They concluded that the taxonomy of *S. undulatus* is in desperate need of revision. A study in progress by Leaché (1999, ASIH-HL-SSAR abstract) is likely to have

implications for the taxonomy of *Sceloporus undulatus* and its currently recognized subspecies.

- S. u. consobrinus* Baird and Girard, 1853—Southern Prairie Lizard
- S. u. cowlesi* Lowe and Norris, 1956—White Sands Prairie Lizard
- S. u. elongatus* Stejneger, 1890—Northern Plateau Lizard
- S. u. erythrocheilus* Maslin, 1956—Red-lipped Plateau Lizard
- S. u. garmani* Boulenger, 1882—Northern Prairie Lizard
- S. u. hyacinthinus* (Green, 1818)—Northern Fence Lizard
- S. u. speari* Smith, Chizar, Lemos-Espinal and Bell, 1995—Cabeza de Vaca Prairie Lizard
- S. u. tedbrowni* Smith, Bell, Applegarth and Chiszar, 1992—Mescalero Prairie Lizard
- S. u. tristichus* Cope, 1875—Southern Plateau Lizard
- S. u. undulatus* (Bosc and Daudin in Sonnini and Latreille, 1801)—Southern Fence Lizard

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-Quiliano 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, Australian J. Zool. Suppl. Ser. 31: 1–67).

S. lateralis (Say, 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. argus Gosse, 1850—Ocellated Gecko (Introduced)

S. a. argus Gosse, 1850—Common Ocellated Gecko (Introduced)

Sphaerodactylus argus argus is established in Key West, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein); the subspecific identification was not reported them but 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, Univ. Florida Press).

S. elegans MacLeay, 1834—Ashy Gecko (Introduced)

S. e. elegans MacLeay, 1834—Cuban Ashy Gecko (Introduced)

Sphaerodactylus elegans elegans is established in Key West, Boca Chica Key, and Big Coppit Key, Florida (Wilson and Porras, 1983, Univ. Kansas Mus. Nat. Hist. Spec. Publ. 9: 1–89 and references therein); the subspecific identification was not reported by Wilson and Porras (op.cit.) but 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, Univ. Florida Press).

S. notatus Baird, 1859 “1858”—Reef Gecko

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

Tarentola Gray, 1825—WALL GECKOS (Introduced)

Taxonomy for *Tarentola* follows Kluge (1991, Smithsonian Herpetol. Info. Serv. 85: 1–35).

T. mauritanica (Linnaeus, 1758)—Moorish Wall Gecko (Introduced)

Tarentola mauritanica is established in San Diego County, California (Mahrtdt, 1998, Herpetol. Rev. 29: 52); the subspecific identification for this population apparently has not been reported.

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).

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

U. notata Baird, 1859 “1858”—Sonoran Desert Fringe-toed Lizard

Studies in progress by Wilgenbusch and de Queiroz (2000, Syst. Biol. 49: 592–612), Trepanier and Murphy (submitted), and Hollingsworth et al. (submitted) all find that *Uma notata* is paraphyletic, with *U. n. notata* more closely related to *U. inornata* than to *U. n. rufopunctata*.

U. n. notata Baird, 1859 “1858”—Colorado Desert Fringe-toed Lizard

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

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

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. schottii*), 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 even 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 even partially separated lineages.

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

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

U. microscutatus (Van Denburgh, 1894)—Small-scaled Lizards

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 even partially separated lineages.

- U. o. levis* (Stejneger, 1890)—Smooth Tree Lizard
U. o. ornatus (Baird and Girard, 1852)—Texas Tree Lizard
U. o. schmidtii (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. wrightii (Schmidt, 1921)—Cliff 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

- 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

Collins (1991, Herpetol. Rev. 22: 42–43) recognized *Uta stejnegeri* as a separate species from *U. stansburiana*, but later (Collins, 1997, SSAR Herpetol. Circ. 25.) reversed his decision.

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*; 1967, Copeia 1967: 653–661; treatment of *X. arizonae* as a subspecies of *X. vigilis*; 1972, Contrib. Sci. Los Angeles Co. Mus. 227: 1–29; inclusion of *Klauberina riversiana* in *Xantusia*), and Grismer and Galvan (1983, Trans. San Diego Soc. Nat. Hist. 21: 155–165; description of *X. henshawi gracilis*).

X. henshawi Stejneger, 1893—Henshaw’s Night Lizard

- X. h. gracilis* Grismer and Galvan, 1986—Sandstone Night Lizard
X. h. henshawi Stejneger, 1893—Granite Night Lizard

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. vigilis Baird, 1859 “1858”—Desert Night Lizard

- X. v. arizonae* Klauber, 1931—Arizona Night Lizard
X. v. sierrae Bezy, 1967—Sierra Night Lizard
X. v. utahensis Tanner, 1957—Utah Night Lizard
X. v. vigilis Baird, 1859 “1858”—Yucca Night Lizard

Squamata — Snakes

Compiled by Jeff Boundy, Jonathan Campbell, Brian Crother (Chair), Travis Taggart.

Agkistrodon Palisot de Beauvois, 1799—AMERICAN MOCCASINS

A. contortrix (Linnaeus, 1766)—Copperhead

The evolutionary status of the nominal subspecies is unclear and requires work to determine whether they are historical entities.

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 (Lacepède, 1789)—Cottonmouth

A detailed study of geographic variation in this species should provide interesting marks of history, particularly because the Mobile Bay Embayment, a critical biogeographic barrier, seems to be involved in morphological differentiation.

A. p. conanti Gloyd, 1969—Florida Cottonmouth

A. p. leucostoma (Troost, 1836)—Western Cottonmouth

A. p. piscivorus (Lacepède, 1789)—Eastern Cottonmouth

Arizona Kennicott, 1859—GLOSSY SNAKES

Collins (1991, Herpetol. Rev. 22: 42–43) elevated *Arizona elegans 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) and Collins (1997, SSAR Herpetol. Circ. 25). 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, even though we suspect that detailed study of geographic variation might support Collins' assertion.

A. elegans Kennicott, 1859—Glossy Snake

Reviewed by Dixon and Fleet (1976, Cat. Am. Amph. Rept. 179).

A. e. arenicola Dixon, 1960—Texas Glossy Snake

A. e. candida Klauber, 1946—Mojave 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

Schulz (1996, A Monograph of the Colubrid Snakes of the Genus *Elaphe* Fitzinger, Koeltz Scientific Books) applied the generic name *Elaphe* to this genus due to his opinion that the genus *Elaphe* is in need of an overall revision, but not because Schulz disagreed with Dowling and Price (1988, The Snake, 20: 52–63). We concur that *Elaphe* is in need of systematic revision globally, but retain *Bogertophis* because it is a demonstrably monophyletic group (Dowling, 1957, Occ. Papers Mus. Zool. Univ. Michigan 583: 1–22) which

Elaphe (sensu lato) definitely is not. Further, Keogh (1996, *Herpetologica* 52: 406–416) found *Bogertophis* to be more closely related to other Lampropeltini than to other *Elaphe*.

B. rosaliae (Mocquard, 1899)—Baja California Ratsnake

Reviewed by Price (1990, *Cat. Am. Amph. Rept.* 498).

