

Observations of Amplexus and Oviposition in *Ollotis* [*Bufo*] *occidentalis* in the Río Salado, Puebla, Mexico

Geoffrey R. Smith¹ and Julio A. Lemos-Espinal²

¹Department of Biology, Denison University, Granville, OH 43023, USA (smithg@denison.edu)

²Laboratorio de Ecología, Unidad de Biología, Tecnología y Prototipos (FES-Iztacala, UNAM), Av. de los Barrios S/N, Los Reyes Iztacala, Tlalnepantla, Estado de México, México 54090

The Río Salado runs through El Valle de Zapotitlán Salinas in southeastern Puebla, Mexico. Pools along the Río Salado are seasonal, forming during the dry season as the water level in the Río Salado falls. During a monthly survey of a section of the Río Salado for tadpoles (Woolrich-Peña et al., unpubl. data), we observed an amplexant pair of *Ollotis* [*Bufo*] *occidentalis* and their egg mass. The only previously published reports on reproduction in *O. occidentalis* are an observation by Duellman (1961) of tadpoles collected on “May 3 in a quiet section of a fast stream near Barranca Seca” in Michoacán, Mexico, and an observation of an amplexant pair in

El Valle de Zapotitlán Salinas on 27 October 1998 that produced an egg mass with >10,000 eggs (Oliver-Lopez et al. 2000).

We observed the amplexant pair on 24 November 2007 at 0745 h. Indications that it had rained the previous night were abundant. The egg mass was deposited in a shallow pool along the main channel of the river. The depth of the water was 2 cm. The conductivity of the water was 1,966 mS cm⁻¹, the salinity was 1.2 ppt, the dissolved oxygen content was 6.49 mg L⁻¹, and the temperature was 17.0 °C (measured using a YSI Model 85 Handheld DO/conductivity meter). A survey of several other pools along a



JULIO A. LEMOS-ESPINAL

Amplexant pair of *Ollotis* [*Bufo*] *occidentalis* and egg mass in a pool along the Río Salado in Puebla, Mexico on 24 November 2007. Note the shallowness of the water.

2-km section of the river revealed no other egg masses, amplexant toads, or any other adult toads, although we encountered several tadpoles of varying sizes throughout this section of the river.

Our observation suggests that, in the Río Salado, these toads lay their eggs in relatively shallow pools. During the period when tadpoles are present in the Río Salado (November–February), pools remain relatively shallow; however, tadpoles are more frequently found in deeper and larger pools, and are found only in pools along the main channel of the Río Salado (Woolrich-Piña et al., unpubl. data). Given the relatively shallow nature of the pool in which we observed the amplexant pair, choices of oviposition sites by the adults might be limited beyond laying eggs in the main channel of the river, and tadpoles likely move among pools until the river dries thereby isolating many of the pools. However, further study that more systematically examines the oviposition site selection of these toads would be informative and might provide valuable information to guide any assessment of conservation or management plans of the Río Salado, which is potentially affected by human-alterations, including the use of water from the river for the production of salt in “salineras.”

Acknowledgements

This research was supported by funds from the Dirección General de Asuntos de Personal Académico through project PAPIIT-IN221707, “Factores que determinan la distribución de los anfibios en las pozas asociadas al Río Salado, Puebla, México”; and by the Facultad de Estudios Superiores Iztacala through the Programa de Apoyo a los Profesores de Carrera (PAPCA) 2007–2008 for the project “Caracterización de las pozas asociadas al Río Salado (Puebla) y su influencia en la distribución de los anfibios: aspectos ecológicos y geográficos.” The research was approved by the Denison University Institutional Animal Care and Use Committee (Protocol 07-004).

Literature Cited

- Duellman, W.E. 1961. The amphibians and reptiles of Michoacán, México. *University of Kansas Publications, Museum of Natural History* 15:1–148.
- Oliver-Lopez, L., A. Ramirez-Bautista, and J.A. Lemos-Espinal. 2000. *Bufo occidentalis*. Fecundity. *Herpetological Review* 31:39–40.

