

REPTILIA: SQUAMATA: COLUBRIDAE

LIOCHLORPHIS, *L. VERNALIS*

Catalogue of American Amphibians and Reptiles.

Walley, H.D. 2003. *Liochlorophis, L. vernalis*.

***Liochlorophis* Oldham and Smith**
Smooth Green Snake

Liochlorophis Oldham and Smith 1991:208. Type species
Coluber vernalis Harlan 1827, by original designation.

• **CONTENT.** *Liochlorophis* is monotypic.

• **DEFINITION and DIAGNOSIS.** *Liochlorophis* is a small slender snake ranging in adult size from 30–80 cm in total length. Dorsal ground color is bright green. The venter is usually white or yellowish, with the yellow most pronounced toward the tail. Young individuals are normally much darker than adults, and may be olive, bluish-gray, or even brownish in coloration. Preserved specimens are usually blue above (Blanchard and Finster 1933, Wright and Wright 1957, Oldham and Smith 1991).

Dorsal scales are smooth and in 15 rows at midbody, with no vestige of keels, and one apical pit. Ventrals number 116–157, subcaudals 59–102, and the cloacal plate is divided. Head scales include a single anterior temporal, usually one preocular, two postoculars, and a single loreal. Upper labials usually number 7 and lower labials usually 8. Each nostril lies within a single scale. Temporals usually are 1–2, but occasionally 1–3. The tail is relatively short with distinct sexual dimorphism in both length and number of subcaudals.

Other diagnostic features include an everted hemipenis that is shorter and more robust than that of *Ophedryx* (Rossman and Schaefer 1974). The latter also bears fringed calyces, whereas that of *Liochlorophis* has smooth-edged calyces (H.G. Dowling, pers. comm.) and a relatively large nude apical area. Snakes in the genus *Liochlorophis* also are missing three intrinsic integumentary muscles associated with the neural plates (*scutales triangularis*, *s. trapezoidales*, and *s. ovales*). Six usually occur in colubrid snakes (*Ophedryx* has five). Egg retention is protracted, with a maximum postdepositional fetal period of about 30 days (Oldham and Smith (1991).

• **ILLUSTRATIONS, DISTRIBUTION, FOSSIL RECORD, and PERTINENT LITERATURE.** See species account.

• **ETYMOLOGY.** The generic name *Liochlorophis* is a combination of the Greek words *lio*, *chloro*, and *ophis*, meaning, respectively, smooth, green, and snake, in reference to the smooth scales and dorsal coloration.

***Liochlorophis vernalis* (Harlan)**
Smooth Green Snake

Coluber vernalis Harlan 1827:361. Type locality, "Inhabits Pennsylvania and New Jersey." The holotype is lost, although it was originally in the collection of the Philadelphia Academy of Sciences. No type locality was given in the original description; but Pennsylvania and New Jersey were mentioned as habitat. Schmidt (1953) restricted the type locality to "vicinity of Philadelphia." See **Remarks**.

Chlorosoma vernalis: Baird and Girard 1853:108.

Herpetodryas vernalis: Hallowell 1856:243.

Cyclophis vernalis: Günther 1858:119.

Liopeltis vernalis: Cope 1860:560.

Chlorosoma vernale: Verrill 1863:196.

Contia vernalis: Boulenger 1894:258.



FIGURE 1. *Liochlorophis vernalis* from Crawford County, Minnesota (photograph by R.W. Van Devender).

Eurypholis vernalis: Pope 1935:281 (Pope believed that this species was congeneric with several Chinese forms that he assigned to *Eurypholis*). See **Remarks**.

Ophedryx vernalis: Schmidt and Necker 1936:63.

Ophedryx vernalis vernalis Grobman 1941:10.

Ophedryx vernalis blanchardi Grobman 1941:11. Type locality, "Spanish Peaks, 8,000 feet, Colorado." Holotype. National Museum of Natural History (USNM) 62439, adult male, collected by H.T. Gaige, 25 July 1925.

Liochlorophis vernalis: Oldham and Smith 1991:208. See **Remarks**.

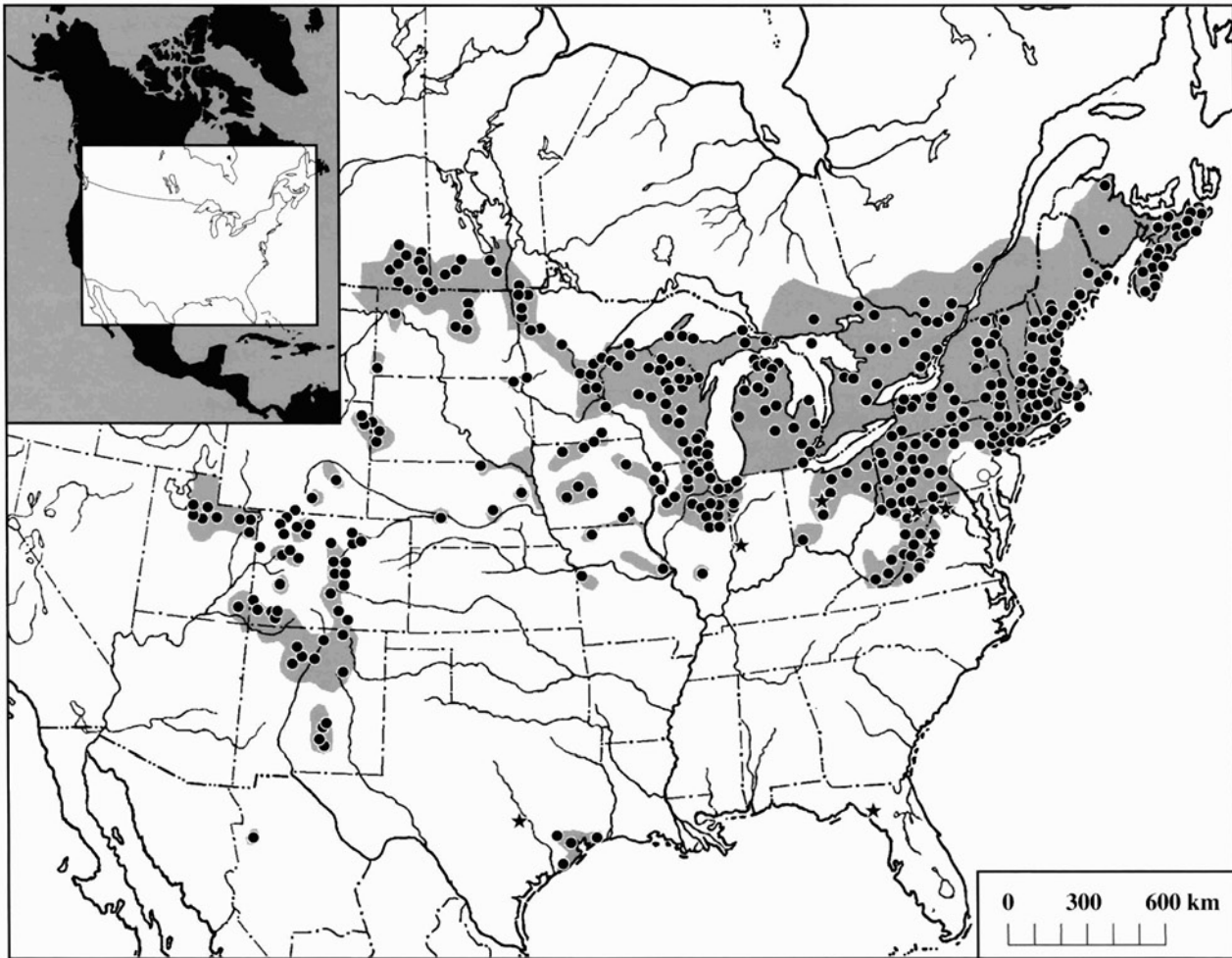
Ophedryx vernalis borealis Grobman 1992b:178. Type locality, "Wilson Cove, Guysborough County, Nova Scotia." Holotype, Nova Scotia Museum of Canada (NMC) 25237, collected by J. Gilhen and E. Odense, 4 July 1973.

• **CONTENT.** No subspecies are recognized, but see **Remarks**.

• **DEFINITION and DIAGNOSIS.** See generic account.

• **DESCRIPTIONS.** In addition to references cited in the synonymy and state and regional guides listed under **Distribution**, general descriptions are in Garman (1883), Boulenger (1894), Cope (1900), Ruthven (1908), Wright and Wright (1957), Conant (1958, 1975), Cochran and Goin (1970), Behler and King (1979, 1995), Stebbins (1985), Ernst and Barbour (1989), Conant and Collins (1991, 1998), Tennant and Bartlett (2000), and Ernst and Ernst (2003).

• **ILLUSTRATIONS.** **Lithographic drawings** of the entire body, and dorsal, lateral and ventral views of head and neck were provided by DeKay (1842), Jan and Sordelli (1869), Duméril et al. (1870), Garman (1883), and Cope (1900). Lithographic drawings of dorsal and lateral views of head are in Baird (1854), Eckel and Paulmier (1902), and Woodbury (1931). **Color photographs and illustrations** were provided by Holbrook (1842), Schmidt and Inger (1957a,b), Conant (1958, 1975), Logier (1958), Shaw and Campbell (1974), Behler and King (1979, 1995), Martof et al. (1980), Vogt (1981), Linzey and Clifford (1981), Smith and Brodie (1982), Gilhen (1984), Stebbins (1985), Tennant (1985, 1998), Christiansen and Bailey (1986), Hammerson (1986), Green and Pauley (1987), Johnson (1987, 2000), Mehrtens (1987), Bartlett (1988), Obst et al. (1988), Ernst and Barbour (1989), Holman et al. (1989), Perry and Dexter (1989), Evans (1990), Coborn (1991, 1994), Conant and Collins (1991, 1998), Klemens (1991, 1993), Allen (1992), Hoberg and Gause (1992), Oldfield and Moriarty (1994), Williamson et al. (1994), Reichel and Flath (1995), Degenhardt et al. (1996), Harding (1997), Hunter et al. (1999), Hammerson



MAP. Distribution of *Liochlorophis vernalis*: the circle marks the restricted type locality (but see **Remarks**), dots represent other records, and stars indicate fossil localities.

(1999), Phillips et al. (1999), Thompson and Backlund (1999), Bartlett and Tennant (2000), Tennant and Bartlett (2000), Walls (2000), Werler and Dixon (2000), Minton (2001), Denny (2002), Schwartz and Golden (2002), and Ernst and Ernst (2003). Vogt (1981) provided color illustrations of eggs and a buff adult color phase. Preston (1982) included a color photograph of a threat display. **Black and white photographs** were provided by Fowler

(1906), Ditmars (1907, 1943), Trapido (1937), Hudson (1942), Breckenridge (1944), McCauley (1945), Harrison (1950), Smith (1950, 1956), Conant (1951, 1952), Stebbins (1954), Pope (1956), Schmidt and Inger (1957a,b), Wright and Wright (1957), Smith (1961), Anderson (1965), Wheeler and Wheeler (1966), Harrison (1971), Froom (1972), Leviton (1972), Minton (1972), Breen (1974), Collins (1974), Lazell (1976), Baxter and Stone

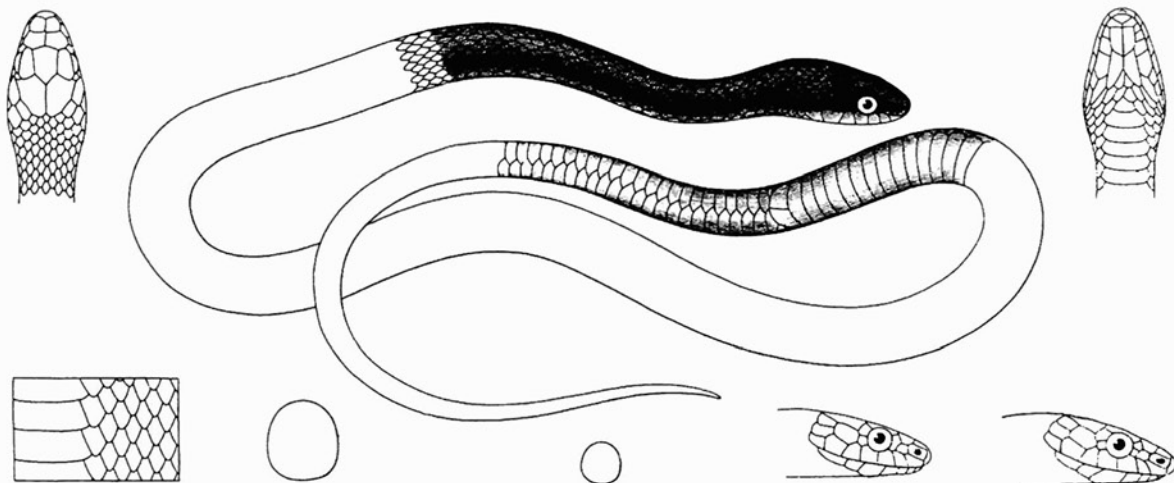


FIGURE 2. *Liochlorophis vernalis* (from Jan and Sordelli 1865).

(1980), Gilhen (1984), Baxter and Stone (1985), Vermersch and Kuntz (1986), Taylor (1993), and Dixon (2000). Black and white photographs of eggs were provided by Blanchard (1933), Schmidt and Davis (1941), Wright and Wright (1957), and Pope (1964), and photographs of parturition and hatchlings are in Blanchard (1933). Hyoid and associated muscles were figured by Langebartel (1968). Cundall (1981) provided illustrations of osteological features of the skull and dentition. Illustrations of the palatine and supraoccipital are in Rossman and Schaefer (1974), trigeminal foramen in Cundall (1973), and trunk vertebrae in Parmley (1990) and Holman (2000). Ernst and Zug (1996) provided an excellent illustration of ecdysis. Gilhen (1984) provided a habitat photograph from along a grassy roadside in Nova Scotia.

• **DISTRIBUTION.** *Liochlorophis vernalis* is primarily a terrestrial species, showing little tendency to climb, and is primarily restricted to prairie regions, preferably with a slightly moist substrate, favoring open, unforested habitats, including meadows, pastures, grasslands, and mountain-top "balds." Seibert (1950) found surprisingly large numbers, an estimated 185 snakes per hectare in urban habitats in the Chicago, Illinois, area in the late 1940s. Conant (1958, 1975), Behler and King (1979, 1995), Stebbins (1985), Conant and Collins (1991, 1998), Tennant and Bartlett (2000), and Ernst and Ernst (2003) provided distribution maps of the entire range.