B. subocularis (Brown, 1901)—Trans-Pecos Ratsnake

Reviewed by Worthington (1980, *Cat. Am. Amph. Rept.* 268).

B. s. subocularis (Brown, 1901)—Trans-Pecos Ratsnake

Carphophis Gervais, 1843—WORMSNAKES

C. amoenus (Say, 1825)—Eastern Wormsnake

C. a. amoenus (Say, 1825)—Eastern Wormsnake

C. a. helenae (Kennicott, 1859)—Midwestern Wormsnake

C. vermisi (Kennicott, 1859)—Western Wormsnake

Clark (1968, *Herpetologica* 24: 104–112) recommended elevation of *vermisi* 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 *vermisi*. Collins (1991, *Herpetol. Rev.* 22: 42–43) considered *C. vermisi* to be distinct from *C. amoenus*, the implication being that the intermediate (and isolated) population discussed by Rossman was either considered the most plesiomorphic members of *C. vermisi*, or an unnamed taxon.

Cemophora Cope, 1860—SCARLETSNAKES

The existence of *C. c. coccinea* on either side of the Mississippi embayment, likely with no mutual gene flow, suggests to us that a detailed study of geographic variation would produce considerable taxonomic change.

C. coccinea (Blumenbach, 1788)—Scarletsnake

Reviewed by Williams (1985, *Cat. Am. Amph. Rept.* 374).

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. Linnean Soc.* 107: 293–351) placed *Lichanura* in the synonymy of *Charina* because they formed monotypic sister taxa. Given that Kluge did not include fossil erycine taxa in his study, his conclusion of monotypic sister taxa may be premature. In addition, recent phylogeographic studies suggest that the two genera may not be monospecific (see Rodriguez-Robles et al. 2000, ASIH-HL-SSAR abstracts for *Charina*; Wood, 2000 ASIH-HL-SSAR abstracts for *Lichanura*), which preclude combining. As such, we continue to recognize both *Charina* and *Lichanura*.

C. bottae (Blainville, 1835)—Rubber Boa

Reviewed by Stewart (1977, *Cat. Am. Amph. Rept.* 205).

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

C. b. umbratica Klauber, 1943—Southern Rubber Boa

Chilomeniscus Cope, 1860—SANDSNAKES

C. cinctus Cope, 1861—Banded Sandsnake

Wong (*Herpetologica*, in press) synonymized *C. cinctus* with *C. stramineus* Cope 1860, in which case the standard English name “Variable Sandsnake” will be recommended.

***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 *Chionactis 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).

- C. o. klauberi* (Stickel, 1941)—Tucson Shovel-nosed Snake
C. o. occipitalis (Hallowell, 1854)—Mojave 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

Reviewed by Rossman and Powell (1985, Cat. Am. Amph. Rept. 364).

***Coluber* Linnaeus, 1758—NORTH AMERICAN RACERS**

The genus *Coluber*, as currently recognized, is found in the Old World as well as the New World. Anderson (1996, MS thesis, Southeastern Louisiana Univ.) demonstrated that the genus is not monophyletic. Because the type of *Coluber* is *constrictor*, we use the English name North American Racers in anticipation of verification of the monophyly of New World taxa.

- C. constrictor*** Linnaeus, 1758—Eastern Racer

Reviewed by Wilson (1978, Cat. Am. Amph. Rept. 218). 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.

- 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

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

Reviewed by Leonard and Ovaska (1998, *Cat. Am. Amph. Rept.* 677). An ongoing study has revealed that *C. tenuis* may actually consist of two genetically and morphologically distinct species (Chris Feldman, pers. comm.).

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. We consider the status of *Sistrurus* unsettled and retain the traditional taxonomy.

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

Reviewed by McCranie (1980, *Cat. Am. Amph. Rept.* 252).

C. atrox Baird and Girard, 1853—Western Diamond-backed Rattlesnake**C. cerastes** Hallowell, 1854—Sidewinder

The status of the subspecies is dubious, most likely being artifacts of continuous variation, although the Colorado River as a barrier to gene flow should not be underestimated.

C. c. cerastes Hallowell, 1854—Mojave Desert Sidewinder*C. c. cercobombus* Savage and Cliff, 1953—Sonoran Sidewinder*C. c. laterorepens* Klauber, 1944—Colorado Desert Sidewinder**C. exsul** Garman, 1883—Red Diamond Rattlesnake

Grismer et al. (1994, *Bull. So. California Acad. Sci.* 93: 45–80) synonymized *Crotalus ruber* with *C. exsul*. However, there is a petition to conserve the name *ruber*. Until the formal petition is acted upon, we follow Grismer et al (op.cit.).

C. e. exsul Garman, 1883—Peninsular Red Diamond Rattlesnake**C. horridus** Linnaeus, 1758—Timber Rattlesnake

Pisani et al. (1972, *Trans. Kansas Acad. Sci.* 75: 255–263) conducted a multivariate analysis of variation in *Crotalus 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. Reviewed by Collins and Knight (1980, *Cat. Am. Amph. Rept.* 253).

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

Reviewed by McCrystal and McCoid (1986, *Cat. Am. Amph. Rept.* 388).

C. m. pyrrhus (Cope, 1866)—Southwestern Speckled Rattlesnake*C. m. stephensi* Klauber, 1930—Panamint Rattlesnake

The relationship of this nominal race to *Crotalus viridis* in the Southern Great Basin area needs investigation.

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

Reviewed by Price (1980, Cat. Am. Amph. Rept. 242).

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

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

The status of the two widely allopatric subspecies (one extralimital) requires reevaluation. Reviewed by McCranie (1980, Cat. Am. Amph. Rept. 266).

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

C. scutulatus (Kennicott, 1861)—Mojave Rattlesnake

Evaluation is necessary of the relationship of the nominal race with its extralimital subspecies. Whether they are actually parts of a single lineage is doubtful. Reviewed by Price (1982, Cat. Am. Amph. Rept. 291).

C. s. scutulatus (Kennicott, 1861)—Mojave Green Rattlesnake

C. tigris Kennicott, 1859—Tiger Rattlesnake***C. viridis*** (Rafinesque, 1818)—Western Rattlesnake

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

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

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

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

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

C. v. nuntius Klauber, 1935—Hopi Rattlesnake

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

C. v. viridis (Rafinesque, 1818)—Prairie Rattlesnake

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 current wisdom here. In particular, the sympatry of *Diadophis punctatus 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 character-based phylogeny. An ongoing molecular genetics project has found the subspecies in California (*amabilis*, *modestus*, *occidentalis*, *pulchellus*, *similis*, and *vandenburghii*) to be nearly indistinguishable, and they probably do not represent unique evolutionary lineages (Chris Feldman, pers. comm.).

D. p. acricus Paulson, 1966—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, 1866—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. vandenburghii Blanchard, 1923—Monterey Ring-necked Snake

Drymarchon Fitzinger, 1843—INDIGO SNAKES

D. corais (Boie, 1827)—Western Indigo Snake

Reviewed by McCranie (1980, Cat. Am. Amph. Rept. 267; includes *D. couperi*).

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

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

Collins (1991, Herpetol. Rev. 22: 42–43) elevated this lineage to specific status based on allopatry and diagnosability. Whether the diagnosability of this taxon holds up against rigorous scrutiny across the distribution of *Drymarchon* is open to testing.