Discovery of *Goniurosaurus* Geckos (Squamata: Eublepharidae) in Northwestern Guangdong, China

Zu-Sheng Yi¹, Zhen-Chang Li², Wei-Liang Wen³, Mian Hou⁴, Wen-Hua Lu⁵, and James Lazell⁵

¹College of Life Sciences, Guangzhou University, Panyu, Guangdong 510006, China

²College of Life Sciences, South China Normal University, Guangzhou, Guangdong 510063, China

³Forestry Bureau of Qingyuan Prefecture, Guangdong 511500, China

⁴Center for Chinese Endemic Herp-Breeding and Conservation Research, Shenyang Normal University, Liaoning 110034, China

⁵The Conservation Agency, Jamestown, Rhode Island 02835, USA

Photographs by Mian Hou, except where indicated otherwise.

Leopard Geckos of the genus *Goniurosaurus* (Squamata: Eublepharidae) typically inhabit caves and cliffs in forested areas in the Ryu-Kyu Archipelago of Japan and southeastern Asia (Blair et al. 2009). Ten to twelve species have been described, most recently *G. catbaensis* (Ziegler et al. 2008) and *G. huuliensis* (Orlov et al. 2008), both from northern Vietnam.

In China, the first Leopard Gecko was reported from Hainan Island in 1908 as *G. “lichtenfelderi”* (Zhao and Adler 1993). This insular form was previously thought to be a Vietnamese species but is now separated as *G. hainanensis* (Grismer et al. 2002, Blair et al. 2009). *Goniurosaurus lichtenfelderi* is confined to granitic substrates in northwestern Vietnam and

Table 1. Comparison of *Goniurosaurus* indet. with species of the *G. luii* group (*G. araneus*, *G. bawanglingensis*, *G. catbaensis*, *G. huuliensis*, and *G. luii*) on scale counts and morphometric characters in mm (from our data, Grismer et al. 1999, Orlov et al. 2008). SL = supralabials; IL = infralabials; PM = postmentals; PO = preorbitals; EF = eyelid fringe scales; PVT = paravertebral tubercles between limb insertions; BS = scales around midbody; GST = granular scales surrounding dorsal tubercles; LT4 = basal and distal subdigital lamellae under fourth toe (hind limb); PP = precloacal pores, SVL = snout vent length; HL = head length from snout to posterior of external ear; HW = head width at the widest area of head.

| | SL | IL | PM | PO | EF | PVT | BS | GST | LT4 | PP | SVL | HL | HW |
|---------------------------|-------|------|-----|-------|-------|-------|---------|-------|-------|-------|---------|-------|-------|
| <i>G. indet. (male)</i> | 8 | 7 | 2 | 16 | 50–51 | 34 | 106 | 9–10 | 17–21 | 12 | 80 | 23 | 14 |
| <i>G. indet. (female)</i> | 8 | 7–8 | 4 | 14–16 | 51–55 | 33 | 107 | 10–11 | 17–21 | — | 86 | 23 | 15 |
| <i>G. araneus</i> | 8–11 | 8–10 | 4–6 | 13–18 | 61–69 | 32–38 | 129–149 | 10–14 | 23–24 | 18–23 | 111–130 | 30–33 | 19–25 |
| <i>G. bawanglingensis</i> | 8–10 | 7–11 | 2–3 | 12–18 | 56–67 | 32–36 | 104–133 | 9–13 | 18–22 | 37–46 | 104 | — | — |
| <i>G. catbaensis</i> | 8–9 | 6–8 | 2–3 | — | 52–56 | 33–34 | 112–127 | 8–11 | 22–24 | 16–21 | 84–113 | 23–32 | 16–23 |
| <i>G. huuliensis</i> | 10–11 | 9–11 | 2–3 | — | 41–44 | 34–36 | 118–129 | 12–13 | 18–20 | 25–28 | 108–117 | 29–33 | 18–23 |
| <i>G. luii</i> | 9–12 | 8–11 | 2–6 | 14–17 | 52–63 | 33–35 | 119–148 | 9–14 | 20–24 | 21–29 | 106–120 | 30–33 | 19–23 |