The species ranges from Nova Scotia, western Minnesota, and southeastern Saskatchewan south to northern Illinois, south-western Ohio, and northwestern Virginia. Disjunct populations, some of which may have been extirpated, occur in Iowa, northern Missouri, South and North Dakota, Nebraska, northwestern Utah, eastern Wyoming, Colorado, New Mexico, gulf coast of Texas, and Chihuahua, México. A.B. Grobman (per. comm.) suggested that the Texas isolates were established via human agency, whereas Davis (1953) indicated that snakes probably moved along prairie corridors from midwestern populations to the Texas Gulf Coast.

This species is in various state and regional guides: **Colorado** (Maslin 1959; Smith et al. 1965; Hammerson and Langlois 1981; Livo 1985; Hammerson 1986, 1999; Livo et al. 1996, 2000), **Connecticut** (Lamson 1935; Klemens 1991, 1993), **Illinois** (Davis and Rice 1883, Garman 1892, Schmidt and Necker 1935, Necker 1939b, Parmalee 1955, Smith and Minton 1957, Pope 1964, Smith 1961, Anton 1999, Phillips et al. 1999, Mauger and Anton 2003), **Indiana** (Hay 1892; Minton 1972, 2001), **Iowa** (Guthrie 1926, Christiansen and Bailey 1986, LeClere 1998, Walley 2002), **Kansas** (Smith 1950, 1956; Collins 1974, 1982), **Maine** (DeGraaf and Rudis 1983; Arbuckle 1992, 1999; Hunter et al. 1992, 1999), **Maryland and District of Columbia** (McCaughey 1945), **Massachusetts** (Storer 1839, Lazell 1974, Klemens 1993), **Michigan** (Ruthven et al. 1912, 1928; Carpenter 1957; Holman et al. 1989, 1993), **Minnesota** (Breckenridge 1944, Karns 1986, Perry and Dexter 1989, Oldfield and Moriarty 1994, Blasus 1997), **Massachusetts** (Storer 1839, 1840; Lazell 1976), **Missouri** (Hurter 1911; Anderson 1965; Johnson 1987, 2000), **Montana** (Reichel and Flath 1995), **Nebraska** (Hudson 1942, Ballinger et al. 1979, Lynch 1985), **New Hampshire** (Oliver and Bailey 1939, Taylor 1993), **New Jersey** (Fowler 1906, Trapido 1937, Schwartz and Golden 2002), **New Mexico** (Williamson et al. 1994, Degenhardt et al. 1996), **New York** (DeKay 1842, Baird 1854, Ditmars 1896, Eckel and Paulmier 1902, Klemens 1993), **North Carolina** (Martof et al. 1980, Palmer and Braswell 1995), **North Dakota** (Wheeler 1947, Wheeler and Wheeler 1966, Hoberg and Gause 1992), **Ohio** (Smith 1882, Morse 1904, Conant 1951, Denny 2002), **Oklahoma** (Ortenburger 1927, Webb 1970), **Pennsylvania** (Surface 1906, Roddy 1928, McCoy 1982, Shaffer 1991, Allen 1992, Hulse et al. 2001),

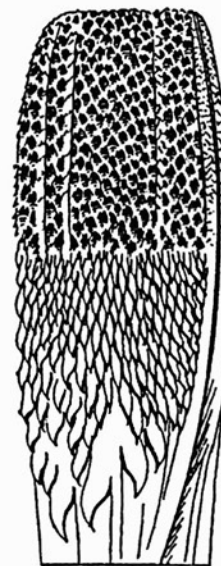


FIGURE 3. Hemipenis of *Liochlorophis vernalis* (from Cope 1900).

South Dakota (Over 1923, Fishbeck and Underhill 1960, Thompson and Backlund 1999), **Texas** (Strecker 1915; Davenport 1943; Gloyd 1944; Raun 1965; Tennant 1985, 1998; Vance 1985; Vermersch and Kuntz 1986; Dixon 1987, 2000; Tennant and Bartlett 2000; Werler and Dixon 2000), **Utah** (Woodbury 1931, Cox and Tanner 1995), **Vermont** (Andrews 2001), **Virginia** (Martof et al. 1980, Linzey and Clifford 1981, Tobey 1985, Mitchell 1994, Mitchell and Reay 1999), **West Virginia** (Richmond and Boggess 1941, Martof et al. 1980, Green and Pauley 1987), **Wisconsin** (Pope and Dickinson 1928; Dickinson 1949; Vogt 1981; Casper 1996a,b), **Wyoming** (Baxter and Stone 1980, 1985), **Canada** (Logier and Toner 1955, Froom 1972, Cook 1984), **Manitoba** (Harper 1963, Preston 1982), **Nova Scotia** (Bleakney 1952, Richmond and Boggess 1952, Gilhen 1984), **Ontario** (Logier 1939, 1958; Snyder et al. 1941; Johnson 1989), **Québec** (Bider and Matte 1996), **Saskatchewan** (Cook 1977), and **México** (VanDevender and Lowe 1977, Tanner 1985, Flores-Villela 1993). For a more extensive listing of publications on each state within the continental United States and Canada refer to Moriarty and Bauer (2000).

This species is considered endangered, threatened, of special concern, or extirpated in Indiana, Iowa, Missouri, New Jersey, North Carolina, Texas, and Wyoming (Frank and Ramus 1994, Levell 1997, LeClere 1998, Tennant and Bartlett 2000).

• **FOSSIL RECORD.** Auffenberg (1963) and Holman and Richards (1981) described trunk vertebrae, and distinguished those of *Liochlorophis vernalis* from those of *Ophedryx aestivus* on the basis of smaller size, non-ovoid neural arch, and lower neural spine, whereas Hill (1971) was unable to recognize any character other than size for separating these two species. Holman (1966) assigned two vertebrae from Miller's Cave, Texas, to the species *Ophedryx aestivus* rather than to *L. vernalis* on the basis of size. Holman (2000) illustrated the distinctive characteristics distinguishing *O. aestivus* from *L. vernalis*. Meylan (1982), Fay (1984), and Parmley (1990) also commented on vertebral structure.

Pleistocene fossil localities have been recorded from Anderson Pit Cave, Monroe County, Indiana (Holman and Richards 1981, Richards 1990); Cumberland Cave, Allegany County, Maryland (Holman 1977); Sheridan Pit Cave, Wyandot County, Ohio (Hansen 1992, Holman 1997); Texas (Holman 1969, Logan and Black 1979, Holman and Winkler 1987); Natural Chim-

neys, Augusta County, Virginia, and Clarks Cave, Bath County, Virginia (Fay 1988).

Fay (1984) cited *L. vernalis* from Clarks Cave, Virginia, noting that this species is not found in this area today, but is found 150 km to the east in the Piedmont Region. Grobman (1992b) and Holman (1995, 2000) considered *Opheodrys vernalis* (= *Liochlorophis vernalis*) as an invader of post-glacial Michigan. Auffenberg and Milstead (1965) suggested that during the Pleistocene the range of *L. vernalis* was expanded, and then fragmented by the opening or closing of xeric and mesic corridors during the interglacial periods, creating relict populations. Meylan (1982) found *L. vernalis* present in the Inglis IA fauna, Florida, but this species has since been replaced in Florida by *Opheodrys aestivus*. Hulbert (2001) referred to Meylan (1982) and stated, "*Opheodrys vernalis* presently is found only as close to Florida as Houston, Texas, and northern North Carolina."

• **PERTINENT LITERATURE.** **General works** on *Liochlorophis vernalis* are Duméril et al. (1870), Grobman (1941, 1992b), Wright and Wright (1957), and Oldham and Smith (1991). Grobman (1941) presented the most comprehensive review, and provided descriptions of two subspecies, along with a discussion of the snake's origin, systematics, distribution, and morphological variation across the range. Additional species accounts are in DeKay (1842), Holbrook (1842), Garman (1883, 1892), Hay (1892), and Cope (1900).

Systematics and/or phylogenetic studies include Boulenger (1894), Brown (1908), Stejneger and Barbour (1917, 1923, 1933, 1939, 1943), Schmidt and Necker (1936), Grobman (1941, 1992a,b), Smith (1963), Dessauer (1967), Peterson (1974), Rossman and Schaefer (1974), Dowling and Duellman (1978), Oldham and Smith (1991), Smith et al. (1991), Collins (1992), Mitchell (1994), Chiszar et al. (1996), Dowling et al. (1996), Crother (2000), Pinou and Dowling (2000), and Walls (2000). Cochran (1961) listed the paratypes deposited in the United States National Museum.

Biogeographical studies are in Cope (1896), Brown (1903), Bailey (1905, 1913), Cary (1917), Grobman (1941), Smith and Buechner (1947), Wheeler (1947), Smith (1957), Smith and Minton (1957), Blair (1958), Bleakney (1958), Martin (1958), Auffenberg and Milstead (1965), Morafka (1977), Benson (1978), Tanner (1978, 1985), Mecham (1979), Grobman (1992b), and Livo et al. (1996).

Studies of **natural history and life history traits** (from sources that include field guides) are listed by topic: **general ecology and distribution** (Baird and Girard 1853; Kennicott 1855; Jan 1863; Yarrow 1875; Coues and Yarrow 1878; Smith 1882; Davis and Rice 1883; Cope 1892; Garman 1892; Brown 1901; Morse 1904; Ruthven 1908, 1910, 1926; Ruthven et al. 1912; Strecker 1915; Langlois 1924; Van Denburgh 1924; Guthrie 1926; Blanchard 1928; Barry 1933; Smith and Leonard 1934; Burt 1935; Burt and Hoyle 1935; Netting 1936; Criddle 1937b; Green 1937; Trapido 1937; Richmond and Goin 1938; Schwardt 1938; Trapido and Clausen 1938; Manville 1939; Necker 1939b; Oliver and Bailey 1939; Pawling 1939; McCauley and East 1940; Tanner 1940, 1958a,b; Snyder et al. 1941; Fowler 1942; Davenport 1943; Gloyd 1944; Hoffman 1945; Evans 1947; Fichter 1947; Dexter 1948; Mills 1948; Davis 1949, 1953; Grobman 1950, 1991; Jacobs 1950; Wilson and Friddle 1950; Conant 1951; Evans and Roecker 1951; Bleakney 1952; Richmond 1952; Robins 1952; Swanson 1952; Woodbury 1952; Endsley 1954; Stebbins 1954, 1984; Stille 1954; Logier and Toner 1955; Lord 1956; Olson 1956, 1987; Carpenter 1957; Adler 1958, 1959; Brattstrom 1958; Dennis 1958; Reed 1958; Witt 1958; Linzey 1959; Maslin 1959; Werner 1959; Judd 1960; Adler and Dennis 1961; Christiansen 1961; Stewart 1961; Harper 1963; Smith 1963; Denman and Lapper 1964; Pope 1964; Raun

1965; Smith et al. 1965; Tanner and Banta 1966; Wheeler and Wheeler 1966; Black and Bragg 1968; McClure 1969; Leviton 1972; Worthington 1973; Shaw and Campbell 1974; Schlauch 1975; Blanchard and Princen 1976; Hollander and Barnhart 1976; Lazell 1976; Pentecost and Vogt 1976; Walley 1977; Benson 1978; Hoppe 1978; Ballinger et al. 1979; Mecham 1979; DeGraaf and Rudis 1981; Linzey and Clifford 1981; McCoy 1982; Seehorn 1982; Cook 1984; Gilhen 1984; Lynch 1985; Tobey 1985; Hammerson 1986; Karns 1986; Trutnau 1986; Vermersch and Kuntz 1986; Bartlett 1988; Evans 1990; Grobman 1991; Stuart 1990; Smith et al. 1991; Allen 1992; Ludwig et al. 1992; Easterla and Meadows 1993; Flores-Villela 1993; Golet et al. 1993; Klemens 1993; Blahnik and Cochran 1994; Redmer and Ballard 1995; Reichel and Flath 1995; Casper 1996a,b; Livo et al. 1996; Harding 1997; Anton 1999; Mitchell and Reay 1999; Thompson and Backlund 1999; Bartlett and Tennant 2000; Andrews 2001; Brodman et al. 2002; Ernst and Ernst 2003; Mauger and Anton 2003), **aberrant coloration** (Blanchard 1933, Schmidt and Necker 1935, Necker 1939a, Raun 1965, Grobman 1992b), **activity and movement** (Loveridge 1927, Seibert and Hagen 1947, Kroll et al. 1973, Gilhen 1984, Oldfield and Moriarty 1994, Blasus 1997, Ernst and Barbour 1989), **aggregations** (Lachner 1942, Parker and Brown 1973, Gregory 1975, Swain and Smith 1978, Gordon and Cook 1980), **arboreality** (Cunningham 1955, Ernst and Barbour 1989), **cryptic coloration** (Barbour 1934, Cott 1966, Oldfield and Moriarty 1994, Grobman 1992b), **diet** (Ditmars 1912, Lamson 1935, Uhler et al. 1939, Gregory 1977, Judd 1960, Gilhen 1984, Hunter et al. 1992, Klemens 1993, Harding 1997, Hammerson 1999, Hunter et al. 1999), **effects of venom** (Keegan and Andrews 1942), **habitat use** (Loveridge 1927, Anton 1999), **hibernacula/hibernation** (Criddle 1937a; Lachner 1942; Dexter 1948; Carpenter 1953; Oliver 1955; Lang 1969, 1971; Parker and Brown 1973; Young 1973; Shaw and Campbell 1974; Gregory 1982; Gilhen 1984; Stuart and Painter 1993; Degenhardt et al. 1996; Ernst and Zug 1996), **hybridization/intergradation** (Smith 1963, Cook 1984), **longevity** (Snider and Bowler 1992), **maximum length** (Fritts 1968, Klemens 1993, Conant and Collins 1998), **mortality** (Lang 1971), **parasitism** (Fantham and Porter 1952, Judd 1960, Vitterling and Widmar 1968, Upton and McAllister 1990, Rossi 1992), **population density and structure** (Seibert and Hagan 1947, Seibert 1950, Oliver 1955, Lang 1971, Gregory 1977, Turner 1977, Parker and Plummer 1987, Ernst and Barbour 1989, Klemens 1993, Brodman et al. 2002), **predation** (Garman 1883, Ortenburger 1928, Neill 1948, Ernst and Barbour 1989, Klemens 1993, Heinen 1994, Hammerson 1999), **sex ratio** (Seibert and Hagen 1947, Parker and Plummer 1987), **species associations** (Loveridge 1927, Brothner and Moore 1964, Leviton 1972, Klemens 1993, Rundquist 1999), **species richness** (Owen 1989), and **summaries of natural history** (Wright and Wright 1957, Ernst and Barbour 1989, Klemens 1993, Harding 1997).

