



FIG. 2. Male *Craugastor augusti cactorum* (western barking frog) calling from within a rock fissure.



FIG. 3. Female (front) and male *Craugastor augusti cactorum* in a rock fissure.

Arizona mountain ranges. Due in large part to their highly secretive nature, the behavior and life history of Arizona *C. a. cactorum* are poorly understood.

On 12 July 2017 at 2131 h, at 1400 m elev. in an undisclosed mountain range in Santa Cruz County, Arizona, USA, we observed an adult female *C. a. cactorum* active in light rain. We encountered the frog moving across open terrain on an oak dominated, Madrean evergreen woodland slope (Fig. 1). We observed this individual travel ca. 75 m to a rock outcrop, where a male *C. a. cactorum* was calling from within a fissure (Fig. 2). The female entered the fissure and remained near the male for ca. 10 min (Fig. 3). Degenhardt et al. (1996. *Amphibians and Reptiles of New Mexico*. University of New Mexico Press, Albuquerque, New Mexico. 431 pp.) suggest the possibility of a complex mating ritual in *C. augusti*, of which this could be a facet.

Goldberg and Schwalbe (2004, *op. cit.*) report high site fidelity for *C. a. cactorum* in the Huachuca Mountains and found that of 36 frogs monitored during the calling season, none moved between outcrops. They proposed juvenile dispersal as the primary mechanism for exchange of genetic material between sub-populations. Our observation confirms that female *C. a. cactorum* travel to calling males on nearby outcrops and suggests that the movements of adult frogs may also contribute to gene flow between sub-populations.

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***DUTTAPHRYNUS STOMATICUS* (Indian Marbled Toad) and *EUBLEPHARIS MACULARIUS* (Common Leopard Gecko). AB-NORMAL AMPLEXUS.** Plenty of records of abnormal amplexus of anurans are reported each year across the world. There are reports of multiple amplexus, amplexus from the abdominal side of the body, between live males and dead females, amplexus between males, or intraspecific amplexus (Mollov et al. 2010. *Biharean Biol.* 4:121–125). There are also records of amplexus between different families or even orders of amphibians (Simovi et al. 2014. *Herp. Notes.* 7:25–29; Maát and Jablonski 2018. *Herpetozoa* 30:222–223; Maát et al. 2019. *North-West. J. Zool.* 15:112–113).

On 13 July 2016, at 2152 h a male *Duttaphrynus stomaticus* (Bufonidae) was observed engaged in inguinal amplexus with an adult female *Eublepharis macularius* (Reptilia: Eublepharidae; Fig. 1). This observation occurred in the dry stream near the village of Shah Alam Baba, Lower Dir district, Pakistan (34.7321°N, 72.0760°E; WGS 84; 870 m elev.). The *D. stomaticus* embraced the *E. macularius* while it was moving. This was observed for more than five minutes and then both individuals separated. The *D. stomaticus* repeatedly tried to firmly grasp the *E. macularius* while it was trying to escape.

Male anurans are very active during the reproductive season and are known to amplex a variety of species or even inanimate objects. Similar to our observation amplexus between anurans and caudatans are possible (Simovi et al. 2014, *op. cit.*; Maát and Jablonski 2018, *op. cit.*; Maát et al. 2019, *op. cit.*) since they often reproduce in similar habitats during the same time of the year. On the other hand, lizards are rarely in contact with amphibians since they use different habitats for reproduction and other activities. Here, the male *D. stomaticus* probably encountered the *E. macularius* as it migrated to its breeding site.



FIG. 1. Amplexus between a male *Duttaphrynus stomaticus* and a female *Eublepharis macularius* observed in Pakistan.

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**ELEUTHERODACTYLUS COQUI (Common Coqui). DIET.** *Eleutherodactylus coqui* is a tree frog with a wide distribution throughout the island of Puerto Rico, occurring from sea level to the island's highest peaks (1189 m elev.). In the highlands of Puerto Rico, *E. coqui* is sympatric with *Eleutherodactylus portoricensis* (Mountain Coqui; Joglar 1998. Los Coquíes de Puerto Rico: su Historia Natural y Conservación. Editorial de la Universidad de Puerto Rico, San Juan, Puerto Rico. 232 pp.). Here, we report evidence of a female *E. coqui* attempting to ingest a male *E. portoricensis*. On 19 July 2020, our research group witnessed this event while monitoring our study sites in the cloud forests of El Yunque National Forest (18.302828°N, 65.795106°W; WGS 84; 900 m elev.).