Drymobius Fitzinger, 1843—NEOTROPICAL RACERS

D. margaritiferus (Schlegel, 1837)—Speckled Racer

Reviewed by Wilson (1974, Cat. Am. Amph. Rept. 172).

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

Elaphe Fitzinger, 1833—RATSNAKES

See comments on *Bogertophis* and *Senticolis*.

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

E. gloydi Conant, 1940—Eastern Foxsnake

Collins (1991, Herpetol. Rev. 22: 42–43) elevated *gloydi* to specific status due its geographic disjunction from *vulpina* 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 (op. cit.), with additional justification that the two taxa occupy very different ecological niches. Additional data are needed to test the hypothesis of divergence between these populations, but in the meantime we follow Collins (op. cit.) and Harding (op. cit.).

E. guttata (Linnaeus, 1766)—Cornsnake

E. g. emoryi (Baird and Girard, 1853)—Great Plains Ratsnake

Vaughan et al. (1996, Texas J. Sci. 48: 175–190) considered *E. emoryi* and *E. guttata* conspecific, although their data indicate distributional, morphological, and ecological allopatry between the two, with the possible exception of two specimens from the hiatus.

E. g. guttata (Linnaeus, 1766)—Cornsnake

E. g. meahllmorum Smith, Chiszar, Staley, and Tepedelen, 1994—
Southwestern Ratsnake

E. obsoleta (Say, 1823)—Eastern Ratsnake

Frank Burbrink (in press) shows that *Elaphe obsoleta* comprises three distinct lineages (3 species proposed by Burbrink) that do not correspond with currently recognized subspecies.

E. o. lindheimeri (Baird and Girard, 1853)—Texas Ratsnake

E. o. obsoleta (Say, 1823)—Black Ratsnake

E. o. quadrivittata (Holbrook, 1836)—Yellow Ratsnake

E. o. rossalleni Neill, 1949—Everglades Ratsnake

E. o. spiloides (Duméril, Bibron, and Duméril, 1854)—Gray Ratsnake

E. vulpina (Baird and Girard, 1853)—Western Foxsnake

See comment under *E. gloydi*. Reviewed by Powell (1990, Cat. Am. Amph. Rept. 470; includes *E. gloydi*).

Farancia Gray, 1842—MUDSNAKES

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

Reviewed by McDaniel and Karges (1983, Cat. Am. Amph. Rept. 314). Cundall and Rossman (1984, *Herpetologica* 40: 388–405) presented compelling 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, 1801)—Rainbow Snake

Reviewed by Mitchell (1982, Cat. Am. Amph. Rept. 293).

F. e. erytrogramma (Palisot de Beauvois, 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 for *Ficimia* and *Gyalopion* made little distributional sense. 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

Reviewed by Hardy (1976, Cat. Am. Amph. Rept. 181).

Gyalopion Cope, 1861—WESTERN HOOK-NOSED SNAKES

See note on *Ficimia*. Reviewed by Hardy (1976, Cat. Am. Amph. Rept. 182).

G. canum Cope, 1861—Chihuahuan Hook-nosed Snake

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

Heterodon Latreille, 1801—NORTH AMERICAN HOG-NOSED SNAKES

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

The nominal races in *H. nasicus* undoubtedly represent arbitrarily delimited sections of continuous variation (Edgren, 1952, Nat. Hist. Misc. No. 112), but this should be confirmed by careful scrutiny. Reviewed by Walley and Eckerman (1998, Cat. Am. Amph. Rept. 698).

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

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

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

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

Reviewed by Blem (1981, Cat. Am. Amph. Rept. 282).

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

Reviewed by Meylan (1985, Cat. Am. Amph. Rept. 375).

***Hypsiglena* Cope, 1860—FANGLESS NIGHTSNAKES**

Taxonomy of *Hypsiglena* has received some critical review since Tanner's revision of the genus (1945, *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 in Sinaloa, finding that it comprised a narrow zone of hybridization with some taxon sympatry. Although they (Dixon and Dean, *op. cit.*) were hesitant to recommend species-level status for the northern populations (which Dixon originally did in his 1965 paper), we feel that the data therein recommend such a conclusion. Dixon (*pers. comm.*) agrees, although he would like to obtain molecular genetic data to test this hypothesis. Having said that, Hardy and McDiarmid (1969, *Univ. Kansas Pub. Mus. Nat. Hist.* 18: 39–252) examined specimens across the range of presumptive contact and elsewhere in western Mexico and concluded that no characters existed to separate *torquata* and *ochrorhynchus*, except maybe nuchal patterns, which they decided (p. 170) was “a case of pattern dimorphism in a single, otherwise uniform, species.” Also, if there are two species, with *torquata* the southern taxon, evidence is yet to show that *torquata* is not representative of any northern populations. Grismer et al. (1994, *Bull. So. California Acad. Sci.* 93: 45–80) dismissed Baja California subspecies of *Hypsiglena*, stating, without evidence, that the subspecies intergrade widely. We await a detailed analysis of variation in *Hypsiglena* before discarding subspecies.

H. torquata* (Günther, 1860)—Nightsnake**H. t. chlorophaea* Cope, 1860—Sonoran Nightsnake**

Tanner (1985, *Great Basin Nat.* 45: 615–676) restricted the subspecies *ochrorhyncha* to the Cape Region of Baja California, resurrecting *chlorophaea* for the remaining mainland (including U.S.) populations.

H. t. deserticola* Tanner, 1944—Desert Nightsnake**H. t. janii* (Dugès, 1865)—Texas Nightsnake*****H. t. loreala* Tanner, 1944—Mesa Verde Nightsnake*****H. t. nuchalata* Tanner, 1943—California 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 *Lampropeltis pyromelana*, *L. triangulum*, and *L. zonata*.

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

Reviewed by Gehlbach (1967, *Cat. Am. Amph. Rept.* 55). Garstka (1982, *Breviora* 466: 1–35) was the last reviewer of the *mexicana* species group of *Lampropeltis*, but because of intergradation between the whole *mexicana* group and *L. pyromelana*, few workers have followed him. Hilken and Schlepper (1998, *Salamandra* 34: 97–124) provide data to support recognition of *L. alterna alterna* and *L. a. blairi*.

L. a. alterna* (Brown, 1901)—Gray-banded Kingsnake**L. a. blairi* Flury, 1950—Blair's Kingsnake*****L. calligaster* (Harlan, 1827)—Yellow-bellied Kingsnake**

Reviewed by Blaney (1979, *Cat. Am. Amph. Rept.* 229).

L. c. calligaster* (Harlan, 1827)—Prairie Kingsnake**L. c. occipitolineata* Price, 1987—South Florida Mole Kingsnake*****L. c. rhombomaculata* (Holbrook, 1840)—Mole Kingsnake*****L. getula* (Linnaeus, 1766)—Common Kingsnake**

Blaney (1977, *Tulane Stud. Zool. Bot.* 19: 47–103) formulated the subspecific taxonomy of *Lampropeltis getula*, noting three clusters of seemingly smoothly intergrading subspecies: (1) *californiae*; (2) *nigrita - splendida - holbrookii - niger*; (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. Additional work is needed to augment our understanding of these snakes.

