

Catalogue of American Amphibians and Reptiles.

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Sceloporus slevini.

***Sceloporus slevini* Smith**
Slevin's Bunchgrass Lizard

Sceloporus scalaris: Baird 1859:6 (part).

Sceloporus scalaris slevini Smith 1937:3. Type locality, "Miller Peak, Huachuca Mountains, Cochise County, Arizona." Holotype, California Academy of Science (CAS) 48103, collected by J.R. Slevin, 7 July 1920 (examined by authors).

Sceloporus scalaris slevini: Kauffeld 1943:345. *Lapsus*.

Sceloporus slevini: Tanner 1987:400. First use of present combination.

Sceloporus slevini: Prival 2000:14. *Lapsus*.

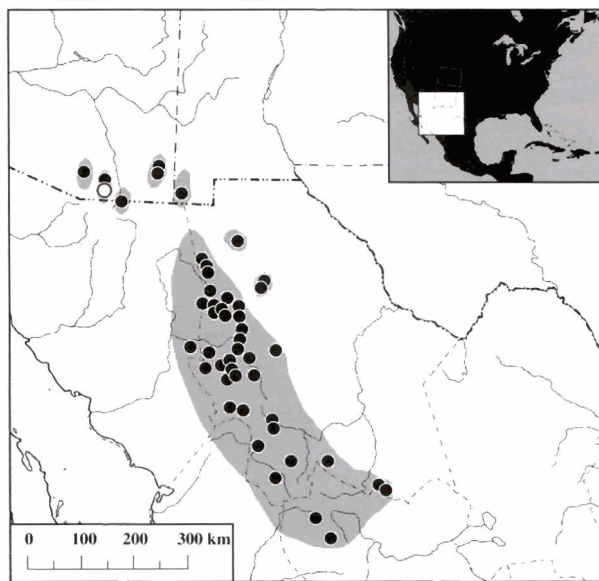
• **CONTENT.** No subspecies are currently recognized (Smith et al. 1996).

• **DEFINITION.** *Sceloporus slevini* is a member of the *scalaris* group, members of which have lateral scales in parallel, not oblique, rows and two postrostrals. Maximum snout-vent length is about 61 mm. Dorsal scales number 37–46 (\bar{x} = 41.5); scales around body 38–45 (\bar{x} = 41.1); ventral scales 35–45 (\bar{x} = 41); and femoral pores 12–18 (\bar{x} = 14.1), the two series in contact medially or separated by two or fewer scales. Scales of the second pair of postmentals are separated by small scales. One canthal is present. Head scales are rugose or keeled. Two complete rows of lorilabial scales are usually present below suboculars. Scales on posterior surfaces of thighs are granular. No post-femoral dermal pocket is present. The length of the tibia averages 82.1% that of head (snout to occiput). The tibia to snout-vent ratio is 72.7–93.7, but usually less than 90.

Dorsal ground color is brown or tan, typically with a series of crescent-shaped darker spots on either side of the midline. An indistinct dorsolateral light line extends from the sides of the head onto the thigh. A black spot on the shoulder surrounding a small blue spot is usually present. The gular region is not barred or mottled. The tail bears a continuous median dorsal dark brown or black line that covers two half scale rows (Anderson 1972). Males have an orange ventrolateral stripe bordered medially by a blue stripe, widely separated medially by a white, unmarked area; females lack those markings. In certain populations as many as 20% of individuals of both sexes are unicolor dorsally.

The species is oviparous, but egg-retaining.

• **DIAGNOSIS.** *Sceloporus slevini* is distinguished from other members of the superspecies *S. scalaris* as follows: from *S. chaneyi* (in parentheses) by presence of blue as well as red in abdominal semeions of adult males (red only), presence of a dorsally unicolor morph (absent), slightly larger maximum SVL, at 61 mm (54 mm), and perhaps a less frequent occurrence (38%, 30 in 86) of the rows of lorilabial scales reduced to one, with one or more single scales contacting both subocular and any supralabial on one or both sides (100% in 3); from *S. samcolemanni* in possession of red as well as blue in abdominal semeions of adult males (blue only), abdominal semeions not interrupted by transverse dark bars (interrupted), abdominal semeions widely (7–14 scales) separated from each other (narrowly, 1–5 scales), and presence of a dorsally unicolor morph (absent); and from *S. scalaris* in having one canthal (two except in *S. scalaris uni-canthalis*), red as well as blue in abdominal semeions of adult males (blue only), abdominal semeions not



MAP. Distribution of *Sceloporus slevini*: the circle marks the type locality and dots mark other known records.

interrupted by transverse dark bars (interrupted), abdominal semeions widely (7–14 scales) separated from each other (narrowly, 1–5 scales, except in *S. scalaris brownorum*), dark gular bars absent (present except in *S. s. brownorum*, in which they are weak or absent), and occurrence of the dorsally unicolor morph in both males and females (females only except in *S. s. unicanthalis*). Additionally, *S. slevini* differs from *S. scalaris unicanthalis* in always having the lateral and median frontonasals undivided and in contact (versus 16%, N = 45), and the second



FIGURE 1. Adult male *Sceloporus slevini* photographed in the wild at Barfoot Park, Arizona (photograph by Robin Andrews).



