Herpetological
Review
Volume 48, Number 4 – December 2017

(Bar and Haimovitch, *op. cit.*; Disi et al. 2001. Amphibians and Reptiles of the Hashemite Kingdom of Jordan, An Atlas and Field Guide. Edition Chimaira, Franfurt am Main. 408 pp.). In this note we add additional information on the reproductive biology of *P. puiseuxi*, including sizes at maturity from a histological examination of gonadal material from museum specimens.

A sample of 29 *P. puiseuxi* consisting of 14 adult males (mean SVL = 67.1 mm ± 8.8 SD, range = 53–83 mm) 10 adult females (mean SVL = 66.0 mm ± 4.6 SD, range = 60–75 mm), and five juveniles (mean SVL = 40.8 mm ± 1.9 SD, range = 39–44 mm) collected between 1953 and 2012 from Israel was examined from the Steinhardt Museum of Natural History (TAUM) University of Tel Aviv, Israel. The following *P. puiseuxi* were examined by District: HaGolan: 7526, 11660, 12964, 12965; Hermon Mountain: 7117, 9926, 9935, 9937, 12507, 12803, 16205; Jordan Valley: 1187, 1188, 1190, 16173, 16508; Lower Galil: 1181; Shomeron: 12683; Upper Galil: 494, 496, 497, 501, 1517, 4892, 7829, 13426, 13619–3621. For histological examination, the left gonad was removed to examine for yolk deposition or corpora lutea in females and to identify the stage of the testicular cycle in males. Counts were made of oviductal eggs. Tissues were embedded in paraffin, sectioned at 5 µm, and stained with hematoxylin followed by eosin counterstain. Histology slides were deposited at TAUM.

Three stages were noted in the testicular cycle (Table 1): 1) Late recrudescence, in which numerous spermatids of which a few were metamophosing, but no sperm were observed. In early recrudescence, there is a proliferation of spermatogonia and spermatocytes for the next period of spermiogenesis; 2) Spermiogenesis (sperm formation) in which lumina of the seminiferous tubules are lined by sperm or clusters of metanmorphosing spermatids; 3) Late spermiogenesis in which the germinal epithelium is reduced to a few layers of cells, sperm formation is coming to a close. The smallest mature male (TAUM 11660) measured 53 mm SVL, was undergoing spermiogenesis and was from April.

Table 1. Monthly stages in the testis cycle of 14 adult male *Ptyodactylus puiseuxi* from Israel. *Only the sperm-filled epididymis was present in TAUM 7829.

Month	N	Late recrudescence	Spermiogenesis	Late spermiogenesis
March	2	1	1	0
April	3	0	3	0
May	6	0	6*	0
June	1	0	1	0
July	2	0	0	2

Table 2. Monthly stages in the ovarian cycle of 10 adult female *Ptyodactylus puiseuxi* from Israel.

Month	N	Quiescent	Oviductal eggs
April	2	1	1
May	1	1	0
June	1	0	1
July	4	2	2
October	1	1	0
November	1	1	0

Two stages were present in the ovarian cycle (Table 2): 1) (quiescent), no yolk deposition; 2) oviductal eggs. Females contained oviductal eggs in spring and summer (Table 2). The mean clutch size (N = 4) was 1.8 ± 0.5 SD, (range = 1–2). The smallest mature female (TAUM 1188) measured 60 mm SVL, contained one oviductal egg and was from July.

The presence of two July males in late spermiogenesis likely reflects the breeding period is nearly over. In contrast, the congener *P. guttatus* from Israel (Goldberg 2011. Herpetol. Rev. 42:433) exhibited spermiogenesis in October and November and one clutch (two eggs) in October. Examination of *P. puiseuxi* gonads from autumn is warranted to ascertain whether *P. puiseuxi* also exhibits autumn reproduction.

We thank Shai Meiri (TAUM) for permission to examine *P. puiseuxi* and THE Steinhardt Museum of Natural History at Tel-Aviv University for providing the *P. puiseuxi* to study.