References to **reproduction and growth** are listed by topic: **general** (Dymond and Fry 1932, Woodbury 1931, Blanchard 1933, Judd 1960, Raun 1965, Gregory 1977, Radaj 1981, Vogt 1981, Lawson 1983, Klemens 1993, Hammerson 1999), **communal nesting** (Stille 1954, Cook 1964, Fowler 1966, Brodie et al. 1969, Foley 1971, Lang 1971, Leviton 1972, Shaw and Campbell 1974, Gregory 1975, Gordon and Cook 1980, Lawson 1983, Gilhen 1984, Ernst and Barbour 1989, Stuart and Painter 1993, Mitchell 1994, Oldfield and Moriarty 1994, Degenhardt et al. 1996, Hunter et al. 1999), **copulation** (Fitch 1970, Vogt 1981, Oldfield and Moriarty 1994, Degenhardt et al. 1996, Hulse et al. 2001), **courtship** (Dymond and Fry 1932, Wright and Wright 1957, Minton 1972, Radaj 1981, Werler and Dixon 2000), **den fidelity** (Lang 1971), **eggs and clutch size** (Langlois 1924, Loveridge 1927, Ruthven et al. 1928, Blanchard 1933, Oliver

and Bailey 1939, Conant 1942, Evans 1947, Dexter 1948, LeBuff 1951, Stille 1954, Smith 1963, Burghardt 1967, Fritts 1968, Peterson 1974, Shaw and Campbell 1974, MacGregor 1975, Sexton and Claypool 1978, Vogt 1981, Lawson 1983, Gilhen 1984, Trautnau 1986, Iverson 1987, Redmer 1987, Ernst and Barbour 1989, Grobman 1989, Smith 1961, Klemens 1993, Mitchell 1994, Packard and Packard 1994, Degenhardt et al. 1996, Hammerson 1999, Werler and Dixon 2000, Hulse et al. 2001), **egg guarding** (Blackburn 1999, Shine and Lee 1999), **egg retention** (Blanchard 1933; Tinkle and Gibbons 1977; Shine 1979, 1983; Gilhen 1984; Klemens 1993; Zug 1993; Ernst and Zug 1996), **fecundity** (Iverson 1987), **growth** (Siebert and Hagen 1947, Hammerson 1999), **hatching and hatchlings** (Loveridge 1927, Blanchard 1933, Oliver and Bailey 1939, Conant 1942, Smith 1963, Fritts 1968, Peterson 1974, Radaj 1981, Lawson 1983, Gilhen 1984, Iverson 1987, Redmer 1987, Oldfield and Moriarty 1994, Werler and Dixon 2000, Hulse et al. 2001), **incubation period** (Blanchard 1933, Conant 1942, Perkins 1952, Stille 1954, MacGregor 1975, Tinkle and Gibbons 1977, Sexton and Claypool 1978, Shine 1985, Ernst and Barbour 1989, Packard and Packard 1994, Ernst and Zug 1996, Oldfield and Moriarty 1994), **incubation temperature** (Stille 1954, Sexton and Claypool 1978, Ernst and Barbour 1989), **multiple clutches** (Blanchard 1933, Ernst and Barbour 1989), **nest sites** (Stille 1954, Smith 1963, Lang 1971, Gregory 1975, Sexton and Claypool 1978, Gilhen 1984, Ernst and Barbour 1989, Hammerson 1999, Werler and Dixon 2000, Hulse et al. 2001), **nest temperature** (Sexton and Claypool 1978, Packard and Packard 1994), **overwintering of ova** (Grobman 1992b), **oviparity** (Blanchard 1933, Peterson 1974, Tinkle and Gibbons 1977, Shine 1985, Zug 1993, Blackburn 1999, Shine and Lee 1999), **oviposition** (Stille 1954, Sexton and Claypool 1978, Zug 1993), **parental care** (Blanchard 1933; Shine 1979, 1985, 1994), **parturition** (Blanchard 1933, Fritts 1968), and **sexual dimorphism** (Loomis and Jones 1948; Tanner and Banta 1966; Fitch 1981; Gilhen 1984; Grobman 1989, 1992b).

Behavioral studies (except courtship) are listed by topic: **defensive behavior** (Evans 1947, Schlauch 1975, Vogt 1981, Bachmann 1984, Cochran 1987, Ernst and Barbour 1989, Greene 1994, Heinen 1994), **responses to pheromones and chemical preception** (Burghardt 1967, Pough et al. 1998), **rhythmic lateral head movement** (Cochran 1987, Werler and Dixon 2000), **stalking behavior** (Burghardt 1967), **threat posture** (Evans 1947).

Anatomical and physiological studies are listed by topic: **adrenal gland** (Hebard and Charipper 1955, Gabe 1970), **dentition** (Rossman and Schaefer 1974), **Duvernoy's gland** (Taub 1966, 1967), **ecdysis** (Ernst and Zug 1996), **embryology** (Franklin 1945, Shine 1983), **hemipenes** (Rossman and Schaefer 1974), **histochemistry** (Hebard and Charipper 1955), **hyoid apparatus** (Langebartel 1968, Tanner and Avery 1982), **lungs** (Wallach 1998), **metabolism** (Zarrow and Pomerat 1937, Kroll et al. 1973, Bennett and Dawson 1976, Ernst and Barbour 1989, Packard and Packard 1994, Packard and Phillips 1994), **metamerism** (Grobman 1992b), **myology** (Langebartel 1968, Cundall 1974, Rossman and Schaefer 1974, Tanner and Avery 1982), and **osteology** (Franklin 1945; Schaefer 1965; Haines 1967; Cundall 1973, 1974), **temperature** (Saint Girons and Saint Girons 1956, Brattstrom 1965, Kroll et al. 1973, Gregory 1982, Ernst and Barbour 1989, Grobman 1992b), **teratology** (Grobman 1992b).

References concerning **conservation, management, and field studies** are listed by topic: **general conservation** (Nordstrom et al. 1977, Allen 1988, Klemens 1993, Mitchell 1994, Hammerson 1999, Brodman et al. 2002), **conservation status** (Edwards and Pisani 1976, Frank and Ramus 1994, Levell 1997), **effects of pollution or pesticides** (Minton 1972, Shaw and

Cambell 1974, Bartlett 1988, Ernst and Barbour 1989, Johnson 1989, Klemens 1993, Brown 1994, Oldfield and Moriarty 1994, Anton 1999, Hunter et al. 1999), **field and marking techniques** (Blanchard 1933, Seibert 1950, Lang 1971, Gregory 1982, Vogt and Hine 1982, Gilhen 1984, Karns 1986, Lang 1992, Klemens 1993), **habitat destruction** (Klemens 1993, Brodman et al. 2002), and **possible extirpation** (Ashton 1976).

Keys are in Ortenburger (1927), Chermock (1952), Fishbeck and Underhill (1960), Cagle (1968), Whitaker (1968), Ballinger and Lynch (1983), Grobman (1992b), and Powell et al. (1998). Beltz (1995) listed the original description.

Husbandry was discussed by LeBuff (1951), Radaj (1981), Trutnau (1981, 1986), Mattison (1983), Rossi (1992), and Rossi and Rossi (1995).

Current common and scientific names were given in Sokolov (1988, in five languages), Liner (1994, English and Spanish), Frank and Ramus (1995), Collins (1997), Crother (2000), and Collins and Taggart (2002).

• **REMARKS.** Yarrow (1882) cited USNM 1502 from Carlisle, Pennsylvania, as the type specimen. According to McCoy (1982), the type restriction by Schmidt (1953) to the vicinity of Philadelphia is inappropriate, as *L. vernalis* does not occur in south-eastern Pennsylvania.

Boulenger (1894) placed *Liochlorophis vernalis* in the genus *Contia*. Pope (1935) considered *Coluber vernalis* congeneric with *Ablabes herminae* Boettger and *Eurypholis semicarinatus* Hollowell (both of the Ryu Kyu Islands) and *Ablabes hamptoni* Boulenger of Burma and placed these species in the genus *Eurypholis*. Schmidt and Necker (1936) revised the genus *Ophedryx*, and included *O. vernalis* and *O. aestivus* of North America, and *O. herminae*, *O. semicarinatus*, *O. major*, and *O. multicinctus* of Asia. Schaefer (1965) and Rossman and Schaefer (1974) reexamined the status of *Eurypholis* (= *Ophedryx major*), and placed *Ophedryx major* with *S. leucostomus* in the genus *Symphimus*, which is endemic to the Yucatan Peninsula of México. Cundall (1981) compared the cranial bones of these species and resurrected the genus *Entechinus* to include the Asian species and restricted the genus *Ophedryx* to include only the North American species *O. aestivus* and *O. vernalis*.

Mitchell (1994) commented on the actual status of *Liochlorophis* on the basis that the relevant article (Oldham and Smith 1991) "was not peer reviewed, and because the herpetological community had not yet taken a position on its recommendation." Degenhardt et al. (1996) felt that Oldham and Smith (1991) presented convincing morphological and physiological evidence for the recognition of *Liochlorophis*, and authors that have accepted this position include Collins (1997), Levell (1997), Hammerson (1999), Hunter et al. (1999), Thompson and Backlund (1999), Bartlett and Tennant (2000), Dixon (2000), Tennant and Bartlett (2000), and Collins and Taggart (2002). Pinou (1991) found dramatic differences in microdermatoglyphic patterns between *Ophedryx aestivus* and *L. vernalis*, and suggested that these two species are distinctly related, but not congeneric. Dowling (pers. comm.) noted significant differences in the ornamentation of the hemipenis (see **Diagnosis**). Crother (2000) did not recognize *Liochlorophis*, but gave no reason for that decision.

Robins (1952) initially questioned the validity of *Ophedryx* (= *Liochlorophis*) *v. vernalis* and *O. v. blanchardi*, and Frost and Hillis (1990), Collins (1992), and Frost et al. (1992) provided reasons for not recognizing the subspecies described by Grobman (1941, 1992b). In contrast, Chiszar et al. (1996), after reexamining over 1000 *L. vernalis* examined by Grobman in his original description, noted that he "extracted all variation that could be attributed to either cline and to their interaction from the total variation in ventral and caudals" and opined that, if Grobman's subspecies are "based on clinal effects (east to

west, or north to south), then after extracting all of the clinal variation, the resulting residual scores should not reveal significant differences among the subspecies." According to residual scores, these differences could not have been based on clines and, therefore, "must reflect taxonomically valid subspecies differentiation." Unfortunately, this was presented only in an abstract, and published data must be available to support this hypothesis. Cook (1991) also questioned Conant and Collins's (1991) decision to drop recognition for "snake subspecies that had been delimited on geographic scale count differences," which included *L. vernalis blanchardi*, but to still recognize subspecies defined on "pattern differences, even if they only show a distinctiveness in their average dorsal blotch count." Recently, Arnold and Peterson (2002) indicated that the "standard scale counts used in snake systematics are remarkably buffered against temperature effects during development."

Palmer and Braswell (1995) referred to a single specimen collected by A.R. Crandall in 1871 (MCZ 2287) from French Broad River, North Carolina, although cited as coming from Madison County by Grobman (1941). *Liochlorophis vernalis* has been dropped from the state's fauna until additional material becomes available. Webb (1970) followed Grobman (1941) in deleting *L. vernalis* from the Oklahoma faunal list. Rundquist (1979) reexamined the distributional history of *L. vernalis* in Kansas and questioned the validity of historical accounts. Haltom (1931) cited *vernal* ("Liopeltis vernalis") as possibly occurring in Alabama, whereas Löding (1922) and Mount (1975, 1996) felt that this species was not part of the native fauna. Carr (1940) cited Cope (1900), stating that Florida records of this species were in error. Hurter and Strecker (1909), followed by Schwartz (1938) and Dillinger and Black (1938), reported *L. vernalis* from Arkadelphia, Arkansas, based on a specimen (FMNH 405), which has since been proven to be *Ophedrys aestivus*.

• **ETYMOLOGY.** The specific name *vernal* is Latin for "of springtime."