FIGURE 2. Ventral view of an adult male *Sceloporus slevini* photographed in the wild at Barfoot Park, Arizona (photograph by Robin Andrews).

postmentals separated (85%) by two scales (versus 18%, $N = 26$). *Sceloporus s. scalaris* frequently (71%, $N = 47$) has a higher number of internasals in a longitudinal row on each side between frontonasals and postrostrals (3–3 or 3–4, as opposed to 1–1, 1–2, 2–2, or 2–3) than does *S. slevini* (27%, $N = 26$). Other differences are not independently diagnostic.

• **DESCRIPTIONS.** Morphology was described by Behler and King (1979), Boulenger (1885, 1897), Cope (1875, 1885, 1887), Degenhardt et al. (1996), Günther (1890), Smith (1937, 1939, 1946), Smith and Brodie (1982), Smith and Hall (1974), Stebbins (1954, 1966, 1985, 2003), Tanner (1987), and Van Denburgh (1922a,b). Some skeletal morphology was described by Etheridge (1964). Karyotype and sex chromosome heteromorphism were presented by Cole (1978) and Sites et al. (1992). Hemoglobin concentration was presented by Newlin and Ballinger (1976). Guillette and Smith (1985) provided a key to the group. Reproduction and color were described by Smith et al. (1990).

• **ILLUSTRATIONS.** Color photographs are in Behler and King (1979), Degenhardt et al. (1996), and Williamson et al. (1994); black and white photographs are in Van Denburgh (1922b, from the type locality), Bock and Bock (2000), Smith (1946), and Smith and Hall (1974). Drawings are in Blair et al. (1957), Stebbins (1985, 2003), and Smith and Brodie (1982). Black and white photographs of the karyotype are in Cole (1978) and Sites et al. (1992).

• **DISTRIBUTION.** The general range of *S. slevini* extends from southeastern Arizona (Chiricahua, Dragoon, Huachuca, and Santa Rita mountains) and adjacent extreme southwestern New Mexico (Animas Mts.) southward through the mountains and valleys of western Chihuahua and eastern Sonora into northwestern Durango (Ojo de los Encinos, 2000 m; Providencia, ~2300 m; 29 km SW Tepehuanes, 2500 m). The species occurs, or has occurred, abundantly on high grassy plains such as those in the Animas Valley, Hidalgo County, New Mexico; Sonoita Plain, Santa Cruz County, Arizona (1400–1560 m), and near Yepómera, Chihuahua, but it is often regarded as a montane species reaching altitudes as great as 2896 m. Where cattle graze at the lower altitudes, the species is quickly exterminated for lack of bunchgrass cover. McCranie and Wilson (1987) regarded it as a member of the Pine-Oak Woodland assemblage. Some isolated populations may occur in suitable habitat below 1400 m (Bock et al. 1990). The species is usually associated with grass tufts, in which they take refuge, but other cover may suffice (Van Devender and Lowe 1977, Bock et al. 1990). In southeastern Arizona, southeast-facing slopes of 30–35° are favored, but relatively flat areas are occupied where grass is abundant (Dixon and Medica 1965, Newlin 1976).

• **FOSSIL RECORD.** None.

• **PERTINENT LITERATURE.** Literature pertaining to the species is listed by topic: **comprehensive works** (Smith 1937, 1939), **evolutionary relationships** (Andrews and Mathies 2000; Benabib et al. 1997; Mathies and Andrews 2000; Mink and Sites 1996; Perry and Garland 2002; Reeder and Wiens 1996; Sites et al. 1992; Wiens 1993, 1999, 2000; Wiens and Reeder (1997)), **sexual dimorphism** (Fitch 1978, 1981), **reproductive biology** (Anderson 1962; Andrews 1997; Andrews et al. 1997, 1999; DeMarco 1992; Duvall et al. 1982; Fitch 1970; Garcia and Ortega 1983; Guillette et al. 1980; Mathies and Andrews 1995, 1996; Mendez de la Cruz et al. 1998; Mink and Sites 1993; Newlin 1975, 1976; Ortega and Barbault 1986; Pilorge and Barbault 1981; Qualls and Andrews 1999; Shine 1985; Shine and Bull

