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**PEDOSTIBES TUBERCULOSUS** (Malabar Tree Toad) **ADVERTISEMENT CALL AND DISTRIBUTION.** Advertisement call patterns of anurans provide insights into speciation, territoriality, evolution, and phylogeny as these patterns reveal the species identification and motivation to mate (Bridges and Dorcas 2000. *Copeia* 2000:587-592; Emerson 2001. *In* Ryan [ed.], *Anuran Communication*, pp. 36-43. Smithsonian Inst. Press, Washington, D.C.) Anuran acoustics have been studied for 20 of the 113 species known from Western Ghats (Gururaja 2004. *Sahyadri Mandooka: Amphibians of Western Ghats*; Kadadevaru and Kanamadi 2001. *Curr. Sci.* 80:1486-1487; Kuramoto and Joshy 2001. *Curr. Herpetol.* 20:85-95). Herein we report on advertisement call, explosive breeding behavior, and distribution of *Pedostibes tuberculatus*, endemic to Western Ghats.

*Pedostibes tuberculatus* is a medium-sized tree toad (mean SVL  $\pm$  SE: 37.18  $\pm$  0.44 mm; range: 36-38 mm; all male, N = 4, Fig. 1). Individuals have a distinct sub-gular vocal sac. Calls of four individuals (ca. 13 m above ground) were recorded at 15-minute in-

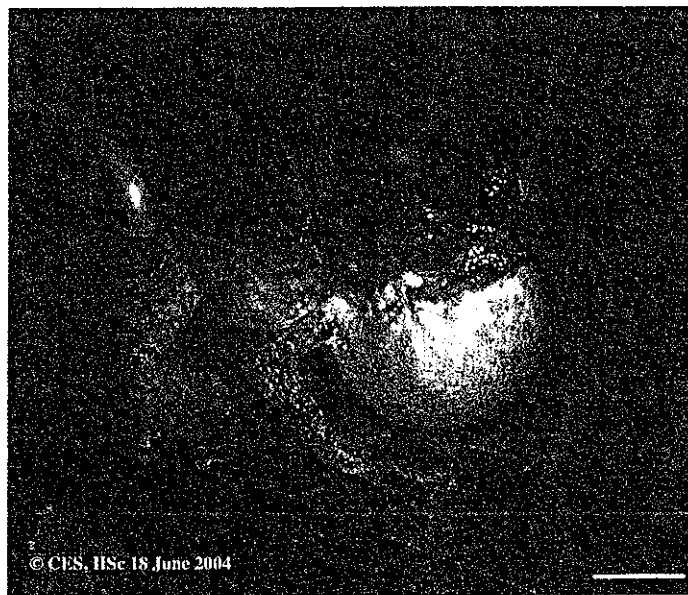


FIG 1 *Pedostibes tuberculatus* (male 38 mm SVL) at Jakkanagadde, Shimoga, Karnataka. Scale bar: 10 mm.

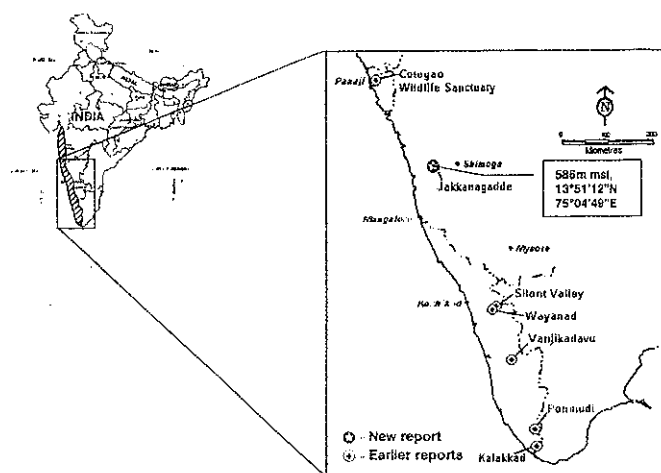


FIG 2 Reported sightings of *Pedostibes tuberculatus* in Western Ghats.

tervals using an Olympus digital voice recorder W-10 as Differential Pulse Code Modulation at 15.5 kHz. Calls were recorded less than 30 cm from the specimen amidst evergreen-semi-evergreen forest (RH 97%, 23.6°C) adjacent to a small perennial stream (marked in Fig. 2).