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LITERATURE CITED

- Adler, K.K. 1958. Third contribution to the herpetology of Ohio. Trimon. Rep. Ohio Herpetol. Soc. 1:20.
 —. 1959. *Ophedrys* in Delaware County, Ohio. J. Ohio Herpetol. Soc. 2:9.
 — and D.M. Dennis. 1961. New herpetological records from Ohio II. J. Ohio Herpetol. Soc. 3:17–22.
 Allen, W.B., Jr. 1988. State lists of endangered and threatened species of reptiles and amphibians and laws regulations covering collecting of reptiles and amphibians in each state. Chicago Herpetol. Soc. Spec. Publ. (1):1–86.
 —. 1992. The Snakes of Pennsylvania. Reptile & Amphibian Mag., Pottsville, Pennsylvania.
 Anderson, P. 1965. The Reptiles of Missouri. Univ. Missouri Press, Columbia.
 Andrews, J.S. 2001. Atlas of the Reptiles and Amphibians of Vermont. Priv. publ., Middlebury, Vermont.
 Anton, T.G. 1999. Current distribution and status of amphibians and reptiles in Cook County, Illinois. Trans. Illinois State Acad. Sci. 92:211–232.
 Arbuckle, J.K. 1992. Smooth Green Snake *Ophedrys vernalis*, p. 171–173. In M.L. Hunter, Jr., J. Albright, and Jane Arbuckle, The Amphibians and Reptiles of Maine. Maine Agri. Experiment Station, Orono.
 —. 1999. Smooth Green Snake *Liochlorophis vernalis*, p. 171–193. In M.L. Hunter, Jr., A.J.K. Calhoun, and M. McCollough, Maine Amphibians and Reptiles. Univ. Maine Press, Orono.
 Arnold, S.J. and C.R. Peterson. 2002. A model for optimal reaction norms: The case of the pregnant garter snake and her temperature-sensitive embryos. Amer. Nat. 160:306–316.
 Ashton, R.E. 1976. Endangered and threatened amphibians and reptiles in the United States. SSAR Herpetol. Circ. (5):1–65.
 Auffenberg, W. 1963. The fossil snakes of Florida. Tulane Stud. Zool. 10:131–216.
 — and W.W. Milstead. 1965. Reptiles in the Quaternary of North America, p. 557–568. In H.E. Wright and D.G. Frey (eds.), The Quaternary of the United States. Princeton Univ. Press, Princeton, New Jersey.
 Bachmann, M.D. 1984. Defensive behavior of brooding female Red-backed Salamanders (*Plethodon cinereus*). Herpetologica 40:436–443.
 Bailey, V. 1905. Biological survey of Texas. N. Amer. Fauna (25):1–222.
 —. 1913. Life zones and crop zones of New Mexico. N. Amer. Fauna (35):1–100.
 Baird, S.F. 1854. On the Serpents of New York: with a Notice of a Species not Hitherto Included in the Fauna of the State. C. Van Benthusen, Albany.
 — and C. Girard. 1853. Catalogue of North American reptiles in the museum of the Smithsonian Institution. Part I. Serpentes. Smithsonian Misc. Coll. (2):v–xvi + 172 p.
 Ballinger, R.E. and J.D. Lynch. 1983. How to Know the Amphibians and Reptiles. Wm. C. Brown Co., Dubuque, Iowa.
 —, J.D. Lynch, and P.H. Cole. 1979. Distribution and natural history of amphibians and reptiles in western Nebraska with ecological notes on the herptiles of Arapaho prairie. The Prairie Nat. 11:65–74.
 Barbour, T. 1934. Reptiles and Amphibians Their Habits and Adaptations. River Side Press, Cambridge, Massachusetts.
 Barry, L.T. 1933. Notes on Colorado reptiles. Copeia 1933:99–100.
 Bartlett, R.D. 1988. In Search of Reptiles and Amphibians. B.J. Brill, New York.
 — and A. Tennant. 2000. Snakes of the North American Western Region. Gulf Publ. Co., Houston, Texas.

- Baxter, G.T. and M.D. Stone. 1980. Amphibians and Reptiles of Wyoming. Wyoming Game Fish Dept. Bull. (16), Cheyenne.
- and —. 1985. Amphibians and Reptiles of Wyoming. 2nd ed. Wyoming Game Fish Dept., Laramie.
- Behler, J.L. and F.W. King. 1979. The Audubon Society Field Guide to North American Reptiles and Amphibians. Alfred A. Knopf, Inc., New York.
- and —. 1995. The Audubon Society Field Guide to North American Reptiles and Amphibians. 2nd ed. Alfred A. Knopf, Inc., New York.
- Beltz, E. 1995. Citations for the original descriptions of North American amphibians and reptiles. SSAR Herpetol. Circ. (24):1–44.
- Bennett, A.F. and W.R. Dawson. 1976. Metabolism, p. 127–223. In C. Gans and W.R. Dawson (eds.), Biology of the Reptilia. Vol. 5. Physiology A. Academic Press, New York.
- Benson, K.R. 1978. Herpetology on the Lewis and Clark Expedition 1804–1806. Herpetol. Rev. 9:87–92.
- Bider, J.R. and S. Matte. 1996. The Atlas of Amphibians and Reptiles of Québec. St. Lawrence Valley Nat. Hist. Soc., Min, l'Environ. Fauna Québec, Dir. Fayune Habitats, Québec.
- Black, J.H. and A.N. Bragg. 1968. New additions to the herpetofauna of Montana. Herpetologica 24:247.
- Blackburn, D.G. 1999. Are viviparity and egg-guarding evolutionarily labile in squamates? Herpetologica 55:556–573.
- Blahnik, J.F. and P.A. Cochran. 1994. Geographic distribution. *Ophedrys vernalis*. Herpetol. Rev. 25:77.
- Blair, W.F. 1958. Distributional patterns of vertebrates in the Southwestern United States in relation to past and present environments, p. 433–468. In C.L. Hubbs (ed.), Zoogeography. AAAS Publ. (51), Washington, D.C.
- Blanchard, F.N. 1928. Amphibians and reptiles of the Douglas Lake Region in northern Michigan. Copeia 1928:42–51.
- . 1933. Eggs and young of the Smooth Green Snake, *Liopeltis vernalis* (Harlan). Pap. Michigan Acad. Sci. 17:493–508.
- and E.B. Finster. 1933. A method of marking living snakes for future recognition, with a discussion of some problems and results. Ecology 14:334–347.
- Blanchard, S.E. and L.H. Princen. 1976. Survey on the occurrence of reptiles and amphibians in central Illinois. Proc. Peoria Acad. Sci. 9:29–35.
- Blasus, R.E. 1997. Amphibian & reptile time table for Minnesota. Minnesota Herpetol. Soc. Occas. Paper (4):1–30.
- Bleakney, J.S. 1952. The amphibians and reptiles of Nova Scotia. Canad. Fld. Nat. 66:125–129.
- . 1958. A zoogeographical study of the amphibians and reptiles of eastern Canada. Bull. Nat. Mus. Canada (155):1–119.
- Boulenger, G.A. 1894. Catalogue of the Snakes in the British Museum. Vol. 2. The Trustees, British Museum (Natural History), London.
- Brattstrom, B.H. 1958. Additions to the herpetofauna of Cass County, Minnesota. Herpetologica 13:278.
- . 1965. Body temperature of reptiles. Amer. Midl. Nat. 73:376–422.
- Breckenridge, W.J. 1944. Reptiles and Amphibians of Minnesota. Univ. Minnesota Press, Minneapolis.
- Breen, J.F. 1974. Encyclopedia of Reptiles and Amphibians. T.F.H. Publ., Inc., Neptune City, New Jersey.
- Brodie, E.D., R.A. Nussbaum, and R.M. Storm. 1969. An egg-laying aggregation of five species of Oregon reptiles. Herpetologica 25:223–227.
- Brodman, R., S. Cortwright, and A. Resetar. 2002. Historical changes of reptiles and amphibians of northwest Indiana fish and wildlife properties. Amer. Midl. Nat. 147:135–144.
- Brothner, R.C. and T.R. Moore. 1964. A collection of *Haldea valeriae pulchra* from western Pennsylvania, with notes on some litters of their young. Copeia 1964:709–710.
- Brown, A.E. 1901. A review of the genera and species of American snakes, north of Mexico. Proc. Acad. Nat. Sci. Phila. 53:10–110.
- . 1903. Texas reptiles and their faunal relations. Proc. Nat. Acad. Sci. Philadelphia 55:543–558.
- . 1908. Generic types of Nearctic Reptilia and Amphibia. Proc. Nat. Acad. Sci. Philadelphia 60:112–127.
- Brown, L.E. 1994. Occurrence of the Smooth Green Snake in a highly polluted microenvironment in central Illinois prairie. Prairie Nat. 26: 135–156.
- Burghardt, G.M. 1967. Chemical-cue preferences of inexperienced snakes: comparative aspects. Science 157:718–721.
- Burt, C.E. 1935. Further records of the ecology and distribution of amphibians and reptiles in the middle west. Amer. Midl. Nat. 16:311–336.
- Burt, C.E. and W.L. Hoyle. 1935. Additional records of the reptiles of the central prairie region of the United States. Trans. Kansas Acad. Sci. 37:193–216.
- Cagle, F.R. 1968. Reptiles, p. 213–268. In W.F. Blair, A.P. Blair, P. Brodtkorb, F.R. Cagle, and G.A. Moore. Vertebrates of the United States. 2nd ed. McGraw-Hill Book Co., New York.
- Carpenter, C.C. 1953. A study of hibernacula and hibernating associations of snakes and amphibians in Michigan. Ecology 34:74–80.
- . 1957. Michigan's snakes. Jack Pine Warbler 35:115–118.
- Carr, A.F., Jr. 1940. A contribution to the herpetology of Florida. Univ. Florida Publ. Biol. Sci. 3:1–118.
- Cary, M. 1917. Life zone investigations in Wyoming. N. Amer. Fauna (42):1–95.
- Casper, G.S. 1996a. Geographic distribution. *Ophedrys vernalis*. Herpetol. Rev. 27:214.
- . 1996b. Geographic Distributions of the Amphibians and Reptiles of Wisconsin. Milwaukee Pub. Mus., Milwaukee, Wisconsin.
- Chermock, R.L. 1952. A key to the amphibians and reptiles of Alabama. Mus. Pap. Geol. Surv. Alabama (33):1–88.
- Chiszar, D., Z. Miller, A. Grobman, and H.M. Smith. 1996. Statistical analysis of phenotypic variation in Smooth Green Snakes (*Liophorophis vernalis*). Abstr. 39th Annual Mtg. Soc. Study Amph. Rept.. Univ. Kansas:46.
- Christiansen, J.L. 1961. A survey of reptiles and amphibians of Buena Vista County, Iowa. Proc. Iowa Acad. Sci. 68:625–634.
- and R.M. Bailey. 1986. The Snakes of Iowa. Iowa Dept. Nat. Res. Non-Game Tech. Ser. (1), Des Moines.
- Coborn, J. 1991. The Atlas of Snakes of the World. T.F.H. Publ., Inc., Neptune City, New Jersey.
- . 1994. The Mini-Atlas of Snakes of the World. T.F.H. Publ., Inc., Neptune City, New Jersey.
- Cochran, D.M. 1961. Type specimens of reptiles and amphibians in the United States National Museum. Bull. U.S. Natl. Mus. (220):1–291.
- and C.J. Goin. 1970. The New Field Book of Reptiles and Amphibians. G.P. Putnam's Sons, New York.
- Cochran, P.A. 1987. *Ophedrys vernalis*. Behavior. Herpetol. Rev. 18:36–37.
- Collins, J.T. 1974. Amphibians and reptiles in Kansas. Univ. Kansas Mus. Nat. Hist. Publ. Edu. Ser. (1):v–ix + 283 p.
- . 1982. Amphibians and reptiles in Kansas. 2nd ed. Univ. Kansas Mus. Nat. Hist. Publ. Edu. Ser. (8):1–356.
- . 1992. Reply to Grobman on variation in *Ophedrys aestivus*. Herpetol. Rev. 23:15–16.
- . 1997. Standard common and current scientific names for North American amphibians and reptiles. 4th ed. SSAR Herpetol. Circ. (25):1–40.
- and T.W. Taggart. 2002. Standard Common and Current Scientific Names for North American Amphibians, Turtles, Reptiles, & Crocodylians. Ctr. N. Amer. Herpetol., Lawrence, Kansas.
- Conant, R. 1942. Amphibians and reptiles from Dutch Mountains (Pennsylvania) and vicinity. Amer. Midl. Nat. 27:154–170.
- . 1951. The Reptiles of Ohio. Univ. Notre Dame Press, Notre Dame, Indiana.
- . 1952. Reptiles and Amphibians of the Northeastern States. Zool. Soc., Philadelphia, Pennsylvania.
- . 1958. A Field Guide to Reptiles and Amphibians of the United States and Canada East of the 100th Meridian. Houghton Mifflin Co., Boston, Massachusetts.
- . 1975. A Field Guide to Reptiles and Amphibians of Eastern and Central North America. 2nd ed. Houghton Mifflin Co., Boston Massachusetts.
- and J.T. Collins. 1991. A Field Guide to Reptiles and Amphibians of Eastern and Central North America. 3rd ed.. Houghton Mifflin Co., Boston, Massachusetts.
- and —. 1998. Reptiles and Amphibians: Eastern/Central North America. 3rd ed., exp. Houghton Mifflin Co., Boston, Massachusetts.
- Cook, F.R. 1964. Communal egg laying in the Smooth Green Snake. Herpetologica 20:206.
- . 1977. Amphibians and reptiles of Saskatchewan. Saskatchewan Mus. Nat. Hist. Popular Ser. (13), Regina.
- . 1984. Introduction to Canadian Amphibians and Reptiles. Nat. Mus. Nat. Sci., Ottawa, Canada.
- . 1991. (Review). A Field Guide to Reptiles and Amphibians: Eastern