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, 1902—Speckled Kingsnake

L. g. niger (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

Reviewed by Tanner (1983, Cat. Am. Amph. Rept. 342). Van Devender et al. (1992, Herpetol. Rev. 23: 10–13) recommended recognition of *infralabialis* but not *woodini*, which they considered a junior synonym of *Lampropeltis p. pyromelana*.

L. p. infralabialis Tanner, 1953—Utah mountain Kingsnake

L. p. pyromelana (Cope, 1867)—Arizona Mountain Kingsnake

L. triangulum (Lacépède, 1788)—Milksnake

The extensive range and geographic variation documented in this species certainly warrants further analysis. Reviewed by Williams (1994, Cat. Am. Amph. Rept. 594).

L. t. amaura Cope, 1860—Louisiana Milksnake

L. t. annulata Kennicott, 1860—Mexican Milksnake

L. t. celaenops Stejneger, 1902—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. sypila (Cope, 1888)—Red Milksnake

L. t. taylori Tanner and Loomis, 1957—Utah Milksnake

L. t. triangulum (Lacépède, 1788)—Eastern Milksnake

L. zonata (Lockington in Blainville, 1876)—California Mountain Kingsnake

Reviewed by Zweifel (1974, Cat. Am. Amph. Rept. 174). Although Collins (1991, Herpetol. Rev. 22: 42–43) recognized some of the races as distinct species, the diagnosability of these taxa is arguable. But, it has been suggested that a morphological study would easily diagnose the races as unique lineages (Darrel Frost, pers. comm.).

L. z. multicineta (Yarrow, 1882)—Sierra Mountain Kingsnake

L. z. multifasciata (Bocourt, 1886)—Coast Mountain Kingsnake

L. z. parvirubra Zweifel, 1952—San Bernardino Mountain Kingsnake

L. z. pulchra Zweifel, 1952—San Diego Mountain Kingsnake

L. z. zonata (Lockington in Blainville, 1876)—St. Helena Mountain Kingsnake

Leptodeira Fitzinger, 1843—CAT-EYED SNAKES***L. septentrionalis*** (Kennicott, 1859)—Cat-eyed Snake*L. s. septentrionalis* (Kennicott, 1859)—Northern Cat-eyed Snake***Leptotyphlops*** Fitzinger, 1843—THREADSNAKESBecause the morphology in *Leptotyphlops* is highly constrained, molecular analysis across the geographic range of the species might reveal the existence of cryptic species.***L. dulcis*** (Baird and Girard, 1853)—Plains Threadsnake

Reviewed by Hahn (1979, Cat. Am. Amph. Rept. 231).

L. d. dissectus (Cope, 1896)—New Mexico Threadsnake*L. d. dulcis* (Baird and Girard, 1853)—Texas Threadsnake***L. humilis*** (Baird and Girard, 1853)—Western Threadsnake

Reviewed by Hahn (1979, Cat. Am. Amph. Rept. 232).

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***L. trivirgata*** Cope, 1861—Rosy BoaThe status of the three subspecies in the U.S. (and additional extralimital taxa) is unclear. Spiteri (1988, Southwest. Herpetol. Soc. Spec. Pub. 4: 113–130) reevaluated subspecies within *Lichanura trivirgata* using morphological data, resulting in an arrangement of subspecies different from that listed below. Spiteri's taxonomic arrangement has largely been ignored except in pet hobbyist literature and is not followed here. Reviewed by Yingling (1982, Cat. Am. Amph. Rept. 294).*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*** Baird and Girard, 1853—WHIPSNAKES***M. bilineatus*** Jan, 1863—Sonoran WhipsnakeContrary to Collins (1997, SSAR Herpetol. Circ. 25), Camper and Dixon (1994, Ann. Carnegie Mus. Nat. Hist. 63: 1–48) did not recognize any subspecies for *Masticophis bilineatus*. Reviewed by Grismer (1997, Cat. Am. Amph. Rept. 637).***M. flagellum*** (Shaw, 1802)—CoachwhipThe status of the subspecies with respect to continuous variation or discoverable lineages is unclear. The distribution of *Masticophis f. flagellum* on both sides of the Mississippi River suggests to us that its diagnosis may be pervasively plesiomorphic. Reviewed by Wilson (1973, Cat. Am. Amph. Rept. 145).*M. f. cingulum* Lowe and Woodin, 1954—Sonoran Coachwhip*M. f. flagellum* (Shaw, 1802)—Eastern Coachwhip*M. f. fuliginosus* (Cope, 1895)—Baja California CoachwhipGrismer (1994, Herp. Nat. Hist. 2: 82) pointed out evidence that strongly recommended that *fuliginosus* be considered a separate species and his analysis is in the process doing it now (Lee Grismer, pers. comm.).*M. f. lineatulus* Smith, 1941—Lined Coachwhip

M. f. piceus (Cope, 1892)—Red Racer

M. f. ruddocki Brattstrom and Warren, 1953—San Joaquin Coachwhip

M. f. testaceus (Say, 1823)—Western Coachwhip

M. lateralis (Hallowell, 1853)—Striped Racer

Reviewed by Jennings (1983, Cat. Am. Amph. Rept. 343).

M. l. euryxanthus Riemer, 1954—Alameda Striped Racer

M. l. lateralis (Hallowell, 1853)—California Striped Racer

M. 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 *Masticophis taeniatus*. Reviewed by Camper (1997, Cat. Am. Amph. Rept. 638).

M. s. ruthveni Ortenburger, 1923—Ruthven's Whipsnake

M. s. schotti Baird and Girard, 1853—Schot's Whipsnake

M. taeniatus (Hallowell, 1852)—Striped Whipsnake

Reviewed by Parker (1982, Cat. Am. Amph. Rept. 304; includes *M. schotti*) and more recently by Camper (1997, Cat. Am. Amph. Rept. 639).

M. t. ornatus Baird and Girard, 1853—Central Texas Whipsnake

M. t. taeniatus (Hallowell, 1852)—Desert Striped Whipsnake

Micruroides Schmidt, 1928—SONORAN CORALSNAKES

Reviewed by Roze (1974, Cat. Am. Amph. Rept. 163). 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

Reviewed by Roze and Tilger (1983, Cat. Am. Amph. Rept. 316).

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

Collins (1991, Herpetol. Rev. 22: 42–43) elevated *Micrurus tener* to specific status. Roze (1996, Coral Snakes of the Americas, Kreiger Publishing) provided additional evidence that this taxon is a distinct species. Liner (1994, SSAR Herpetol. Circ. 23) and Collins (1997, SSAR Herpetol. Circ. 25) followed these recommendations. An ongoing study has failed to find any signs of recent intergradation around the geographical hiatus with *M. fulvius* (Jeff Boundy, pers. comm.).

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

Nerodia Baird and Girard, 1853—NORTH AMERICAN WATERSNAKES

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

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 Snake

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

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

Dunson (1979, Florida Scientist 42: 102–112) synonymized *Nerodia 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

Revised by McCranie (1990, Cat. Am. Amph. Rept. 500).

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 *Nerodia 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 which revealed no evidence for divergence.

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

Reviewed by Meham (1983, Cat. Am. Amph. Rept. 330; includes *N. paucimaculata*).

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

Reviewed by McAllister (1985, Cat. Am. Amph. Rept. 376).

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

Reviewed by McCranie (1983, Cat. Am. Amph. Rept. 331).

