

COMMENTS ON HABITAT AND THREATS TO POPULATIONS OF THE PUERTO RICAN CRESTED TOAD (*PELTOPHRYNE LEMUR*) IN THE VIRGIN ISLANDS

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Since the rediscovery of the Puerto Rican Crested Toad (*Peltophryne lemur*) on Puerto Rico proper (Garcia-Darz, 1967), this endemic species has received much local attention there (Rivero, Mayorga, Estremera & Izquierdo, 1980; U. S. Fish and Wildlife Serv., 1987), yet little has been advanced in the literature on the status of the poorly known Virgin Islands population (Philibosian & Yntema, 1976 and 1978; Mayer & Lazell, 1988) since *Peltophryne* specimens were collected at Virgin Gorda, British Virgin Islands in 1915 (Barbour, 1917). With the addition of a new report from the American Virgin Islands, the purposes of this note is to elucidate habitat requirements and potential threats to this internationally threatened species.

Subtropical dry forest life zone (Eewel & Whitmore, 1973) typifies the dry habitat regime of Virgin Gorda, British Virgin Islands, where the only specimen of the toad has been reported on the eastern Puerto Rican marine shelf (Barbour, 1917). However, on 6 April 1978, while surveying wildlife on the south coast of St. John, American Virgin Islands in remote Lameshur Bay, (18° 19'N, 64° 44'W), Norton (1997) discovered a Crested Toad (*Peltophryne lemur*). Habitat characteristics (Rivero *et al.*, 1980) described on Puerto Rico are primarily in the context of limestone or karst topography of the interior of the dry limestone, coastal forest of Guanica. The collection site of the rediscovered toad at Isabela, Puerto Rico (Garcia-Diaz, 1967) is very similar to the location on St. John, where moist alluvium substrate ranged in size from boulders to pea-sized gravel and sand. The site at Lameshur Bay is very similar to a variety of sites visited by Philibosian & Yntema (1978) in xeric scrub and xeric woods at elevations from sea level to 100m within 1 km of the shoreline. The St. John location was an alluvial deposit at the base of a gully (Grey Ghut) (Norton, 1979). After heavy rains, this deposit is scoured out by the force of rushing water enough to leave a depression of about 0.5-1.5 m in depth depending upon evaporation and percolation rates. Sometimes rainwater might stay in the depression for several days, and I have found crayfish carapaces measuring about 7.5 cm in this depression. Unlike Coamo Springs and Guanica, Puerto Rico, limestone habitat is not found in the vicinity of Lameshur Bay.

Breeding at Guanica, Puerto Rico is dependent upon sporadic and heavy rainfall (ave. annual 79 cm). On St. John the onset of the spring rainy season occurs in April through May (U.S. Virgin Islands National Park, POR 110 years) and may produce 2-5 cm in either month. St. John (el2980m) and Virgin Gorda (280m) are perhaps unusual locations for toads where annual rainfall averages about 17 cm per year, that could further explain rarity. Since abundant moisture is important to breeding (Rivero *et al.*, 1980), Puerto Rican sites generally receive more rainfall and thus account for a wider, and possibly more abundant, distribution than the smaller, dry regime sites of the Virgin Islands archipelago. Breeding periodicity is therefor highly dependent upon the periodicity of

heavy rainfall. In the Virgin Islands there is a bimodal peak of rainfall; April-May and September-October. During nonbreeding periods, toads may migrate to areas of cover such as under edges of large boulders, rock, or fallen trees near guts where some measure of moisture may persist.

The occurrence of such a vulnerable creature as this toad was incredulous to me because of the common presence of the Small Indian Mongoose (*Herpestes auro punctatus*) on St. John, particularly near VIERS (the College of the Virgin Islands Ecological Research Station). Indeed, Schmidt (1928) suggested the mongoose was responsible for the scarcity of the toad on Puerto Rico and that the haphazard distribution of the native "Bufo" among the Virgin Islands was a process of extinctions. A similar disjunct population of Virgin Islands Boa (*Epicrates monensis granti*) on St. John has also been attributed in part to the presence of mongoose (Nellis, Norton & McLean, 1983).

Population numbers of the Crested Toad on St. John may be limited by the same factors as those affecting the Puerto Rican population with the possible addition of two unreported factors. When ground water reaches the surface in deep gulleys upslope of Lameshur and Fish Bays (*pers. observ.*), pools of fresh water often harbour fairly large native crayfish. These predatory crustaceans probably achieve their rapid growth on a supplement of *Peltophryne* eggs, tadpoles, and toadlets. While I have observed tadpoles in such situations, I was unaware that they may have been anything other than *Eleutherodactylus* sp.

Another unreported threat to populations, at least in the Virgin Islands, is sand and gravel mining. Sites such as the one at Lameshur Bay are on Cb type soils (cobble gravel) of alluvial fans (Rivero *et al.* 1970). Colour ranges from very dark grayish brown to dark yellowish brown, sometimes reddish. Thus, the soil colour can select for cryptozoic appearance in Crested Toads. The threat for toads may be the value of the soil type since it has poor workability and drains rapidly (Rivero *et al.* 1970). This type of soil is easily recovered for building purposes and represents an unregulated source of building material. "Gut gravel and sand" was the first material of choice in small villages located near large stream beds and ocean outfalls of Tortola, B.V.I. (S.A. Bennerson, *pers. commun.*). The depletion of gravel habitat on Virgin Gorda may be responsible for the reported extinction of that population since the British Virgin Islands have experienced rapid population and building growth (*pers. observ.*).

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