- and Central North America. *Canad. Field Nat.* 105:608–610.
- Cope, E.D. 1860. Catalogue of the Colubridae in the museum of the Academy of Natural Sciences of Philadelphia. Part 3. *Proc. Acad. Nat. Sci. Phila.* 12:553–556.
- . 1892. A critical review of the characters and variations of the snakes of North America. *Proc. U.S. Natl. Mus.* 14:589–694.
- . 1896. The geographical distribution of Batrachia and Reptilia in North America. *Amer. Nat.* 30:886–902, 1003–1126.
- . 1900 (“1898”). The crocodylians, lizards, and snakes of North America. *Ann. Rept. U.S. Natl. Mus.* 1898:155–1294.
- Cott, H.B. 1966. *Adaptive Coloration in Animals*. Methuen & Co., Ltd., London.
- Coues, E. and H.C. Yarrow. 1878. Notes on the herpetology of Dakota and Montana. *Bull. U.S. Geol. Geogr. Surv.* 4:259–291.
- Cox, D.C. and W.W. Tanner. 1995. *Snakes of Utah*. Brigham Young Univ., Provo.
- Criddle, S. 1937a. Snakes from an ant hill. *Copeia* 1937:142.
- . 1937b. Life history observations of three species of snakes in Manitoba. *Can. Fld. Nat.* 91:19–27.
- Crother, B.I. (Chair). 2000. 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. *SSAR Herpetol. Circ.* (29):iv + 82 p.
- Cundall, D.L. 1973. Variations in trigeminal foramen morphology in the snake genus *Ophedryx*. *HISS News-Jour.* 1:17.
- . 1974. The cranial osteology and myology of the Green Snakes, genus *Ophedryx*. *Diss. Abstr. Intl. B. Sci. Eng.* 35:3109–3110.
- . 1981. Cranial osteology of the colubrid snake genus *Ophedryx*. *Copeia* 1981:353–371.
- Cunningham, J.D. 1955. Arboreal habits of certain reptiles and amphibians of southern California. *Herpetologica* 11:217–220.
- Davenport, J.W. 1943. *Field Book of the Snakes of Bexar County, Texas and Vicinity*. Witte Memorial Mus., San Antonio, Texas.
- Davis, N.S. and F.L. Rice. 1883. Descriptive catalogue of North American Batrachia and Reptilia, found east of the Mississippi river. *Bull. Illinois State Lab. Nat. Hist.* 1:1–67.
- Davis, W.B. 1949. The Smooth Green Snake in Texas. *Copeia* 1949:233.
- . 1953. Another record of the Smooth Green Snake in Texas. *Herpetologica* 9:165.
- Degenhardt, W.G., C.W. Painter, and A.H. Price. 1996. *Amphibians and Reptiles of New Mexico*. Univ. New Mexico Press, Albuquerque.
- DeGraaf, R.M. and D.D. Rudis. 1981. Forest habitat for reptiles and amphibians of the northeast. *USDA Forest Serv. Exp. Station, Amherst*.
- and —. 1983. *Amphibians and Reptiles of New England. Habitat and Natural History*. Univ. Massachusetts Press, Amherst.
- Dekay, J.E. 1842. *Zoology of New York. Part III. Reptiles and Amphibians*. White and Vasscher, Albany, New York.
- Dellinger, S.C. and J.D. Black. 1938. *Herpetology of Arkansas. Pt. 1. The reptiles*. *Occ. Pap. Univ. Arkansas Mus.* 1:1–47.
- Denman, N.S. and I.S. Lapper. 1964. The herpetology of Mont St-Hilaire, Rouville County, Quebec, Canada. *Herpetologica* 20:25–30.
- Dennis, D.M. 1958. New herpetological records from Ohio. *Trimon. Rep. Ohio Herpetol. Soc.* 1:20–21.
- Denny, G.L. 2002. *Ohio's Reptiles*. Ohio Dept. Nat. Res. Div. Wildl. Publ. (354), Columbus.
- Dexter, R.W. 1948. More records of reptiles from Portage County, Ohio. *Copeia* 1948:139.
- Dickinson, W.E. 1949. *Field Guide to the Lizards and Snakes of Wisconsin*. Milwaukee Pub. Mus. Pop. Sci. Hdbk. Ser. (2). Milwaukee, Wisconsin.
- Ditmars, R.L. 1896. The snakes found within fifty miles of New York City. *Proc. Linnaean Soc., New York* (8):9–24.
- . 1907. *The Reptiles of North America. A Review of the Crocodylians, Lizards, Snakes, Turtles, and Tortoises Inhabiting the United States and Northern Mexico*. Doubleday and Co., Inc., New York.
- . 1912. The feeding habits of serpents. *Zoologica* 1:197–238.
- . 1943. *Snakes of the World*. Macmillan Co., New York.
- Dixon, J.R. 1987. *Amphibians and Reptiles of Texas with Keys, taxonomic synopses, bibliography and distribution maps*. Texas A&M Univ. Press, College Station.
- . 2000. *Amphibians and Reptiles of Texas: With Keys, Taxonomic Synopses, Bibliography, and Distribution Maps*. 2nd ed. Texas A&M Univ. Press, College Station.
- Dessauer, H.C. 1967. Molecular approach to the taxonomy of colubrid snakes. *Herpetologica* 23:148–168.
- Dowling, H.G. and W.E. Duellman. 1978. *Systematic Herpetology: A Synopsis of Families and Higher Categories*. HISS Publ., New York.
- , C.A. Hass, S. B. Hedges, and R. Highton. 1996. Snake relationships revealed by slow-evolving proteins: a preliminary survey. *J. Zool. (Lond.)* 240:1–28.
- Duméril, A., M.-F. Bocourt, and F. Mocquard. 1870. *Mission Scientifique au Mexique et dans l'Amérique Centrale: Recherches Zoologiques. Section 1. Impr. Nationale, Paris*.
- Dymond, J.R. and F.E.J. Fry. 1932. Notes on the breeding habits of the Green Snake (*Liopeltis vernalis*). *Copeia* 1932:102.
- Easterla, D.A. and M.D. Meadows. 1993. The Northern Prairie Skink rediscovered in Missouri, the last recorded occurrence of the Smooth Green Snake for Missouri, plus a Missouri range extension for the Northern Spring Peeper. *The Bluebird* 60:105–109.
- Eckel, E.C. and F.C. Paulmier. 1902. *Catalogue of New York reptiles and batrachians*. New York State Mus. Bull. 51:355–414.
- Edwards, S.R. and G.R. Pisani. (eds.) 1976. *Endangered and threatened amphibians and reptiles in the United States*. *SSAR Herpetol. Circ.* (5):1–65.
- Endsley, J.R. 1954. An annotated listing of a herpetological collection mainly from Tennessee. *J. Tennessee Acad. Sci.* 29:36–41.
- Ernst, C.H. and R.W. Barbour. 1989. *Snakes of Eastern North America*. George Mason Univ. Press, Fairfax, Virginia.
- and E.M. Ernst. 2003. *Snakes of the United States and Canada*. Smithsonian Inst. Press, Washington D.C.
- and G.R. Zug. 1996. *Snakes in Question: the Smithsonian Answer Book*. Smithsonian Institution, Washington, D.C.
- Evans, E. 1990. De Ruwe Groene Grasslang (*Ophedryx aestivus*). *Lacerta* 49:11–15.
- Evans, H.E. 1947. *Herpetology of Crystal Lake, Sullivan County, N.Y.* *Herpetologica* 4:19–21.
- and R.M. Roecker. 1951. Notes on the herpetology of Ontario, Canada. *Herpetologica* 7:69–71.
- Fantham, H.B. and A. Porter. 1952. The endoparasites of some North American snakes and their effects on the Ophidia. *Proc. Zool. Soc. Lond.* 123:867–899.
- Fay, L.P. 1984. Mid-Wisconsinan and Mid-Holocene herpetofaunas of eastern North America: A study in minimal contrast, p. 14–19. *In* H.H. Genoways and M.R. Dawson (eds.), *Contribution in Quaternary Vertebrate Paleontology: A Volume in Memorial to John E. Guilday*. Carnegie Mus. Nat. Hist. Spec. Publ. (8), Pittsburgh, Pennsylvania.
- . 1988. Late Wisconsinan Appalachian herpetofaunas: relative stability in the midst of change. *Ann. Carnegie Mus.* 57:189–220.
- Fichter, G.S. 1947. Preliminary list of the reptiles of Butler County, Ohio. *Herpetologica* 4:71–73.
- Fishbeck, D.W. and J.C. Underhill. 1960. A check list of the amphibians and reptiles of South Dakota. *Proc. S. Dakota Acad. Sci.* 38:107–113.
- Fitch, H.S. 1970. Reproductive cycles in lizards and snakes. *Univ. Kansas Mus. Nat. Hist. Misc. Publ.* (52):1–247.
- . 1981. Sexual size differences in reptiles. *Univ. Kansas Mus. Nat. Hist. Misc. Publ.* (70):1–72.
- Flores-Villela, O. 1993. *Herpetofauna Mexicana*. Carnegie Mus. Nat. Hist. Spec. Publ. (17):1–73.
- Foley, G.W. 1971. Perennial communal nesting in the Black Racer (*Coluber constrictor*). *Herpetol. Rev.* 3:41.
- Fowler, H.W. 1906. *Amphibians and reptiles of New Jersey*. *Ann. Rep. New Jersey St. Mus., Trenton*.
- Fowler, J.H. 1942. Herpetological notes from Lake Cobbosseecontee and vicinity, Kennebec County, Maine. *Copeia* 1942:185–186.
- . 1966. A communal nesting site for the Smooth Green Snake in Michigan. *Herpetologica* 22:231.
- Frank, N. and E. Ramus. 1994. *State, Federal, and C.I.T.E.S. Regulations for Herpetologists*. N.G. Publ., Inc., Pottsville, Pennsylvania.
- and —. 1995. *A Complete Guide to Scientific and Common Names of Reptiles and Amphibians of the World*. N.G. Publ., Inc., Pottsville, Pennsylvania.
- Franklin, M.A. 1945. The embryonic appearance of centres of ossification in the bones of snakes. *Copeia* 1945:68–72.
- Fritts, T.H. 1968. Intra-brood variation in *Ophedryx vernalis* (Harlan). *Herpetologica* 24:79–82.
- Froom, B. 1972. *The Snakes of Canada*. McClelland and Stewart, Ltd.,

- Toronto.
- Frost, D.R. and D.M. Hillis. 1990. Species in concept and practice: herpetological applications. *Herpetologica* 46:87–104.
- , A.G. Kluge, and D. Hillis. 1992. Species in contemporary herpetology: comments on phylogenetic inference and taxonomy. *Herpetol. Rev.* 23:46–54.
- Gabe, M.. 1970. The adrenal, p. 263–318. *In* C. Gans and T.S. Parsons (eds.), *Biology of the Reptilia*. Vol. 3. Morphology. Academic Press, New York.
- Garman, H. 1892. A synopsis of the reptiles and amphibians of Illinois. *Bull. Illinois State Lab. Nat. Hist.* 3:215–389 + pl. 9–15.
- Garman, S. 1883. The reptiles and batrachians of North America. Harvard Univ. Mus. Comp. Zool. Mem. (8):1–185.
- , 1892. On Texas reptiles. *Bull. Essex Inst.* 24:1–12.
- Gilhen, J. 1984. Amphibians and Reptiles of Nova Scotia. Nova Scotia Museum, Halifax.
- Gloyd, H.K. 1944. Texas snakes. *Texas Geogr.* 8:1–18.
- Golet, F.C., A.J.K. Calhoun, W.R. DeRagoni, D.J. Lowry, and A.J. Gold. 1993. Ecology of Red Maple swamps in the glaciated northeast: a community profile. U.S. Dept. Int. Biol. Rep. (12), Washington, D.C.
- Gordon, D.M. and F.R. Cook. 1980. An aggregation of gravid snakes in the Quebec Laurentians. *Can. Fld. Nat.* 94:456–457.
- Green, N.B. 1937. The amphibians and reptiles of Randolph County, West Virginia. *Herpetologica* 1:113–116.
- and T.K. Pauley. 1987. Amphibians and Reptiles of West Virginia. Univ. Pittsburgh Press, Pittsburgh.
- Greene, H.W. 1994. Antipredator mechanisms in reptiles, p. 1–152. *In* C. Gans and R.B. Huey (eds), *Biology of the Reptilia*. Vol. 16. Ecology B. Defense and Life History. Brandt Books, Ann Arbor, Michigan.
- Gregory, P.T. 1975. Aggregations of gravid snakes in Manitoba, Canada. *Copeia* 1975:185–186.
- , 1977. Life history observations of three species of snakes in Manitoba. *Can. Fld. Nat.* 91:19–7.
- , 1982. Reptilian hibernation, p. 53–154. *In* C. Gans and F.H. Pough (eds.), *Biology of the Reptilia*. Vol. 13. Physiology D, Physiological Ecology. Academic Press, New York.
- Grobman, A.B. 1941. A contribution to the knowledge of variation in *Ophedrys vernalis* (Harlan), with the description of a new subspecies. *Misc. Publ. Mus. Zool. Univ. Mich.* (50):1–38.
- , 1950. The problem of the natural range of a species. *Copeia* 1950:231–232.
- , 1989. *Ophedrys vernalis*. Clutch size and female length. *Herpetol. Rev.* 20:84–85.
- , 1991. Does the Smooth Green Snake occur in Missouri? *Trans. Missouri Acad. Sci.* 25:1–3.
- , 1992a. On races, clines, and common names in *Ophedrys*. *Herpetol. Rev.* 23:14–15.
- , 1992b. Metamerism in the snake *Ophedrys vernalis*, with a description of a new subspecies. *J. Herpetol.* 26:175–186.
- Günther, A. 1858. Catalogue of Colubrine Snakes in the Collection of the British Museum. British Mus., London. (Reprint editions, British Mus. [Nat. Hist.], London 1971, and Linnaeus Press, Amsterdam, 1976).
- Guthrie, J.E. 1926. The snakes of Iowa. *Bull. Iowa Agri. Exp. Station* (239):147–192.
- Haines, T.P. 1967. Variations of colubrid skulls, their correlations and their value in taxonomy. *Herpetologica* 23:142–145.
- Hallowell, E. 1856. Notice of a collection of reptiles from Kansas and Nebraska, presented to the Academy of Natural Sciences, by Dr. Hammond, U.S.A. *Proc. Acad. Nat. Sci. Philadelphia* 8:238–253.
- Haltom, W.L. 1931. Alabama Reptiles. *Alabama Geol. Surv. Nat. Hist. Musl Pap.* (11):vi + 145 p.
- Hammerson, G.A..1986. Amphibians and Reptiles in Colorado. Colorado Div. Wildl., Denver.
- , 1999. Amphibians and Reptiles in Colorado. Univ. Press Colorado, Niwot.
- and D. Langlois. 1981. Colorado reptile and amphibian distribution latilong study. 2nd ed. Nongame Sect., Colorado Div. Wildl., Denver.
- Hansen, M.C. 1992. Indiana trail caverns: a window on Ohio's Pleistocene bestiary. *Ohio Geol.* 1992:1, 3.
- Harding, J.H. 1997. Amphibians and Reptiles of the Great Lakes Region. Univ. Michigan Press, Ann Arbor.
- Harlan, R. 1827. Genera of North American Reptilia, and a synopsis of the species. *Jour. Acad. Nat. Sci. Philadelphia* 6:317–372.
- Harper, F. 1963. Amphibians and reptiles of Keewatin and northern Manitoba. *Proc. Biol. Soc. Wash.* 76:159–168.
- Harrison, H.H. 1950. Pennsylvania Reptiles & Amphibians. Pennsylvania Fish Comm., Harrisburg.
- , 1971. *The World of the Snake*. J.B. Lippincott Co., Philadelphia, Pennsylvania.
- Hay, O.P. 1892. The Batrachians and Reptiles of the State of Indiana. Indiana Dept. Geol. Nat. Res. Ann. Rep. (17):409–602.
- Hebard, W.B. and H.A. Charipper. 1955. A comparative study of the morphology and histochemistry of the reptilian adrenal gland. *Zoologica* 40:101–123.
- Heinen, J.T. 1994. Antipredator behavior of newly metamorphosed American Toads (*Bufo a. americanus*), and mechanisms of hunting by Eastern Garter Snakes (*Thamnophis s. sirtalis*). *Herpetologica* 50:137–145.
- Hill, W.H. 1971. Pleistocene snakes from a cave in Kendall County, Texas. *Texas J. Sci.* 22:209–216.
- Hoberg, T. and C. Gause. 1992. Reptiles and amphibians of North Dakota. *Outdoors* 55(1):7–19.
- Hoffman, R.L. 1945. Notes on the herpetological fauna of Alleghany County, Virginia. *Herpetologica* 2:199–205.
- Holbrook, J.E. 1842. North American Herpetology, 4. 2nd ed. J. Dobson and Son, Philadelphia, Pennsylvania.
- Hollander, P.J. and M.C. Barnhart. 1976. *Ophedrys vernalis blanchardi*. Geographic distribution. *Herpetol. Rev.* 7:124.
- Holman, J. A. 1966. The Pleistocene herpetofauna of Miller's Cave, Texas. *Texas J. Sci.* 18:372–377.
- , 1969. The Pleistocene amphibians and reptiles of Texas. *Michigan St. Univ. Mus. Publ.* 4:163–192.
- , 1977. The Pleistocene (Kansan) herpetofauna of Cumberland Cave, Maryland. *Ann. Carnegie Mus.* 46:157–172.
- , 1995. Pleistocene Amphibians and Reptiles in North America. Oxford Univ. Press, New York.
- , 1997. Amphibians and reptiles from the Pleistocene (Late Wisconsinian) of Sheridan Pit Cave, northeastern Ohio. *Michigan Acad.* 29:1–20.
- , 2000. Fossil Snakes of North America: Origin, Evolution, Distribution, Paleoecology. Indiana Univ. Press, Bloomington.
- , J.H. Harding, M.M. Hensley, and G.R. Dudderar. 1989. Michigan Snakes: A Field Guide and Pocket Reference. Michigan St. Univ. Coop. Ext. Serv. 1–72.
- , —, —, and —. 1993. Michigan Snakes: A Field Guide and Pocket Reference. 2nd ed. Michigan St. Univ. Coop. Ext. Serv., East Lansing.
- and R.L. Richards. 1981. Late Pleistocene occurrence in southern Indiana of the Smooth Green Snake, *Ophedrys vernalis*. *J. Herpetol.* 15:123–125.
- and Winkler. 1987. A mid-Pleistocene (Irvingtonian) herpetofauna from a cave in southcentral Texas. *Pearce-Sellads Ser.* (44):1–17.
- Hoppe, D.M. 1978. *Ophedrys vernalis blanchardi*. Geographic distribution. *Herpetol. Rev.* 9:22.
- Hudson, G.E. 1942. The amphibians and reptiles of Nebraska. *Univ. Nebraska Conserv. Bull.* (24):1–146 + 20 pls.
- Hulbert, R.C., Jr. (ed.). 2001. The Fossil Vertebrates of Florida. Univ. Press Florida, Gainesville.
- Hulse, A.C., C.J. McCoy, and E.J. Censky. 2001. Amphibians and Reptiles of Pennsylvania and the Northeast. Cornell Univ. Press, Ithaca, New York.
- Hunter, M.L., Jr., J. Albright, and J. Ar buckle. 1992. The amphibians and reptiles of Maine. *Maine Agri. Exp. Stat. Univ. Maine Bull.* (838):1–188.
- , J.K. Calhoun, and M. McCollough. 1999. Maine Amphibians and Reptiles. Univ. Maine Press, Orono.
- Hurter, J. 1911. Herpetology of Missouri. *St. Louis Acad. Sci. Trans.* 20:59–274 + pls. xviii–xxiv.
- and J.K. Strecker, Jr. 1909. The amphibians and reptiles of Arkansas. *Trans. Acad. Sci. St. Louis* 18:11–27.
- Iverson, J.B. 1987. Patterns of relative fecundity in snakes. *Florida Sci.* 50:223–233.
- Jacobs, D.L. 1950. Status of Garter Snakes in a forest-prairie ecotone in southern Minnesota. *Copeia* 1950:233–234.
- Jan, G. 1863. Elenco Sistematico degli Ofidi Descritti e Disegnati per l'Iconografia Generale. Lombardi, Milan.
- and F. Sordelli. 1869. Iconographie Générale des Ophidiens. [Atlas] Milan and Paris. Vol. 2, livr. 18–34. *Historie Naturalis Classica Tomus*