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).

O. a. aestivus* (Linnaeus, 1766)—Northern Rough Greensnake**O. a. carinatus* Grobman, 1984—Florida Rough Greensnake*****O. vernalis* (Harlan, 1827)—Smooth Greensnake**

Cundall (1981, Copeia, 1981: 353–371) removed all the Asiatic species from *Opheodrys* and retained only *aestivus* and *vernalis* in the genus. 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.

Oxybelis* Wagler, 1830—AMERICAN VINESNAKES**O. aeneus* (Wagler, 1824)—Brown Vinesnake**

Reviewed by Keiser (1982, Cat. Am. Amph. Rept. 305).

Pelamnis* Daudin, 1803—YELLOW-BELLIED SEASNAKES**P. platurus* (Linnaeus, 1766)—Yellow-bellied Seasnake**

Reviewed by Pickwell and Culotta (1980, Cat. Am. Amph. Rept. 255).

Phyllorhynchus* Stejneger, 1890 LEAF-NOSED SNAKES**P. browni* Stejneger, 1890—Saddled Leaf-nosed Snake*****P. decurtatus* (Cope, 1868)—Spotted Leaf-nosed Snake**

We follow McDiarmid and McCleary (1993, Cat. Am. Amph. Rept. 579), who argued that the four subspecies of *browni* and five subspecies of *decurtatus* not be recognized, pending a more detailed review of the genus in progress (J. Mendelson, pers. comm.).

***Pituophis* Holbrook, 1842—BULLSNAKES, GOPHERSNAKES, and PINESNAKES**

Reichling (1995, J. Herpetol. 29: 186–198) clustered *Pituophis catenifer* subspecies and *P. melanoleucas* subspecies separately, and also was able to distinguish among the subspecies, in phenetic space. J. Matos (pers. comm.), using sequence data, supported Reichling's arrangement, but found *P. ruthveni* and *P. c. sayi* to be sister taxa. Matos also found distinctive clades within western subspecies so taxonomic changes within this widespread taxon should be anticipated.

P. catenifer* (Blainville, 1835)—Gophersnake**P. c. affinis* (Hallowell, 1852)—Sonoran Gophersnake*****P. c. annectens* Baird and Girard, 1853—San Diego Gophersnake*****P. c. catenifer* (Blainville, 1835)—Pacific Gophersnake*****P. c. deserticola* Stejneger, 1893—Great Basin Gophersnake*****P. c. pumilus* Klauber, 1946—Santa Cruz Island Gophersnake*****P. c. sayi* (Schlegel, 1837)—Bullsnake**

P. melanoleucus (Daudin, 1803)—Pinesnake

Reviewed by Sweet and Parker (1990, Cat. Am. Amph. Rept. 474; includes *P. catenifer*, *P. ruthveni*).

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. Herpetology 29: 186–198) concluded that *ruthveni* is a distinct species, supporting Collins' (1991, Herpetol. Rev. 22: 42–43) previous suggestion.

Ramphotyphlops Fitzinger, 1843—AUSTRALASIAN BLINDSNAKES

(Introduced)

R. raminus (Daudin, 1803)—Brahminy Blindsnake (Introduced) (Unisexual)

Regina Baird and Girard, 1853—CRAYFISH SNAKES

Lawson (1987, J. Herpetol. 21: 140–157) presented data that indicated this genus is not a natural group, i.e. not monophyletic, and requires further research to tease out the nature of the lineages involved.

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)—Queen Snake

Rhadinaea Cope, 1863—LITTERSNAKES

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

Reviewed by Walley (1998, Cat. Am. Amph. Rept. 699).

Rhinocheilus Baird and Girard, 1853—LONG-NOSED SNAKES

R. lecontei Baird and Girard, 1853—Long-nosed Snake

Reviewed by Medica (1975, Cat. Am. Amph. Rept. 175).

R. l. lecontei Baird and Girard, 1853—Western Long-nosed Snake

R. l. tessellatus Garman, 1883—Texas Long-nosed Snake

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 *deserticola* as a species was done without explanation 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 *deserticola* as a subspecies of *hexalepis*.

- S. h. hexalepis* (Cope, 1866)—Desert Patch-nosed Snake
S. h. mojaviensis Bogert, 1945—Mojave Patch-nosed Snake
S. h. virgultea Bogert, 1935—Coast Patch-nosed Snake

Seminatrix Cope, 1895—BLACK SWAMPSNAKES

Reviewed by Dorcas et al. (covers *Seminatrix* and *S. pygaea*) (1998, Cat. Am. Amph. Rept. 679).

- 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

Reviewed by Price (1991, Cat. Am. Amph. Rept. 525). Schulz (1996, A Monograph of the Colubrid Snakes of the Genus *Elaphe* Fitzinger, Koeltz Scientific Books) applied the generic name of *Elaphe* to this species due to his opinion that the genus *Elaphe* is in need of an overall revision, but not because Schulz disagreed with Dowling and Fries (1987, Herpetologica 43: 200–207). We concur that *Elaphe* is in need of systematic revision globally, but retain *Senticolis*. Keogh (1996, Herpetologica 52: 406–416) demonstrated the separation of *Elaphe* and *Senticolis* in a phylogenetic context.

- S. triaspis*** (Cope, 1866)—Green Ratsnake
S. t. intermedia (Boettger, 1883)—Northern Green Ratsnake

Sistrurus Garman, 1883—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. Reviewed by Minton (1983, Cat. Am. Amph. Rept. 332).
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
 Reviewed by Palmer (1978, Cat. Am. Amph. Rept. 220).
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

Reviewed by Frost (1983, Cat. Am. Amph. Rept. 333).

- S. semiannulata*** Baird and Girard, 1853—Groundsnake

***Stilosoma* Brown, 1890—SHORT-TAILED SNAKES**

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*.

***S. extenuatum* Brown, 1890—Short-tailed Snake**

Reviewed by Highton (1976, *Cat. Am. Amph. Rept.* 183).

Storeria* Baird and Girard, 1853—NORTH AMERICAN BROWNSNAKES**S. dekayi* (Holbrook, 1836)—DeKay's Brownsnake**

Reviewed by Christman (1982, *Cat. Am. Amph. Rept.* 306).

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. occipitamaculata* (Storer, 1839)—Red-bellied Snake**

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

S. o. occipitamaculata (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 SNAKES**T. atriceps* (Günther, 1895)—Mexican Black-headed Snake**

Reviewed by Cole and Hardy (1983, *Cat. Am. Amph. Rept.* 317).

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

Reviewed by Telford (1982, *Cat. Am. Amph. Rept.* 308).

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

The taxonomic status of *cucullata* and *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. Service* 122: 1–34) and Dixon et al. (2000, *Southwest Nat.* 45: 141–153) elevated *cucullata* and synonymized *diabola*.

T. gracilis* Baird and Girard, 1853—Flat-headed Snake**T. hobartsmithi* Taylor, 1937—Smith's Black-headed Snake**

Reviewed by Cole and Hardy (1983, *Cat. Am. Amph. Rept.* 318).

T. nigriceps* Kennicott, 1860—Plains Black-headed Snake**T. oolitica* Telford, 1966—Rim Rock Crowned Snake**

Reviewed by Telford (1980, *Cat. Am. Amph. Rept.* 256).