Calls were single and chorus, and antiphonal, heard for a month with the onset of southwest monsoon (June 2004). Chorus calls were synchronous, starting with an individual's initiation. Single calls of *P. tuberculatus* were analyzed as per Littlejohn (2001. *In* Ryan [ed.], *Anuran Communication*, pp. 102-120. Smithsonian Inst. Press, Washington, D.C.) Each call lasted for 3-7 sec, and had 14-37 pulse groups (PG) of 3-11 pulses with the domination of 4-8 PG, of which PG 1-2 (N = 16) had a larger period (145.63  $\pm$  21.72 ms) and interval (117.69  $\pm$  22.09 ms) in the entire call series. Pulse frequency was 12.87-44.67 (34.82  $\pm$  3.83). PG period was 61-134 ms. Amplitudes of the first and last pulses of the first and last pulse groups were low compared to others. Dominant frequency was 3782.13  $\pm$  30.58 Hz. Pulse groups sounded like *Shchirrrrrr shirrrr shirr shirrr shirr*.

Call structure of *P. tuberculatus* varies considerably from other bufonids in Western Ghats (Kanamadi et al. 1995. *J. Adv. Zool.* 16:5-11). Mean pulse rate of *Bufo melanostictus* was twice that of *P. tuberculatus*. However, similarity was noticed between the pulse rate of *B. fergusonii* and *P. tuberculatus*. The dominant frequency in *B. melanostictus* was 1450 Hz, in *B. fergusonii* it was 3175 Hz, and in *P. tuberculatus* 3782 Hz. Synchronous calls in *B. americanus*, *B. bombina*, *B. variegata*, *B. melanostictus*, and *B. fergusonii* are attributed to explosive breeding behavior (Duellman and Trueb 1986. *The Biology of Amphibians*. McGraw-Hill Book Inc., New York, 670 pp.; Kanamadi et al. 1995, *op. cit.*). The same can be implied for *P. tuberculatus* which has a similar call pattern. Even though its presence was predicted (Biju 2001. *Indian Soc. Cons. Biol.* 1:1-24; Das and Whitaker 1998. *Herpetol. Rev.* 29:173), there are no earlier reports of *P. tuberculatus* from Karnataka spanning over 400 km of Western Ghats (earlier reports are marked in Fig. 2). The new location is ca. 333 km N of Silent Valley (nearest southern range) and 222 km S of Cotegao Wildlife Sanctuary (nearest northern range).

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**PRHYNOHYAS VENULOSA** (Rana Lechera) **LARVAL CANNIBALISM**. During the nights of 23 May and 4 June 2004, in a permanent pond in the Sierra de Perijá, Zulia state, Venezuela, we found several dead *Phrynohyas venulosa* tadpoles (Stage 39, Gosner 1960 *Herpetologica* 16:183-190) being consumed by many conspecific tadpoles of similar size. Larval cannibalism in hylid frogs has been previously reported for *Hyla rosenbergi* (Kluge 1981 *Misc. Publ. Mus. Zool. Univ. Michigan* 160:1-170) and *H. faber* (Sèrigo and Assêncio 1999 *Herpetol. Rev.* 30:162), and conspecific egg predation by tadpoles in *P. resinificatrix* (Schiesari et al. 2003 *Copeia* 2003:263-272). Although the natural history of *P. venulosa* has been studied (Zweifel 1964 *Copeia* 1964:201-208), cannibalism has not been recorded. This is the first report of cannibalism in *P. venulosa* tadpoles. Some tadpoles were reared through metamorphosis to assure the identity of the material; these were deposited in the Museo de Biología de la Universidad del Zulia (MBLUZ-A-0222).