- XII, Livrais 31, vol. 2. J. Cramer, Publ. Weinheim, Germany (reprinted 1961).
- Johnson, B. 1989. Familiar Amphibians and Reptiles of Ontario. Natural Heritage/Nat. Hist. Inc., Toronto.
- Johnson, T.R. 1987. The Amphibians and Reptiles of Missouri. Missouri Dept. Conserv., Jefferson City.
- . 2000. The Amphibians and Reptiles of Missouri. 2nd ed. Missouri Dept. Conserv., Jefferson City.
- Judd, W.W. 1960. Observations on the habitat, food, reproductive state and intestinal parasites of the Smooth Green Snake at London, Ontario. Can. Fld. Nat. 74:100–106.
- Karns, D.R. 1986. Field herpetology: methods for the study of amphibians and reptiles in Minnesota. James Ford Bell Mus. Nat. Hist. Occ. Paper (18):1–88.
- Keegan, H.L. and T.F. Andrews. 1942. Effects of crotalid venom on North American snakes. Copeia 1942:251–254.
- Kennicott, R. 1855. Catalogue of animals observed in Cook County, Illinois. Illinois St. Agr. Soc. Trans. 1853–1854 1:577–595.
- Klemens, M.W. 1991. Checklist of the amphibians and reptiles of Connecticut, with notes on uncommon species. Connecticut Dept. Environ. Prot., Maps Publ.:1–24.
- . 1993. Amphibians and Reptiles of Connecticut and adjacent regions. St. Geol. Nat. Hist. Connecticut Bull. (112):xi + 318 p.
- Kroll, J.C., D.G. Zahradnik, and R. Ford. 1973. Thermogenic cycles in *Ophedrys vernalis* and *Elaphe obsoleta* (Serpentes: Colubridae). Proc. West Virginia Acad. Sci. 45:77–81.
- Lachner, E.A. 1942. An aggregation of snakes and salamanders during hibernation. Copeia 1942:262–263.
- Lamson, G.H. 1935. The Reptiles of Connecticut. St. Geol. Nat. Hist. Surv. Bull. (54):9–35 + 12 pls.
- Lang, J.W. 1969. Hibernation and movements of *Storeria occipitomaculata* in northern Minnesota (abstr.). J. Herpetol. 3:196–197.
- . 1971. Overwintering of three species in northwestern Minnesota. Unpubl. M.S. Thesis, Univ. N. Dakota, Grand Forks.
- Lang, M. 1992. A review of techniques for marking snakes. Smithson. Herpetol. Info. Serv. (90):1–19.
- Langebartel, D.A. 1968. The hyoid and its associated muscles in snakes. Univ. Illinois Biol. Monogr. (38):1–156.
- Langlois, T.H. 1924. Notes on some Michigan snakes. Papers Mich. Acad. Sci. Arts Letts. 4:605–610.
- Lawson, R. 1983. Life history notes. *Ophedrys vernalis*. Reproduction. Herpetol. Rev. 14:20.
- Lazell, J.D., Jr. 1974. Reptiles and Amphibians in Massachusetts. 2nd ed., rev. Massachusetts Audubon Soc., Lincoln.
- . 1976. This Broken Archipelago: Cape Cod and the Islands, Amphibians and Reptiles. Demeter Press, New York.
- LeBuff, C.R., Jr. 1951. The habits of young Smooth Green Snakes (*Ophedrys vernalis*) in captivity. Herpetologica 7:80.
- LeClere, J. 1998. Checklist of the herpetofauna of Iowa. Minnesota Herpetol. Soc. Occ. Pap. (5):1–23.
- Levell, J.P. 1997. A Field Guide to Reptiles and the Law. 2nd ed. Serpent's Tale, Lanesboro, Minnesota.
- Leviton, A.E. 1972. Reptiles and Amphibians of North America. Doubleday & Co., Inc. New York.
- Liner, E.A. 1994. Scientific and common names for the amphibians and reptiles of Mexico in English and Spanish. SSAR Herpetol. Circ. (23):1–113.
- Linzey, D.W. 1959. Further records of the Smooth Green Snake in the Virginia Blue Ridge Mountains. Herpetologica 15:94.
- and M.J. Clifford. 1981. Snakes of Virginia. Univ. Press Virginia, Charlottesville.
- Livo, L.J. 1985. The small snakes: these small Colorado snakes are harmless and seldom seen. Colorado Outdoors 34(4):36–39.
- , D. Chiszar, and H.M. Smith. 1996. Geographic distribution: *Liochlorophis* (= *Ophedrys*) *vernalis*. Herpetol. Rev. 27:154.
- , —, and D. Chiszar. 2000. County record tables for Colorado amphibians and reptiles. Colorado Div. Wildl., Denver.
- , K. Reichard, T. Duncan, H.M. Smith, and D. Chiszar. 1996. Herpetological microbiogeography of Colorado II: Documented and potential county records. Colorado Herpetol. Soc., Lakeland.
- Löding, H.P. 1922. A preliminary catalogue of Alabama amphibians and reptiles. Geol. Surv. Alabama Mus. Pap. (5):1–59.
- Logan, L.E. and C.C. Black. 1979. The Quaternary vertebrate fauna of Upper Sloth Cave, Guadalupe Mountains National Park, Texas, p. 141–158. In H.H. Genoway and R.J. Baker (eds.), Biological Investigation in the Guadalupe Mountains National Park, Texas. National Parks Serv. Proc. Trans. (4), Washington, D.C.
- Logier, E.B.S. 1939. The Reptiles of Ontario. Royal Ontario Mus. Zool. Hdbk. (4), Toronto.
- . 1958. The Snakes of Ontario. Univ. Toronto Press, Toronto.
- and G.C. Toner. 1955. Checklist of the amphibians and reptiles of Canada and Alaska. Contr. Roy. Ontario Mus. Zool. (41):1–88.
- Loomis, R.B. and J. K. Jones, Jr. 1948. New herpetological county records from central Minnesota. Herpetologica 4:213–214.
- Lord, D.R. 1956. The reptiles of Georgian Bay. Ontario Fld.. Biol. (10): 26–27.
- Lovridge, A. 1927. On the seasonal incidence of three common species of Massachusetts snakes, *Thamnophis sirtalis* (Linné); *Storeria dekayi dekayi* (Storer), and *Liopeltis vernalis* (Harlan). Bull. Antivenin Inst. Amer. 1:54–58.
- Ludwig, D.R., M. Redmer, R. Domazlicky, S. Kobal, and B. Conklin. 1992. Current status of amphibians and reptiles in DuPage County, Illinois. Trans. Illinois Acad. Sci. 85:187–199.
- Lynch, J.D. 1985. Annotated checklist of the amphibians and reptiles of Nebraska. Trans. Nebraska Acad. Sci. 13:33–57.
- MacGregor, J. 1975. An observation concerning the incubation period of the eggs of *Ophedrys vernalis*. Kentucky Herpetol. 6:181.
- Manville, R.H. 1939. Notes on the herpetology of Mount Desert Island, Maine. Copeia 1939:174.
- Martin, P.S. 1958. Pleistocene ecology and biogeography of North America, p. 375–420. In C.L. Hubbs (ed.), Zoogeography. AAAS Publ. (51), Washington, D.C.
- Martof, B.S., W.M. Palmer, J.R. Bailey, and J.R. Harrison III. 1980. Amphibians and Reptiles of the Carolinas and Virginia. Univ. N. Carolina Press, Chapel Hill.
- Maslin, T.P. 1959. An annotated check list of the amphibians and reptiles of Colorado. Univ. Colorado Stud. Ser. Biol. (6):1–78.
- Mattison, C. 1983. The Care of Reptiles and Amphibians in Captivity. Blandford Press, Dorset.
- Mauger, D. and T.G. Anton. 2003. Current distribution and status of amphibians and reptiles in Kankakee County, Illinois. Bull. Chicago Herpetol. Soc. 38:89–95.
- McCauley, R.H., Jr. 1945. The Reptiles of Maryland and the District of Columbia. Priv. publ., Hagerstown, Maryland.
- and C.S. East. 1940. Amphibians and reptiles from Garrett County, Maryland. Copeia 1940:120–123.
- McClure, W.L. 1969. A new record of *Ophedrys vernalis blanchardi* in Texas. Southwest. Nat. 14:129.
- McCoy, C.J. 1982. Amphibians and reptiles in Pennsylvania. Carnegie Mus. Nat. Hist. Spec. Publ. (6):1–91.
- Mecham, J.S. 1979. The biogeographical relationships of the amphibians and reptiles of the Guadalupe Mountains, p. 169–179. In H.H. Genoway and R.J. Baker (eds.), Biological Investigation in the Guadalupe Mountains National Park, Texas. National Parks Serv. Proc. Trans. (4), Washington, D.C.
- Mehrtens, J.M. 1987. Living Snakes of the World in Color. Sterling Publ. Co., Inc., New York.
- Meylan, P.A. 1982. The squamate reptiles of the Inglis IA fauna (Irvingtonian: Citrus County, Florida). Bull. Florida St. Mus. Biol. Sci. 27:1–85.
- Mills, R.C. 1948. A check list of the reptiles and amphibians of Canada. Herpetologica 4 (2nd suppl.):1–15.
- Minton, S.A., Jr. 1972. Amphibians and Reptiles of Indiana. Indiana Acad. Sci. Monogr. (1):v + 346 p.
- . 2001. Amphibians and Reptiles of Indiana. Rev. 2nd ed. Indiana Acad. Sci., Indianapolis.
- Mitchell, J.C. 1994. The Reptiles of Virginia. Smithsonian Press, Washington, D.C.
- and K.K. Reay. 1999. Atlas of amphibians and reptiles in Virginia. Virginia Dept. Game Inland Fish., Spec. Publ. (1):1–122.
- Morafka, D.J. 1977. A biogeographical analysis of the Chihuahuan Desert through its herpetofauna. Biogeographica 9:1–313.
- Moriarty, J.J. and A.M. Bauer. 2000. State and provincial amphibian and reptiles publications for the United States and Canada. SSAR Herpetol. Circ. (28):1–52.
- Morse, Max. 1904. Batrachians and reptiles of Ohio. Proc. Ohio St. Acad. Sci. Spec. Pap. (9):91–144.
- Mount, R.H. 1975. The Reptiles and Amphibians of Alabama. Auburn Univ. Agri. Exp. Sta., Auburn, Alabama.