***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. Reviewed by Cole and Hardy (1983, *Cat. Am. Amph. Rept.* 319).

T. relicta Telford, 1966—Florida Crowned Snake

Reviewed by Telford (1980, Cat. Am. Amph. Rept. 257).

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, 1902—Chihuahuan Black-headed Snake

Reviewed by Liner (1983, Cat. Am. Amph. Rept. 345).

T. yaquia Smith, 1942—Yaqui Black-headed Snake

Reviewed by McDiarmid (1977, Cat. Am. Amph. Rept. 198).

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, 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 *Thamnophis 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

Reviewed by Bothner (1976, Cat. Am. Amph. Rept. 190).

T. butleri (Cope, 1889)—Butler's Gartersnake

Reviewed by Minton (1980, Cat. Am. Amph. Rept. 258).

T. couchii (Kennicott, 1859)—Sierra Gartersnake

Reviewed by Fitch (1984, Cat. Am. Amph. Rept. 351; includes *T. gigas*, *T. atratus*, *T. hammondii*).

T. cyrtopsis (Kennicott, 1860)—Black-necked Gartersnake

Reviewed by Webb (1980, Cat. Am. Amph. Rept. 245).

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

Reviewed by Fitch (1983, Cat. Am. Amph. Rept. 320). Although six subspecies (one is extralimital) are currently recognized, Rossman et al. (1996, The Garter Snakes, Univ. Oklahoma Press) stress the need for a detailed study of geographic variation in this taxon.

T. e. arizonae Tanner and Lowe, 1989—Arizona Wandering Gartersnake

T. e. elegans (Baird and Girard, 1853)—Mountain Gartersnake

T. e. terrestris Fox, 1951—Coast Gartersnake

T. e. vagrans Baird and Girard, 1853—Intermountain Wandering Gartersnake

T. e. vascotanneri Tanner and Lowe 1989—Upper Basin Gartersnake

T. eques (Reuss, 1834)—Mexican Gartersnake

T. e. megalops (Kennicott, 1860)—Northern Mexican 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)—Checked Gartersnake

T. m. marcianus (Baird and Girard, 1853)—Marcy's Checked Gartersnake

T. ordinoides (Baird and Girard, 1852)—Northwestern Gartersnake

Reviewed by Kirk (1979, Cat. Am. Amph. Rept. 233).

T. proximus (Say, 1823)—Western Ribbonsnake

Reviewed by Rossman (1970, Cat. Am. Amph. Rept. 98).

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 that this taxon be moved from *Thamnophis* to *Nerodia*. De Queiroz and Lawson (1994, Biol. J. Linnean Soc. 53: 209–229) rejected the suggested reallocation, based on their finding that *rufipunctatus* is nested within *Thamnophis*. Reviewed by Tanner (1990, Cat. Am. Amph. Rept. 505).

T. sauritus (Linnaeus, 1766)—Eastern Ribbonsnake

Reviewed by Rossman (1970, Cat. Am. Amph. Rept. 99).

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

Reviewed by Fitch (1980, Cat. Am. Amph. Rept. 270).

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)—San Francisco Gartersnake

Boundy and Rossman (1995, Copeia 1995: 236–240) found that the holotype of *infernalis* is a specimen of *tetrataenia*, and proposed replacement of the latter name with the older name *infernalis*, for San Francisco Gartersnake. They referred to *concinnus* the populations formerly referred to as *infernalis* on the basis of color pattern similarities. Barry et al. (1996, Herpetol. Rev. 27: 172–173) have petitioned the ICZN to suppress the changes proposed by Boundy and Rossman. We follow Boundy and Rossman until the ICZN decides.

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. Linnean 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

Trimorphodon Cope, 1861—LYRESNAKES

T. biscutatus (Duméril, Bibron and Duméril, 1854)—Western Lyresnake
Reviewed by Scott and McDiarmid (1984, Cat. Am. Amph. Rept. 353).

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. b. wilkinsonii Cope, 1886—Texas Lyresnake

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
Reviewed by Powell et al. (1994, Cat. Am. Amph. Rept. 599).

V. valeriae Baird and Girard, 1853—Smooth Earthsnake
Reviewed by Powell et al. (1992, Cat. Am. Amph. Rept. 552).

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

Alligator Cuvier, 1807—ALLIGATORS

A. mississippiensis (Daudin, 1801)—American Alligator
Reviewed by Ross and Ernst (1994, Cat. Am. Amph. Rept. 600).

Caiman Spix, 1825—CAIMANS

C. crocodilus (Linnaeus, 1758)—Common Caiman

Crocodylus Laurenti, 1768—CROCODILES

C. acutus (Cuvier, 1807)—American Crocodile
Reviewed by Ernst et al. (1999, Cat. Am. Amph. Rept. 700).

Testudines—Turtles

Compiled by John Iverson, Peter Meylan (Chair), Michael Seidel.

***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* which was identified through a phylogenetic analysis of all 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, Chelon. Conserv. Biol. 2: 514–520) cite Webb (1990, Cat. Am. Amph. Rept. 487) who considers that “total acceptance of [Meylan, 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, published or unpublished, that *Apalone* is not monophyletic. In fact, sequence data from the cytochrome b gene, which so far fails to resolve trionychid relationships, strongly supports monophyly of *Apalone* (Engstrom et al. in prep.). It is true that Meylan's (op. cit.) work suggests that the North American softshells (*Apalone*) should be assigned to the same Tribe as *Trionyx triunguis*, the type of the genus *Trionyx*. However, as pointed out in 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 the work of Webb (1962, Univ. Kansas Publ. Mus. Nat. Hist. 13: 429–611). Reviewed by Webb (1990, [as *Trionyx*] Cat. Am. Amph. Rept. 487).

***A. ferox* (Schneider, 1783)—Florida Softshell**

Reviewed by Webb (1973, [as *T. ferox*] Cat. Am. Amph. Rept. 138).

***A. mutica* (Lesueur, 1827)—Smooth Softshell**

Reviewed by Webb (1973, [as *T. muticus*] Cat. Am. Amph. Rept. 139).

A. m. calvata (Webb, 1959)—Gulf Coast Smooth Softshell

A. m. mutica (Lesueur, 1827)—Midland Smooth Softshell

***A. spinifera* (Lesueur, 1827)—Spiny Softshell**

Reviewed by Webb (1973, [as *T. spiniferus*] Cat. Am. Amph. Rept. 140).

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

A. s. spinifera (Lesueur, 1827)—Eastern Spiny Softshell

***Caretta* Rafinesque, 1814—LOGGERHEAD SEATURTLES**

Reviewed by Dodd (1990, Cat. Am. Amph. Rept. 482). This comment applies to all the standard English names of the seaturtles listed herein. After much discussion, and with much chagrin to seaturtle biologists, we decided to include the name “seaturtle” in the standard English names. We felt this would clarify for the non-herpetologist what kind of beast a “loggerhead” or “hawksbill” is. This decision was also aided by conversations with workers associated with the soon to be finished federal names lists, in which “seaturtle” will also be used.

C. caretta (Linnaeus, 1758)—Loggerhead Seaturtle

Reviewed by Dodd (1990, Cat. Am. Amph. Rept. 483).

Chelonia Brongniart, 1800—GREEN SEATURTLES

See note under *Caretta*. Reviewed by Hirth (1980, Cat. Am. Amph. Rept. 248).