The female *E. coqui* (5.45 cm SVL) was gravid (right oviduct). The *E. coqui* was perched low (< 1 m above ground) on a young *Prestoea montana* (Sierra Palm) frond, with the male *E. portoricensis* (ca. 3.5 cm SVL) positioned upside down, with the base of its hind legs and cloacal region in the *E. coqui*'s mouth (Fig. 1). The male *E. portoricensis* was alive while the female *E. coqui* tried to ingest it and tried to escape on various occasions. The interaction lasted ca. 3 h, with the observation beginning at 2000 h and ending at 2300 h. The female *E. coqui* gulped on two occasions and unintentionally released the male *E. portoricensis*. An interesting detail of this interaction is that very close by, we observed three gravid female *E. portoricensis* (4.13, 3.8, and 4.01 cm SVL, respectively). It is possible that the male *E. portoricensis* was calling to attract females when it was ambushed by the female *E. coqui*.

There is evidence that *E. coqui* is able to ingest any type of prey that fits in its mouth. On occasion they have been reported to ingest prey much larger in body size than their own. There is a report of a female *E. coqui* (4.3 cm SVL) ingesting an *Anolis evermanni* (Emerald Anole; 3.4 cm SVL; Leal and Thomas 1992. Herpetol. Rev. 23:79–80). On one occasion our research group observed a female *E. coqui* (4.2 cm SVL) ingest a conspecific male (2.9 cm SVL). We have also observed other *E. coqui* females

ingesting other prey of great size: *Epilobocera sinuatrifrons* (Land Crab) and *Caracolus* sp. (land snails; Joglar 1998, *op. cit.*). This report is further evidence of the varied diet of *E. coqui*, particularly that of gravid females. Furthermore, it is the first report of attempted predation of *E. portoricensis* by *E. coqui*.

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**GASTROPHRYNE OLIVACEA (Western Narrow-mouthed Toad). HABITAT.** *Gastrophryne olivacea* is a widespread frog species ranging from the Great Plains region of western Missouri, USA west through Colorado and south to Tamaulipas and San Luis Potosí, Mexico (Dodd 2013. Frogs of the United States and Canada, Volume 1. The John Hopkins University Press, Baltimore, Maryland. 460 pp.). *Gastrophryne olivacea* is a small fossorial frog species commonly associated with semi-arid/arid lowlands, grasslands, marshy habitats, and open rocky wooded hills (Powell et al., 2016. Field Guide to Amphibians and Reptiles of Eastern and Central North America. Houghton Mifflin Harcourt Publishing Company, Boston, Massachusetts. 494 pp.) at elevations below 1525 m; thus, it is considered a lowland frog species. However, Dodd (2013, *op. cit.*) noted that *G. olivacea* is not particularly restricted in habitat utilization.

At 1503 h on 8 September 2018, I found a *G. olivacea* underneath a rock near the summit of Mount Locke, Jeff Davis County, Texas, USA (30.67158°N, 104.02308°W; WGS 84; 2066 m elev.). This is a new habitat type and elevation record (2066 m) for *G. olivacea*. The habitat type for this area is the Chihuahuan Montane Woodlands of the Davis Mountains, in the pinyon-juniper-oak association (Powell 1998. Trees and Shrubs of the Trans-Pecos and Adjacent Areas. University of Texas Press, Austin, Texas. 498 pp.). This locality exceeds the previously recorded elevations by 541 m (Dodd 2013, *op. cit.*). This habitat occurs between 1675–2285 m elev. and includes *Pinus cembroides* (Mexican Pinyon Pine) and *Juniperus deppeana* (Alligator Juniper) as the dominant tree types, interspersed with *Quercus hypoleucoides* (Silverleaf Oak), *Quercus grisea* (Gray Oak), and *Quercus emoryi* (Emory Oak), with various grass species filling in the understory and open areas. The pinyon-juniper-oak association creates relatively open grassy woodlands on south and west facing slopes while north and east facing slopes, as well as valleys, support more densely grown woodlands (Powell and Worthington 2018. Flowering Plants of Trans-Pecos Texas and Adjacent Areas. Botanical Research Institute of Texas, Fort Worth, Texas. 1444 pp.).

High elevation Montane Woodlands at 2066 m is a novel habitat for *G. olivacea*. The 1700–2500 m Sierra Madre Occidental was reported as a substantial biogeographical barrier preventing gene flow to the *G. olivacea* clade in Arizona leading to speciation of *G. mazatlanensis* (Streicher et al. 2012. Mol. Phylogenet. and Evol. 64:645–653). The detection of *G. olivacea* at 2066 m suggests gene flow between *G. olivacea* and the western species *G. mazatlanensis* may not be entirely prohibited by the Sierra Madre Occidental.

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FIG. 1. Gravid female *Eleutherodactylus coqui* (left) attempting to ingest a male *Eleutherodactylus portoricensis* (right).

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