- . 1996. The Reptiles and Amphibians of Alabama. 2nd ed. Univ. Alabama Press, Tuscaloosa.
- Necker, W.L. 1939a. Buff green-snakes. *Chicago Nat.* 2:27.
- . 1939b. Records of amphibians and reptiles of the Chicago region, 1935–1938. *Bull. Chicago Acad. Sci.* 6:1–10.
- Neill, W.T. 1948. Spiders preying on reptiles and amphibians. *Herpetologica* 4:158.
- Netting, M.G. 1936. Hand list of the amphibians and reptiles of Pennsylvania. *Carnegie Mus. Herpetol. Leafl.* (1):4 p. (unnumbered).
- Nordstrom, G.R., W.L. Pflieger, K.C. Sadler, and W.H. Lewis. 1977. Rare and endangered species of Missouri, p. 36–41. *In* A. Brohn, J.F. Keefe, M.H. Sullivan, and J.E. Wylie (eds.), *Missouri Dept. Conserv. & U.S. Dept. Agri. Soil Conserv. Serv., Jefferson City.*
- Obst, F.J., K. Richter, and U. Jacob. 1988. The Completely Illustrated Atlas of Reptiles and Amphibians for the Terrarium. T.F.H. Publ., Neptune City (original German edition published 1984).
- Oldfield, B. and J.J. Moriarty. 1994. Amphibians and Reptiles of Minnesota. Univ. Minnesota Press, Minneapolis.
- Oldham, J.C. and H.M. Smith. 1991. The generic status of the Smooth Green Snake, *Ophedryx vernalis*. *Bull. Maryland Herpetol. Soc.* 27: 201–215.
- Oliver, J.A. 1955. The Natural History of North American Amphibians and Reptiles. D. Van Nostrand Co., Inc. Princeton, New Jersey.
- and J.R. Bailey. 1939. Amphibians and reptiles of New Hampshire. New Hampshire Fish & Game Dept., Concord.
- Olson, R.E. 1956. The amphibians and reptiles of Winnebago County, Illinois. *Copeia* 1956:188–191.
- . 1987. Minnesota herpetological records. *Bull. Maryland Herpetol. Soc.* 23:101–104.
- Ortenburger, A.I. 1927. A key to the snakes of Oklahoma. *Proc. Okla. Acad. Sci.* 6:199–218.
- . 1928. The Whip Snakes and Racers Genera *Masticophis* and *Coluber*. Univ. Michigan, Ann Arbor.
- Over, W.H. 1923. Amphibians and reptiles of South Dakota. *S. Dakota Geol. Nat. Hist. Surv. Bull.* (12):1–34 + 48 pls.
- Owen, J.G. 1989. Patterns of herpetofaunal species richness: relation to temperature, precipitation, and variance in elevation. *J. Biogeogr.* 16:141–150.
- Packard, G.C. and M.J. Packard. 1994. The physiological ecology of reptilian eggs and embryos, p. 523–606. *In* C. Gans and R.B. Huey (eds.), *Biology of the Reptilia*. Vol. 16. Ecology B, Defense and Life History. Brandt Books, Ann Arbor, Michigan.
- and J.A. Phillips. 1994. The importance of the physical environment for the incubation of reptilian eggs, p. 195–208. *In* J.B. Murphy, K. Adler, and J.T. Collins (eds.), *Captive Management and Conservation of Amphibians & Reptiles*. SSAR Contr. to Herpetology, vol. 11, Ithaca, New York.
- Palmer, W.M. and A.L. Braswell. 1995. Reptiles of North Carolina. Univ. N. Carolina Press, Chapel Hill.
- Parker, W.S. and W.S. Brown. 1973. Species composition and population changes in two complexes of snake hibernacula in northern Utah. *Herpetologica* 29:319–326.
- and M.V. Plummer. 1987. Population ecology, p. 253–301. *In* R.A. Seigel, J.T. Collins, and S.S. Novak (eds.), *Snakes: Ecology and Evolutionary Biology*. Macmillan Publ. Co., New York.
- Parmalee, P.W. 1955. Reptiles of Illinois. *Illinois St. Mus. Pop. Ser.* (5): 1–88.
- Parmley, D. 1990. Late Pleistocene snakes from Fowlkes Cave, Culbertson County, Texas. *J. Herpetol.* 24:266–274.
- Pawling, R.O. 1939. The amphibians and reptiles of Union County, Pennsylvania. *Herpetologica* 1:165–169.
- Pentecost, E.C. and R.C. Vogt. 1976. Environmental status of the Lake Michigan region. Vol. 16. Amphibians and reptiles of the Lake Michigan drainage basin. Argonne National Lab. ANL/ES-40 16:3–69.
- Perkins, C.B. 1952. Incubation period of snake eggs. *Herpetologica* 8:79.
- Perry, P.S. and M.H. Dexter. 1989. Snakes & Lizards of Minnesota. Non-Game Wildl. Progr., Minnesota Dept. Nat. Res., St. Paul.
- Peterson, C.R. 1974. A preliminary report on the amphibians and reptiles of the Black Hills of South Dakota and Wyoming. Unpubl. M.S. Thesis, Univ. Illinois, Urbana-Champaign.
- Phillips, C.A., R.A. Brandon, and E.O. Moll. 1999. Field Guide to Amphibians and Reptiles of Illinois. *Illinois Nat. Hist. Surv. Manual* (8):xii–xv +282 p.
- Pinou, T. 1991. Microdermatoglyphics versus biochemistry in *Ophedryx*. *Abstr. 75th Amer. Soc. Ichthyol. Herpetol. 7th Ann. Mtg. Amer. Mus. Nat. Hist.*, New York.
- and H.G. Dowling. 2000. “*Coluber*” versus “*Ptyas*”: A regrettable tangle of names. *Herpetol. Rev.* 31:136–138.
- Pope, C.H. 1935. The Reptiles of China. *Natural History of Central Asia*. Vol. 10. Amer. Mus. Nat. Hist., New York.
- . 1956. The Reptile World. A Natural History of the Snakes, Lizards, Turtles and Crocodylians. Routledge and Kegan Paul, London.
- . 1964. Amphibians and Reptiles of the Chicago area. *Chicago Nat. Hist. Mus. Press*, Chicago, Illinois.
- Pope, T.E.B. and W.E. Dickinson. 1928. The amphibians and reptiles of Wisconsin. *Milwaukee Pub. Mus. Bull.* 8:1–138 + 21 pls.
- Pough, F.H., R.M. Andrews, J.E. Cadle, M.L. Crump, A.H. Savitzky, and K.D. Wells. 1998. *Herpetology*. Prentice-Hall, Inc., Upper Saddle River, New Jersey.
- Powell, R., J.T. Collins, and E.D. Hooper, Jr. 1998. A Key to Amphibians & Reptiles of the Continental United States and Canada. Univ. Kansas Press, Lawrence.
- Preston, W. 1982. The Amphibians and Reptiles of Manitoba. *Manitoba Mus. Man Nat.*, Winnipeg.
- Radaj, R.H. 1981. Life history notes: *Ophedryx v. vernalis*. *Reproduction. Herpetol. Rev.* 12:80.
- Raun, G.G. 1965. A guide to Texas snakes. *Texas Memorial Mus. Notes* (9):1–85.
- Redmer, M. 1987. Notes on eggs and hatchlings of the Smooth Green Snake, *Ophedryx vernalis* in DuPage County, Illinois. *Bull. Chicago Herpetol. Soc.* 22:149.
- and S.R. Ballard. 1995. Recent distribution records for amphibians and reptiles in Illinois. *Herpetol. Rev.* 26:49–53.
- Reed, C.F. 1958. Contribution to the herpetology of Maryland and Delmarva. 13: Piedmont herpetofauna on coastal Delmarva. *J. Washington Acad. Sci.* 48:95–99.
- Reichel, J. and D. Flath. 1995. Identification of Montana’s amphibians and reptiles. *Montana Outdoors* 26:15–34.
- Richards, R.L. 1990. Quaternary distribution of the Timber Rattlesnake (*Crotalus horridus*) in southern Indiana. *Proc. Indiana Acad. Sci.* 99: 113–122.
- Richmond, N.D. 1952. An addition to the herpetofauna of Nova Scotia, and other records of amphibians and reptiles of Cape Breton Island. *Ann. Carnegie Mus.* 32:331–332.
- Richmond, N.D. and G. Boggess. 1941. A key to the reptiles and amphibians of West Virginia. *West Virginia Univ. Bull.* 42:1–9.
- . 1952. An addition to the herpetofauna of Nova Scotia, and other records of amphibians and reptiles on Cape Breton Island. *Ann. Carnegie Mus.* 32:331–332.
- and C.J. Goin. 1938. Notes on a collection of amphibians and reptiles from New Kent County, Virginia. *Ann. Carnegie Mus.* 27:301–310.
- Robins, C.R. 1952. Variation in the Greensnake, *Ophedryx vernalis* (Harlan), from the Black Hills, South Dakota. *Copeia* 1952:191–192.
- Roddy, H.J. 1928. Reptiles of Lancaster County and the State of Pennsylvania. Science Press, Lancaster.
- Rossi, J. 1992. Snakes of the United States and Canada: Keeping them Healthy in Captivity. Volume 1. Eastern Area. Krieger Publ. Co., Malabar, Florida.
- and R. Rossi. 1995. Snakes of the United States and Canada: Keeping them Healthy in Captivity. Volume 2. Western Area. Krieger Publ. Co., Malabar.
- Rossman, D.A. and G.C. Schaefer. 1974. Generic status of *Ophedryx mayae*, a colubrid snake endemic to the Yucatan Peninsula. *Occ. Pap. Mus. Zool. Louisiana St. Univ.* (45):1–12.
- Rundquist, E.M. 1999. Kansas Herpetological Society herp counts: A 10-year summary and evaluation. *Kansas Herpetol. Soc. Newsl.* (115):8–15.
- Rundquist, E.R. 1979. The status of *Bufo debilis* and *Ophedryx vernalis* in Kansas. *Trans. Kansas Acad. Sci.* 82:67–70.
- Ruthven, A.G. 1908. The faunal affinities of the prairie region of central North America. *Amer. Nat.* 42:388–392.
- . 1910. Contribution to the herpetology of Iowa. *Proc. Iowa Acad. Sci.* 17:198–212.
- . 1926. Notes on Utah reptiles. *Occ. Pap. Mus. Zool. Univ. Michigan* (179):1–4.
- , C. Thompson, and H.T. Gaige. 1912. The Herpetology of Michigan. *Michigan Geol. Biol. Surv.* 10:1–166 + 20 pls.
- , — , and — . 1928. The Herpetology of Michigan. *Univ. Michigan Hdbk. Ser.* (3):1–228 + 19 pls.