C. mydas (Linnaeus, 1758)—Green Seaturtle

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 News. 72: 2–5) in not recognizing it taxonomically until more definitive work is done. Reviewed by Hirth (1980, Cat. Am. Amph. Rept. 249).

Chelydra Schweigger, 1812—SNAPPING TURTLES

Reviewed by Ernst et al. (1988, Cat. Am. Amph. Rept. 419).

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 genus. Reviewed by Gibbons et al. (1988, Cat. Am. Amph. Rept. 420).

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 single species *C. picta*. Reviewed by Ernst (1988, Cat. Am. Amph. Rept. 438).

C. picta (Schneider, 1783)—Painted Turtle

Reviewed by Ernst (1971, Cat. Am. Amph. Rept. 106).

C. p. bellii (Gray, 1831)—Western Painted Turtle

C. p. dorsalis Agassiz, 1857—Southern Painted Turtle

C. p. marginata Agassiz, 1857—Midland Painted Turtle

C. p. picta (Schneider, 1783)—Eastern Painted Turtle

Clemmys Ritgen, 1828—AMERICAN POND TURTLES

Restriction of *Clemmys* to North American taxa follows McDowell (1964, Proc. Zool. Soc. London 143: 239). Although the genus *Clemmys* herein includes four species, Bickham et al. (1996, Herpetologica 52: 89–97) and Burke et al. (1996, Herpetologica 52: 572–584) have recently shown that the genus may be paraphyletic relative to *Emys*, *Emydoidea*, and *Terrapene*. Thus, the current generic arrangement is likely to change in the near future. Reviewed by Bury and Ernst (1977, Cat. Am. Amph. Rept. 203).

C. guttata (Schneider, 1792)—Spotted Turtle

Reviewed by Ernst (1972, Cat. Am. Amph. Rept. 124).

C. insculpta (LeConte, 1830)—Wood Turtle

Reviewed by Ernst (1972, Cat. Am. Amph. Rept. 125).

C. marmorata (Baird and Girard, 1852)—Pacific Pond Turtle

We have retained the name Pacific Pond Turtle (e.g., Carr, 1952, Handbook of Turtles, Comstock Press; Iverson, 1992, A revised checklist with distribution maps of the turtles of the World, Privately printed) despite Collins' (1997, SSAR Herpetol. Circ. 25) recent recommendation to change the name to the Western Pond Turtle.

C. m. marmorata (Baird and Girard, 1852)—Northern Pacific Pond Turtle

C. m. pallida Seeliger, 1945—Southern Pacific Pond Turtle

C. muhlenbergii (Schoepff, 1801)—Bog Turtle

Reviewed by Ernst and Bury (1977, Cat. Am. Amph. Rept. 204).

Deirochelys Agassiz, 1857—CHICKEN TURTLES

Geographic variation in this species was most recently reviewed by Schwartz (1956, Fieldiana Zool. 34: 461–503). Reviewed by Zug and Schwartz (1971, Cat. Am. Amph. Rept. 107).

D. reticularia (Latreille, 1801)—Chicken Turtle

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 SEATURTLES

See note under *Caretta*. Reviewed by Pritchard (1980, Cat. Am. Amph. Rept. 238).

D. coriacea (Vandelli, 1761)—Leatherback Seaturtle***Emydoidea*** Gray, 1870—BLANDING'S TURTLES

Reviewed by McCoy (1973, Cat. Am. Amph. Rept. 136).

E. blandingii (Holbrook, 1838)—Blanding's Turtle***Eretmochelys*** Fitzinger 1843—HAWKSBILL SEATURTLES

See note under *Caretta*.

E. imbricata (Linnaeus, 1766)—Hawksbill Seaturtle

E. i. bissa (Rüppell, 1835)—Pacific Hawksbill Seaturtle

E. i. imbricata (Linnaeus, 1766)—Atlantic Hawksbill Seaturtle

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). Reviewed by Auffenberg and Franz (1978, Cat. Am. Amph. Rept. 211).

G. agassizii (Cooper, 1863)—Desert Tortoise

Reviewed by Auffenberg and Franz (1978, Cat. Am. Amph. Rept. 212).

G. berlandieri (Agassiz, 1857)—Berlandier's Tortoise

Reviewed by Auffenberg and Franz (1978, Cat. Am. Amph. Rept. 213).

G. polyphemus (Daudin, 1802)—Gopher Tortoise

Reviewed by Auffenberg and Franz (1978, Cat. Am. Amph. Rept. 215).

***Graptemys* Agassiz, 1857—MAP TURTLES**

Evidence for monophyly and content of this genus was reviewed by Dobie (1981, *Tulane Stud. Zool. Bot.* 23: 85) and Lamb and Osentoski (1997, *J. Herpetol.* 31: 258–265). Reviewed by McCoy and Vogt (1994, *Cat. Am. Amph. Rept.* 584).

***G. barbouri* Carr and Marchand, 1942—Barbour’s Map Turtle**

Reviewed by Sanderson and Lovich (1988, *Cat. Am. Amph. Rept.* 421).

***G. caglei* Haynes and McKown, 1974—Cagle’s Map Turtle**

Reviewed by Haynes (1976, *Cat. Am. Amph. Rept.* 184).

***G. ernsti* Lovich and McCoy, 1992—Escambia Map Turtle**

Reviewed by Lovich and McCoy (1994, *Cat. Am. Amph. Rept.* 585).

***G. flavimaculata* Cagle, 1954—Yellow-blotched Map Turtle**

Reviewed by McCoy and Vogt (1987, *Cat. Am. Amph. Rept.* 403).

***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 range. Reviewed by McCoy and Vogt (1990, *Cat. Am. Amph. Rept.* 484).

***G. gibbonsi* Lovich and McCoy, 1992—Pascagoula Map Turtle**

Reviewed by Lovich and McCoy (1994, *Cat. Am. Amph. Rept.* 586).

***G. nigrinoda* Cagle, 1954—Black-knobbed Map Turtle**

Reviewed by Lahanas (1986, *Cat. Am. Amph. Rept.* 396).

G. n. delticola* Folkerts and Mount, 1969—Delta Map Turtle**G. n. nigrinoda* Cagle, 1954—Black-knobbed Map Turtle*****G. oculifera* (Baur, 1890)—Ringed Map Turtle**

Reviewed by McCoy and Vogt (1988, *Cat. Am. Amph. Rept.* 422).

***G. ouachitensis* Cagle, 1953—Ouachita Map Turtle**

Reviewed by Vogt (1995, *Cat. Am. Amph. Rept.* 603).

G. o. ouachitensis* Cagle, 1953—Ouachita Map Turtle**G. o. sabinensis* Cagle, 1953—Sabine Map Turtle*****G. pseudogeographica* (Gray, 1831)—False Map Turtle**

Reviewed by Vogt (1995, *Cat. Am. Amph. Rept.* 604).

G. p. kohnii* (Baur, 1890)—Mississippi Map Turtle**G. p. pseudogeographica* (Gray, 1831)—False Map Turtle*****G. pulchra* Baur, 1893—Alabama Map Turtle**

Reviewed by Lovich (1985, *Cat. Am. Amph. Rept.* 360).