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**RANA CASCADAE** (Cascades Frog) **TADPOLE PREDATION**. Observations on anuran tadpole predation by birds is becoming more common (Bolitho and Retallick 1996 *Herpetol. Rev.* 27:140-141; McAlpine et al. 2001 *Herpetol. Rev.* 32:183-184; Castanho 2001 *Herpetol. Rev.* 32:103; Crump and Vaira 1991 *Herpetologica* 47:316-321). Furthermore, corvids have been documented preying on anuran tadpoles (Beiswenger 1981 *Copeia* 1981:459-460). Here I report predation on tadpoles of *Rana cascadae* by the Clark's Nutcracker (*Nucifraga columbiana*), a small corvid, observed in the Trinity Alps Wilderness, Trinity County, California, USA (40°55'30"N, 122°52'56"W; elev. 2195 m). These events occurred within 20 minutes during observations on 8 Oct 2004, initiated at 1740 h. Two *N. columbiana* were observed perching in trees near a drying pond (5 cm depth and 2 m<sup>2</sup> surface area) containing a high concentration of *R. cascadae* and Pacific Treefrog (*Hyla regilla*) tadpoles and metamorphosed individuals. I observed the birds with binoculars from a distance of 15 m. Shortly after obser-

ations began, both *N. columbiana* flew to the pond and began probing their beaks into the water. Each *N. columbiana* successfully captured a single *R. cascadae* tadpole. Since *R. cascadae* much larger than *H. regilla* tadpoles, I was confident of a positive identification of tadpole species. Each bird then flew back to the tree where initially observed and consumed the tadpoles. One bird returned to the pond four minutes later and seized three more *R. cascadae* tadpoles, this time consuming them at the pond's margin.

*Nucifraga columbiana* typically relies on cached conifer seeds as a main source of nutrition for winter survival and breeding (Vander Wall and Balda 1977 *Ecol. Monogr.* 47:89-111). During the short autumn season in sub-alpine environments, many lotic water bodies containing amphibian larvae become very shallow or dry completely. Drying lentic water bodies can create high concentrations of amphibian larvae that become available as a food resource to terrestrial predators at the littoral margin. *R. cascadae* larvae, and possibly recent metamorphs, may provide an important nutrition subsidy for *N. columbiana* just prior to onset of winter.

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**SCINAX ACUMINATUS** (Mato Grosso Snouted Treefrog) **PREDATION**. The hylid *Scinax acuminatus* is distributed in southern Mato Grosso and Mato Grosso do Sul states in Brazil, Paraguay, Bolivia, and northern Argentina (Frost 2002 *Amphibian Species of the World: An Online Reference* V2 21). Despite this extensive distribution, life history data for this species are scarce. On 15 October 2005 at 2015 h we found an adult *S. acuminatus* (37.74 mm SVL; 3.5 g) in the stomach of the colubrid snake *Leptodeira annulata* (750 mm SVL; 27.4 g) in a *Ficus* sp. in the Brazilian Pantanal Nhumirim Ranch (18°59'S, 56°40'W), Mato Grosso do Sul State. After regurgitating the frog (deposited as CEUCH 3553 in Coleção Zoológica de Referência do Campus de Corumbá), the snake was measured and released. That night many individuals of this frog and snake were found active in the same *Ficus* tree and in palm *Attalea phalerata*, suggesting that *S. acuminatus* might commonly be preyed upon by *L. annulata* in the Pantanal.

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## TURTLES

**ACTINEMYS MARMORATA** (Western Pond Turtle) **NATURAL HISTORY**. *Actinemys marmorata* historically ranged from Oregon to Mexico west of the Cascade-Sierra axis (Ernst et al. 1994 *Turtles of the United States and Canada*, Smithsonian Institution Press).