- Saint Girons, H. and M.-C. Saint Girons. 1956. Cycle d'activité et thermoregulation chez les reptiles (Lézards et serpentes). *Vie et Milieu* 7:133-226.
- Schaefer, G.C. 1965. Cranial osteology of the New World Greensnakes, genus *Ophedryx* Fitzinger, 1843. Unpubl. M.S. Thesis, Louisiana St. Univ., Baton Rouge.
- Schlauch, F.C. 1975. Agonistic behavior in a suburban Long Island population of the Smooth Green Snake *Ophedryx vernalis*. *Engelhardtia* 6:25-26.
- Schmidt, K.P. 1953. A check list of North American Amphibians and Reptiles. 6th ed. ASIH, Univ. Chicago Press, Chicago, Illinois.
- and D.D. Davis. 1941. Fieldbook of Snakes of the United States and Canada. G.P. Putnam's Sons, New York.
- and R.F. Inger. 1957a. Living Reptiles of the World. Hamish Hamilton, London.
- and —. 1957b. Knaurs Tierreich in Farben: Reptilien. Droemersch Verlaganstalt, München-Zürich.
- and W.L. Necker. 1935. Amphibians and reptiles of the Chicago Region. *Bull. Chicago Acad. Sci.* 5:57-77.
- and —. 1936. The scientific name of the American Smooth Green Snake. *Herpetologica* 1:63-64.
- Schwartz, H.H. 1938. Reptiles of Arkansas. *Bull. Univ. Arkansas* (357): 1-47.
- Schwartz, V. and D.M. Golden. 2002. Field Guide to Reptiles and Amphibians of New Jersey. New Jersey Div. Fish. Wildl., Trenton.
- Seehorn, M.E. 1982. Reptiles and Amphibians of Southeastern National Forests. U.S. Dept. Agri. For. Ser. S. Region, Atlanta, Georgia.
- Seibert, H.C. 1950. Population density of snakes in an area near Chicago. *Copeia* 1950:229-230.
- and C.W. Hagen, Jr. 1947. Studies on a population of snakes in Illinois. *Copeia* 1947:6-22.
- Sexton, O.J. and L. Claypool. 1978. Nest sites of a northern population of an oviparous snake, *Ophedryx vernalis* (Serpentes, Colubridae). *J. Nat. Hist.* 12:365-370.
- Shaffer, L.L. 1991. Pennsylvania Amphibians and Reptiles. Pennsylvania Fish Comm. Bur. Educ. Info., Harrisburg.
- Shaw, C.E. and S. Campbell. 1974. Snakes of the American West. Alfred A. Knopf, Inc., New York.
- Shine, R. 1979. The evolution of live-bearing in lizards and snakes. *Amer. Nat.* 113:905-923.
- . 1983. Reptilian reproductive modes: The oviparity-viviparity continuum. *Herpetologica* 39:1-8.
- . 1985. The evolution of viviparity in reptiles: An ecological analysis, p. 607-694. *In* C. Gans and F. Bullett (eds), *Biology of the Reptilia*. Vol. 15. Development B. John Wiley and Sons, New York.
- . 1994. Parental care in reptiles, p. 275-330. *In* C. Gans and R.B. Huey (eds), *Biology of the Reptilia*. Vol. 16. Ecology B, Defense and Life History. Brandt Books, Ann Arbor, Michigan.
- and M.S.Y. Lee. 1999. A reanalysis of the evolution of viviparity and egg-guarding in squamate reptiles. *Herpetologica* 55:538-549.
- Smith, H.M. 1950. Handbook of amphibians and reptiles of Kansas. *Univ. Kansas Publ. Mus. Nat. Hist. Misc. Publ.* (2):1-338.
- . 1956. Handbook of amphibians and reptiles of Kansas. 2nd ed. *Univ. Kansas Mus. Nat. Hist. Misc. Publ.* (9):1-356.
- . 1963. The taxonomic status of the Black Hills population of the Smooth Green Snake. *Herpetologica* 19:256-261.
- and E.D. Brodie, Jr. 1982. *A Guide to Identification of Reptiles of North America*. Golden Press, New York.
- and H.K. Buechner. 1947. The influence of the Balcones Escarpment on the distribution of amphibians and reptiles in Texas. *Bull. Chicago Acad. Sci.* 8:1-16.
- , G.A. Hammerson, J.J. Roth, and D. Chiszar. 1991. Distributional addenda for the Smooth Green Snake (*Ophedryx vernalis*) in western Colorado, and the status of the subspecies. *Bull. Maryland Herpetol. Soc.* 27:99-106.
- and A.B. Leonard. 1934. Distributional records of reptiles and amphibians in Oklahoma. *Amer. Midl. Nat.* 15:190-196.
- , T.P. Maslin, and R.L. Brown. 1965. Summary of the distribution of the herpetofauna of Colorado: a supplement to an annotated check list of the amphibians and reptiles of Colorado. *Univ. Colorado Stud. Biol.* (15):1-52.
- Smith, P.W. 1957. An analysis of post-Wisconsin biogeography of the Prairie Peninsula region based on distributional phenomena among terrestrial vertebrate populations. *Ecology* 38:205-218.
- . 1961. The amphibians and reptiles of Illinois. *Illinois Nat. Hist. Surv. Bull.* 28(1):1-298.
- and S.A. Minton, Jr. 1957. A distributional survey of the herpetofauna of Indiana and Illinois. *Amer. Midl. Nat.* 58:341-251.
- Smith, W.H. 1882. Report on the Reptiles and Amphibians of Ohio. Nevins and Myers, St. Printers, Columbus, Ohio.
- Snider, A.T. and J.K. Bowler. 1992. Longevity of reptiles and amphibians in North American collections. 2nd ed. *SSAR Herpetol. Circ.* (21):1-40.
- Snyder, L.L., E.B. S. Logier, T.B. Kurata, F.A. Urquhart, and J.F. Brimely. 1941. A faunal investigation of Prince Edward County, Ontario. *Univ. Toronto Stud. Biol. Sci.* (48):5-123.
- Sokolov, V.E. 1988. Dictionary of Animal Names in Five Languages. Amphibians and Reptiles. Russky Yazyk, Moscow.
- Stebbins, R.C. 1954. Amphibians and Reptiles of Western North America. McGraw-Hill Book Co., Inc., New York.
- . 1985. *A Field Guide to Western Reptiles and Amphibians*. 2nd ed. Houghton Mifflin Co., Boston, Massachusetts.
- Stejneger, L.M. and T. Barbour. 1917. *A Check List of North American Amphibians and Reptiles*. Harvard Univ. Press, Cambridge, Massachusetts.
- and —. 1923. *A Check List of North American Amphibians and Reptiles*. Harvard Univ. Press, Cambridge, Massachusetts.
- and —. 1933. *A Check List of North American Amphibians and Reptiles*. Harvard Univ. Press, Cambridge, Massachusetts.
- and —. 1939. *A Check List of North American Amphibians and Reptiles*. Harvard Univ. Press, Cambridge, Massachusetts.
- and —. 1943. A check list of North American Amphibians and Reptiles. *Bull. Mus. Comp. Zool., Harvard Univ.* 93:xix + 260 p.
- Stewart, M.M. 1961. An ecological survey of amphibians, reptiles and mammals of Allegany Indian Reservation and vicinity. *Bull. New York St. Mus.* (383):63-97.
- Stille, W.T. 1954. Observations on the reproduction and distribution of the Green Snake, *Ophedryx vernalis* (Harlan). *Chicago Acad. Sci. Nat. Hist. Misc.* (127):1-11.
- Storer, D.H. 1839. Reptiles of Massachusetts. *In* Reports on the Fishes, Reptiles and Birds of Massachusetts. Dutton and Wentworth, Boston, Massachusetts.
- . 1840. A report on the reptiles of Massachusetts. *Boston J. Nat. Hist.* 3:1-64.
- Strecker, J.K. 1915. Reptiles and amphibians of Texas. *Baylor Bull.* 18: 3-82.
- Stuart, J.N. 1990. Geographic distribution. *Ophedryx vernalis blanchardi*. *Herpetol. Rev.* 21:23.
- and C.W. Painter. 1993. Notes on hibernation of the Smooth Green Snake, *Ophedryx vernalis*, in New Mexico. *Bull. Maryland Herpetol. Soc.* 29:140-142.
- Surface, H.A. 1906. The Serpentes of Pennsylvania. *Monthly Bull. Div. Zool. Pennsylvania St. Dept. Agri.* 4:1-208.
- Swain, T.A. and H.M. Smith. 1978. Communal nesting in *Coluber constrictor* in Colorado (Reptilia: Serpentes). *Herpetologica* 34:175-177.
- Swanson, P.L. 1952. The reptiles of Venango County, Pennsylvania. *Amer. Midl. Nat.* 47:161-182.
- Tanner, W.W. 1940. Notes on the herpetological specimens added to the Brigham Young University vertebrate collection during 1939. *Great Basin Nat.* 1:138-146.
- . 1958a. Herpetology of Glen Canyon of the upper Colorado river basin. *Herpetologica* 14:193-195.
- . 1958b. Herpetological range extensions. *Herpetologica* 14:195-196.
- . 1978. Zoogeography of reptiles and amphibians in the intermountain region. *Great Basin Nat. Memoirs* (2):43-53.
- . 1985. Snakes of western Chihuahua. *Great Basin Nat.* 45:615-676.
- and D.F. Avery. 1982. Buccal floor of reptiles, a summary. *Great Basin Nat.* 42:273-349.
- and B.H. Banta. 1966. A systematic review of the Great Basin reptiles in the collections of Brigham Young University and the University of Utah. *Great Basin Nat.* 26:87-135.
- Taub, A.M. 1966. Ophidian cephalic glands. *J. Morphol.* 118:529-542.
- . 1967. Comparative histological studies on Duvernoy's gland of colubrid snakes. *Bull. Amer. Mus. Nat. Hist.* 138:1-50.
- Taylor, J. 1993. *The Amphibians & Reptiles of New Hampshire, with Keys to Larval, Immature and Adult Forms*. New Hampshire Fish & Game Dept., Concord.
- Tennant, A. 1985. *A Field Guide to Texas Snakes*. Texas Monthly Press, Austin.
- . 1998. *A Field Guide to Texas Snakes*. 2nd ed. Gulf Publ. Co., Hous-

- ton.
- and R.D. Bartlett. 2000. Snakes of North America: Eastern and Central Regions. Gulf Publ. Co., Houston.
- Thompson, S. and D. Backlund. 1999. South Dakota Snakes: A Guide to Snake Identification. S. Dakota Dept. Game Fish Pks., Pierre
- Tinkle, D.W. and J. W. Gibbons. 1977. The distribution and evolution of viviparity in reptiles. *Misc. Publ. Mus. Zool., Univ. Michigan* (154): 1–55.
- Tobey, F.J. 1985. Virginia's Amphibians and Reptiles: A Distributional Survey. Virginia Herpetol. Soc. Publ., Purcellville.
- Trapido, H. 1937. The Snakes of New Jersey. Newark Museum, Newark, New Jersey.
- and R.T. Clausen. 1938. Amphibians and reptiles of eastern Quebec. *Copeia* 1938:117–125.
- Trutnau, L. 1981. Schlangen im Terrarium: Haltung, Pflege und Zucht. Vol. 1. Ungiftige Schlangen. Eugen Ulmer Verlag, Stuttgart.
- . 1986. Nonvenomous Snakes. Barron's, Woodbury, New York.
- Turner, F.B. 1977. The dynamics of populations of squamates, crocodylians and rhynchocephalians, p. 157–264. In C. Gans and D.W. Tinkle (eds.), *Biology of Reptilia*. Vol. 7. Ecology and Behavior A. Academic Press, New York.
- Uhler, F.M., C. Cottam, and T.E. Clarke. 1939. Food of snakes of the George Washington National Forest, Virginia. *Trans. N. Amer. Wildl. Conf.* 4:605–622.
- Upton, S. and C.T. McAllister. 1990. The *Eimeria* (Apicomplexa: Eimeriidae) of Serpentes, with descriptions of three new species from colubrid snakes. *Can. J. Zool.* 68:855–864.
- Vance, T.L. 1985. Annotated checklist and bibliography of Arkansas reptiles. *Smithson. Inst. Herpetol. Info. Serv.* (63):1–45.
- Van Denburgh, J. 1924. Notes on the herpetology of New Mexico, with a list of species known from that state. *Proc. California Acad. Sci.* 13:189–230.
- Van Devender, T.R. and C.H. Lowe, Jr. 1977. Amphibians and reptiles of Yepomera, Chihuahua, Mexico. *J. Herpetol.* 11:41–50.
- Vermersch, T.G. and R.E. Kuntz. 1986. Snakes of South Central Texas. Eakin Press, Austin, Texas.
- Verrill, A.E. 1863. Catalogue of the reptiles and batrachians found in the vicinity of Norway, Oxford County, Maine. *Proc. Boston Nat. Hist. Soc.* 9:197–199.
- Vitterling, J.M. and E.A. Widmar. 1968. *Eimeria cascabeli* sp. nov. (Eimeriidae, Sporozoa) from rattlesnakes, with a review of the species of *Eimeria* from snakes. *J. Parasitol.* 54:569–576.
- Vogt, R.C. 1981. Natural History of Amphibians and Reptiles of Wisconsin. Milwaukee Pub. Mus., Milwaukee, Wisconsin.
- and R.L. Hine. 1982. Evaluation of techniques for assessment of amphibian and reptile populations in Wisconsin, p. 201–217. In N.J. Scott, Jr. (ed), *Herpetological Communities: A Symposium of the Society for the Study of Amphibians and Reptiles*. U.S. Dept. Int. Fish & Wildl. Serv., Wildl. Res. Rep. (13), Washington, D.C.
- Wallach, V. 1998. The lungs of snakes, p. 93–295. In C. Gans and A.S. Gaunt (eds.), *Biology of The Reptilia*. Vol. 19. Morphology G. Visceral Organs. SSAR Contrib. Herpetol., vol. 14, Ithaca, New York.
- Walley, H.D. 1977. Range extensions and new county records of some Illinois amphibians and reptiles. *Herpetol. Rev.* 8:125.
- . 2002. New reptilian records from eastern Iowa. *Bull. Maryland Herpetol. Soc.* 38:51–54.
- Walls, J.G. 2000. The many names of the green (and not so green) snakes. *Rept. Amphib. Hobbyist* 6(2):49–55.
- Webb, R.G. 1970. Reptiles of Oklahoma. Stovall Mus. Publ., Norman, Oklahoma.
- Werler, J.E. and J.R. Dixon. 2000. Texas Snakes: Identification, Distribution, and Natural History. Univ. Texas Press, Austin.
- Werner, W.E. 1959. Amphibians and reptiles of the Thousand Islands region, New York. *Copeia* 1959:170–172.
- Wheeler, G.C. 1947. The amphibians and reptiles of North Dakota. *Amer. Midl. Nat.* 38:162–190.
- and J. Wheeler. 1966. The Amphibians and Reptiles of North Dakota. Univ. N. Dakota Press, Grand Forks.
- Whitaker, J.O., Jr. 1968. Keys to the Vertebrates of the Eastern United States (excluding birds). Burgess Publ. Co., Minneapolis, Minnesota.
- Williamson, M.A., P.W. Hyder, and J.S. Applegarth. 1994. Snakes, Lizards, Turtles, Frogs, Toads and Salamanders of New Mexico. Sunstone Press, Santa Fe, New Mexico.
- Wilson, L.W. and S.B. Friddle. 1950. The herpetology of Hardy county, West Virginia. *Amer. Midl. Nat.* 43:165–172.
- Witt, W.L. 1958. The Smooth Green Snake in the Virginia Blue Ridge Mountains. *Herpetologica* 14:140.
- Woodbury, A.M. 1931. A descriptive catalog of the reptiles of Utah. *Bull. Univ. Utah.* 21:1–129.
- . 1952. Amphibians and reptiles of the Great Salt Lake valley. *Herpetologica* 8:42–50.
- Worthington, R.D. 1973. Remarks on the distribution of the Smooth Green Snake, *Ophedrys vernalis blanchardi* Grobman, in Texas. *Southwest. Nat.* 18:344–346.
- Wright, A.H. and A.A. Wright. 1957. Handbook of Snakes of the United States and Canada. Comstock Publ. Assoc., Ithaca, New York.
- Yarrow, H.C. 1875. Report upon the collections of batrachians and reptiles made in portions of Nevada, Utah, California, Colorado, New Mexico, and Arizona, during the years 1871, 1872, 1873 and 1874. *Rept. Geog. Geol. Expl. Surv. W.* 100 Mer. Wheeler, 9(4):509–584, pls. 16–25.
- . 1882. Checklist of North American Reptilia and Batrachia with catalogue of specimens in the U.S. National Museum. *Bull. U.S. Natl. Mus.* (24):1–249.
- Young, R.A. 1973. Anthills as hibernating sites for *Ophedrys vernalis blanchardi*. *Bull. Chicago Herpetol. Soc.* 8:7.
- Zarrow, M.X. and C.M. Pomerat. 1937. Respiration of the eggs and young of the Smooth Green Snake *Liopeltis vernalis* (Harlan). *Growth* 1:103–110.
- Zug, G.R. 1993. *Herpetology: An Introductory Biology of Amphibians and Reptiles*. Academic Press, Inc., San Diego, California.

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