***G. versa* Stejneger, 1925—Texas Map Turtle**

Reviewed by Vogt (1981, *Cat. Am. Amph. Rept.* 280).

***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**

Recognition of this taxon as a full species follows Iverson (1989, *Southwest. Nat.* 34: 356–364) and Serb et al. (2000, *Mol. Phylog. Evol.* in press).

***K. baurii* (Garman, 1891)—Striped Mud Turtle**

Reviewed by Ernst (1974, *Cat. Am. Amph. Rept.* 161).

K. flavescens (Agassiz, 1857)—Yellow Mud Turtle

Reviewed by Seidel (1978, Cat. Am. Amph. Rept. 216). The validity of the subspecies *Kinosternon flavescens spooneri* Smith, 1951 (Illinois Mud Turtle) has been questioned by Houseal et al. (1982, Copeia 1982: 567–580) and Berry and Berry (1984, Ann. Carnegie Mus. Nat. Hist. 53: 185–206), and Serb et al. (2000, Mol. Phylog. Evol. in press). Nevertheless, this subspecies was retained by Conant and Collins (1992, A field guide to reptiles and amphibians: Eastern and Central North America, Houghton Mifflin Co.) and Collins (1997, SSAR Herpetol. Circ. 25) without explanation

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

Reviewed by Iverson (1976, Cat. Am. Amph. Rept. 176).

K. s. longifemorale Iverson, 1981—Sonoyta Mud Turtle

K. s. sonoriense LeConte, 1854—Sonora Mud Turtle

K. subrubrum (Lacepède, 1788)—Eastern Mud Turtle

Reviewed by Iverson (1977, Cat. Am. Amph. Rept. 193).

K. s. hippocrepis Gray, 1855—Mississippi Mud Turtle

K. s. steindachneri (Siebenrock, 1906)—Florida Mud Turtle

K. s. subrubrum (Lacepède, 1788)—Eastern Mud Turtle

Lepidochelys Fitzinger, 1843—RIDLEY SEATURTLES

See note under *Caretta*. Bowen et al. (1991, Nature 352: 709) reviewed variation within this genus. Reviewed by Zug and Ernst (1994, Cat. Am. Amph. Rept. 587).

L. kempii (Garman, 1880)—Kemp's Ridley Seaturtle

Reviewed by Wilson and Zug (1991, Cat. Am. Amph. Rept. 509).

L. olivacea (Eschscholtz, 1829)—Olive Ridley Seaturtle

Reviewed by Zug et al. (1998, Cat. Am. Amph. Rept. 653).

Macrochelys Gray, 1856—ALLIGATOR SNAPPING TURTLES

Reviewed by Lovich (1993, Cat. Am. Amph. Rept. 562).

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 *Macroclmys* Gray contra Smith (1955, Herpetologica 11: 16), who argued that the use of *Macrochelys* was incorrect for this genus.

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. Reviewed by Ernst and Bury (1982, Cat. Am. Amph. Rept. 299).

M. terrapin (Schoepff, 1793)—Diamond-backed Terrapin

A detailed study of the geographic variation of these turtles should 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—Florida East Coast Terrapin

M. t. terrapin (Schoepff, 1793)—Northern Diamond-backed Terrapin

***Palea* Meylan, 1987—WATTLE-NECKED SOFTSHELLS**

P. steindachneri (Siebenrock, 1906)—Wattle-necked Softshells (Introduced)
Introduced into the Hawaiian Islands (McKeown and Webb, 1982, J. Herpetol. 16: 107–111).

***Pelodiscus* Gray, 1844—CHINESE SOFTSHELLS**

P. sinensis (Weigman, 1835)—Chinese Softshells (Introduced)
Introduced into the Hawaiian Islands (McKeown and Webb, 1982, J. Herpetol. 16: 107–111).

***Pseudemys* Gray, 1856—COOTERS**

Content of this genus follows Seidel and Smith (1996, Herpetologica 42: 242–248).
Reviewed by Seidel and Ernst (1996, Cat. Am. Amph. Rept. 625).

P. alabamensis Baur, 1893—Alabama Red-bellied Cooter
Reviewed by McCoy and Vogt (1985, Cat. Am. Amph. Rept. 371).

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. metterii* 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* (see comments below). Reviewed by Seidel and Dreslik (1996, Cat. Am. Amph. Rept. 626).

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, op. cit.) 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.

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 subspecies of *Pseudemys concinna*, but it was elevated to species status by Ernst (1990, Cat. Am. Amphib. Rept. 461). That change is appropriate given its distant allopatry with *P. 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.).

P. nelsoni Carr, 1938—Florida Red-bellied Cooter
Reviewed by Jackson as *Chrysemys nelsoni* (1978, Cat. Am. Amph. Rept. 210).

P. peninsularis Carr, 1938—Peninsula Cooter

Formerly considered a subspecies of *Pseudemys 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 color patterns) which consistently distinguish it from *P. concinna*. Reviewed by Seidel and Ernst (1998, *Cat. Am. Amph. Rept.* 669).

P. rubriventris (LeConte, 1830)—Northern Red-bellied Cooter

Reviewed by Graham (1971, *Cat. Am. Amph. Rept.* 510).

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) believes that it may intergrade with *P. c. concinna* in northern Florida and thus does not deserve species status. Availability of and analysis of more material from the Gulf Hammock region of Northwest Florida will be necessary to resolve this controversy.

P. texana Baur, 1893—Texas River Cooter

Reviewed by Etchberger and Iverson (1990, *Cat. Am. Amph. Rept.* 485).

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) provides support for its monophyly. Reviewed by Zug (1986, *Cat. Am. Amph. Rept.* 397).

S. carinatus (Gray, 1855)—Razor-backed Musk Turtle

Reviewed by Iverson (1979, *Cat. Am. Amph. Rept.* 226).

S. depressus Tinkle and Webb, 1955—Flattened Musk Turtle

Reviewed by Iverson (1977, *Cat. Am. Amph. Rept.* 194).

S. minor (Agassiz, 1857)—Loggerhead Musk Turtle

Reviewed by Iverson (1977, *Cat. Am. Amph. Rept.* 195).

S. m. minor (Agassiz, 1857)—Loggerhead Musk Turtle*S. m. peltifer* Smith and Glass, 1947—Stripe-necked Musk Turtle***S. odoratus*** (Latreille, 1801)—Stinkpot

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. Reviewed by Reynolds and Seidel (1982, *Cat. Am. Amph. Rept.* 287).

Terrapene Merrem, 1820—AMERICAN BOX TURTLES

A review of the variation in this genus is currently in press (K. Dodd, pers. comm.). Reviewed by Ernst and McBreen (1991, *Cat. Am. Amph. Rept.* 511).

T. carolina (Linnaeus, 1758)—Eastern Box Turtle

Reviewed by Ernst and McBreen (1991, *Cat. Am. Amph. Rept.* 512).

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

Reviewed by Ward (1978, Cat. Am. Amph. Rept. 217).

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).

T. gaigeae (Hartweg, 1939)—Big Bend Slider

Price and Hillis (1989, First World Congr. Herpetol. Abstract) and Seidel et al. (1999, *Herpetologica* 55: 470–487) provide evidence for the specific recognition of this form.

Reviewed by Ernst (1992, Cat. Am. Amph. Rept. 538.).

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