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***SCELOPORUS BULLERI* (Buller's Spiny Lizard). REPRODUCTION.** *Sceloporus bulleri* is a conspicuous diurnal species inhabiting boreal-tropical forests and tropical deciduous forests in the Sierra Madre Occidental of western Mexico, from southern Sinaloa and southwestern Durango to the highlands of Jalisco (Webb 1967. Copeia 1967:202–213). This species can be observed on large boulders, steep-sided rock walls, logs, and upright deciduous or pine trees (Webb 1967, *op. cit.*). Currently, the conservation status of *S. bulleri* is listed as Least Concern by the International Union for Conservation of Nature (Frost et al. 2007. The IUCN Red List of Threatened Species 2007:e.T64090A12736680). Although the distribution of *S. bulleri* is well known and it is an abundant species in mountainous habitats (Webb 1967, *op. cit.*; Frost et al. 2007, *op. cit.*), a number of aspects of its life history are unknown. Herein, we provide data on reproductive biology of females and males, clutch size, and egg attributes of *S. bulleri* in a tropical deciduous forest.

We conducted diurnal surveys during November 2015 to collect *S. bulleri* from San Sebastián del Oeste, in the state of Jalisco, Mexico (20.76167°N, 104.08667°W, WGS 84; 1480 m elev.). Vegetation adjacent to San Sebastián del Oeste is dominated by pines (*Pinus* sp.), oaks (*Quercus* sp.), and some patches of cloud forest. Climate of the area is temperate, with the rainy season between June and October (Dueñas et al. 2006. Ibugana: Bol. Inst. Bot. 14:51–91). In the town of San Sebastían, we collected three males and three females killed by local people. Lizards were transported to the laboratory. A cut was made in the abdominal cavity to observe enlarged follicles or oviductal eggs in females; for males, we assumed sexual maturity by the enlarged testes (Goldberg 1971. Herpetologica 27:123–131; Guillette and Casas-Andreu 1980. J. Herpetol. 14:143–147). We measured three standard morphological variables: snout–vent length (SVL), dorsal–cranial length (CL), and cranial width (CW). We measured length and width of left and right testes, and we also measured length of oviductal eggs. All measurements were taken with a digital caliper (scale 150 mm, precision 0.1 mm).

Morphological data of females and males are shown in Table 1. The number of oviductal eggs ranged from six to eight. The size of oviductal eggs was 6.8 ± 0.5 mm (SVL 90.2 mm; N = 6 eggs), 9.7 ± 0.5 mm (SVL 93.8 mm; N = 6 eggs), and 10.2 ± 0.3 mm (SVL 96.8, N = 8 eggs). The mean length and width of left testes was

Table 1. Morphological variables (mean ± SD mm; range), for male and female *Sceloporus bulleri*.

Variable	Females	Males
Snout–vent length	93.6 ± 3.3 (90.2–96.8)	80.4 ± 13.7 (76.9–95.5)
Head length	19.6 ± 1.4 (18.0–20.8)	19.2 ± 3.8 (15.7–18.7)
Head width	18.2 ± 0.4 (17.8–18.5)	17.6 ± 4.5 (13.1–22.1)

8.1 ± 2.2 mm and 5.7 ± 2.0 mm, respectively, whereas the mean length and width of right testes was 8.2 ± 2.7 mm and 6.2 ± 2.3 mm, respectively.

Our observations suggest that the reproductive activity of *S. bulleri* is similar to other species of the *torquatus* group, which occurs from autumn to spring (Ramírez-Bautista and Dávila-Ulloa 2009. Southwest. Nat. 54:400–408). However, our data are insufficient to determine whether there is asynchrony between the sexes, as occurs in other montane lizard species (Feria-Ortíz et al. 2001. J. Herpetol. 35:104–112; Gadsden et al. 2005. Acta Zool. Mex. [n.s.] 21:93–107). The number of oviductal eggs is within the range reported for other viviparous species of the *torquatus* group (see Ramírez-Bautista and Dávila-Ulloa 2009, *op. cit.*). Our observations, to our knowledge, are the first data on reproductive biology of *S. bulleri*. Further studies are needed of additional specimens to understand the reproductive cycles and characteristics in this lizard.

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***SCELOPORUS OLIVACEUS* (Texas Spiny Lizard). RECORD CLUTCH SIZE, NESTING, INCUBATION, AND HATCHLINGS.** At 1830 h on 6 May 2014, on a sunny day when the high temperature was 30.6°C and low was 17.8°C, while passing the Environmental Science Building at University of North Texas, Denton, Texas, USA (33.21376°N, 97.15123°W), I observed a *Sceloporus olivaceus* in a hole in a landscaped area to the south of the building. I slowly approached on foot to a distance of two meters, and captured a photograph of the wary lizard (Fig. 1A). I inadvertently disturbed the lizard, and she fled from the burrow into a nearby tree. I approached the burrow to find she had been nesting and had laid several eggs. I did not further disturb the nest site at this time.