1979; Smith 1975; Vitt (1977), **egg data** (Congdon et al. 1982, Cuellar 1984, DeMarco 1993, Fitch 1985, Lemos-Espinal et al. 1996, Ortega and Galina 1987, Ortega et al. 1987, Porter 1972, Tanner 1987, Vitt 1978), **general ecology** (Gloyd 1937, Porton 1977, Tanner 1987), **behavior** (Barbault et al. 1985; Carpenter 1967, 1978; Carpenter and Ferguson 1977; Gutiérrez and Ortega 1982, 1986; Ortega 1986; Ortega et al. 1984; Purdue and Carpenter 1972; Vitt and Congdon 1978), **population ecology** (Ballinger and Congdon 1981; Clobert et al. 1998; Ortega et al. 2000; Ortega and Alvarez 1987; Ortega et al. 1982; Ortega and Gutiérrez 1982, 1987), **life history variation** (Ballinger 1983), **cost of tail regeneration** (Ballinger and Tinkle 1979), **resource limitation of growth rates** (Ballinger and Congdon 1980, Ortega and Hernández 1983), **parasitology** (Bennett and Loomis 1981, Gambino and Heyneman 1960, Goldberg and Bursey 1992, Goldberg et al. 1996, Mahrt 1979), **thermal ecology** (Andrews 1998, Ballinger et al. 1998, G.R. Smith et al. 1993), **growth rings** (Ortega et al. 1996), **supercooling** (Lowe et al. 1971), and **karyotype** (Lowe et al. 1966).

Additional notes on or mention of the species in various contexts are found in Alvarez and Polaco (1983), Axtell (1978), Bernard and Brown (1977), Bogert and Oliver (1945), Cochran (1961), Collins (1990, 1997), Collins and Taggart (2002), Collins et al. (1978, 1982), Coues (1875), Crother (2000), Domínguez et al. (1974), Flores-Villela (1993), Flores-Villela et al. (1991), Gehlbach (1956, 1981), Kauffeld (1943), Kluge (1984), Lara-Góngora (1986), Lemos-Espinal et al. (2001, 2002), Leviton (1972), Liner (1994), Lowe (1956, 1964), Martín del Campo and Sánchez (1953), Morafka (1977), Morrison et al. (1995), Peters (1952), Petersen (1980), Powell et al. (1998), Ransom (1981), Savage (1949, 1959), Schmidt (1953), Slevin (1934), Smith (1987), Smith and Smith (1976), Smith and Taylor (1950a,b), Stejneger (1902), Stejneger and Barbour (1917, 1923, 1933, 1939, 1943), Van Denburgh (1896), Van Denburgh and Slevin (1913), Van Devender and Lowe (1977), Velasco (1893), and Yarrow (1883a,b).

• **REMARKS.** *Sceloporus slevini* and *S. aeneus* have a history of taxonomic controversy. Sites et al. (1992) summarize some of the opinions regarding the similarities between *S. slevini* and *S. aeneus*. Poglayen and Smith (1958) placed *S. slevini* within *S. aeneus*. The parity type of *S. aeneus* has been debated (Shine 1985, Shine and Bull 1979), but the uncertainty was based upon the failure to recognize the viviparous *S. bicanthalis* (formerly *S. a. bicanthalis*) as a species distinct from *S. aeneus*, which is oviparous (see Smith et al. 1993). Present distributional records and variational data indicate that the populations known as *S. scalaris* prior to 1996 form an Artenkreis (species complex) of four species (Smith et al. 1996).

Ballinger and Congdon (1996) discussed the decline of the species in the Chiricahua Mountains of southeastern Arizona and attributed it to cattle grazing practices. Additionally, Bock et al. (1990) detailed the effects of cattle grazing on the species. Smith et al. (1998) described recent decimation of low-elevation populations of the species due largely to drought, but facilitated by cattle grazing. Smith et al. (1998) also suggested that *S. slevini* is a species of concern in the U.S. and should be monitored closely over the next several years.

• **ETYMOLOGY.** The name *slevini* honors Joseph Richard Slevin who collected the specimens Smith (1937, 1939) later described, and who formerly was Curator of Herpetology at the California Academy of Sciences.

• **COMMENT.** *Sceloporus slevini* often is confused with *S. virgatus*; Smith (1946) cautioned that many anecdotal observations of the species in the field may be of misidentified animals.

• **ACKNOWLEDGMENTS.** We are much indebted to E.A. Limer for recent bibliographic references and for locality data for the specimens of *Sceloporus scalaris* in his excellent personal collection (now at AMNH). We are grateful to R.M. Andrews for providing photographs of the species in the wild.

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