I returned to the location at 1940 h to find that the lizard had not returned to the burrow, but had remained in the nearby tree, and continued to lay her eggs in a split in the tree, approximately 0.5 m above the ground. She was still laying eggs when I returned, but many of the eggs were falling to the ground. Although they did not break, they were soft, exposed, and some were showing signs of desiccation (i.e. dimpling). I retrieved vermiculite and a Gladware container with an interlocking lid (and small air holes in the lid to allow ventilation), and returned by 2010 h. The female had completed laying and watched from the tree as I collected the eggs from the surface of the ground, from the crevice, and from the burrow.

The nest site was alongside a stump with stones embedded at the base, in an area with loose soil and mulch. This nest cavity had been excavated to 8–9 cm in depth and 6–7 cm wide at the entrance. The location is exposed to the sun for several hours during late morning and early afternoon, with trees and planted bushes immediately surrounding it on its north side, shading it for part of the day.

The lizard remained in the area for several weeks, appearing gravid once more approximately a month after the observed reproductive episode. *Sceloporus olivaceus* are previously known to lay multiple clutches of eggs per year, with females two or more years of age producing an average of 3–4 clutches per year (Blair 1960. The Rusty Lizard. University of Texas Press, Austin, Texas. 185 pp.). The female was captured, measured with calipers, and released (SVL = 11.5 cm; total length = 27.1 cm); she was relatively large, but did not represent the record for *S. olivaceus*; Smith (1939. Field Mus. Nat. Hist., Zool. Ser. 26:1–397) reported a maximum SVL of 12.1 cm in *S. olivaceus*, and McCoid and Hensley (1996. Herpetol. Rev. 27:21) reported a maximum total length of 29.9 cm.

Although the female was not directly observed laying each egg, it is reasonable to assume that the eggs around the tree and those already in the nest cavity all belonged to this female and the same nesting event. *Sceloporus olivaceus* are not known to nest communally, and no additional females were observed in the vicinity, the eggs appeared freshly deposited at the time when they were found, and all of the eggs hatched nearly simultaneously. Eighteen eggs were recovered from the nest cavity, and an additional 16 were recovered from the ground beside the tree or from the split in the tree; hence, 34 eggs where recovered. The average number of eggs per clutch varies with age in *S. olivaceus*; one-year olds average 11.3 eggs per clutch, two-year olds average 18.4 eggs per clutch, and females three plus years of age average 24.5 eggs per clutch (Blair, *op. cit.*). Whereas fecundity may decrease with age, the largest clutches are known from females three or more years of age, in which the maximum clutch size reported by Blair (*op. cit.*) was 30 eggs.

I collected the eggs and buried them halfway in vermiculite mixed with water at a 2:3 ratio of water:vermiculite, by mass (Fig. 1B), with water replenished to the original mass every 4–5 days. The eggs were incubated at 28.0–30.0°C. The eggs measured approximately 8–11 mm at the time of collection, although some may have been partially desiccated. When I first set the eggs to incubate, I candled a few eggs; no blood vessels were visible. By day 10, one egg had discolored and collapsed, and it was removed and discarded. By day 15, another egg had done the same and it was removed, and by day 40, a third. The three eggs that did not survive to hatching were all among the first 18 laid that were recovered from the nest cavity, and they were likely exposed for the longest period of time before collection; these three eggs may have been negatively affected by exposure to the conditions at the time of laying, perhaps dying from desiccation during the first two hours post laying. In undisturbed (i.e., neither collected, nor predated) *S. olivaceus* nests, 2.4–13.4% of eggs, and primarily those eggs located higher in the nest cavity, fail to hatch, apparently due to desiccation (Blair, *op. cit.*). Further, nest failure, wherein all eggs in a clutch fail to survive to hatching occurs in 75–78% of *S. olivaceus* nests; predation plays a major role in this mortality, but desiccation is also a potential cause for mortality in disturbed nests (Blair, *op. cit.*).