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Rediscovery of the Critically Endangered treefrog *Charadrahyla trux* in the Sierra Madre del Sur of Guerrero, Mexico

Charadrahyla trux (Adler and Dennis, 1972) is a rare hylid frog with a distribution restricted to the higher portions of the Sierra Madre del Sur in central Guerrero, Mexico (Duellman, 2001). Adler and Dennis (1972) described the species based on nine specimens collected in December of 1969. The specimens were collected on the slopes and immediate vicinity of Cerro Teotepec in central Guerrero, at elevations from 1,760–2,120 m, between the town of El Paraíso, on the Río Atoyac, and El Asoleadero, an abandoned logging camp near Carrizal de Bravo. Subsequently, seven additional specimens were collected in December of 1972 (J. Campbell, pers. comm.). This species therefore, is known from 16 specimens (with a positive identification) and has not been seen since 1972 (GBIF, 2016).

Previous to this work, numerous researchers sampled the region from where *C. trux* was known to occur without finding the species (Lips et al., 2004; Caviedes-Solis et al., 2014). Lips et al. (2004) listed *C. trux* as potentially extirpated from the only area where it was known. In their evaluation of the species status for IUCN, Santos-Barrera and Canseco-Márquez (2004) assessed this species as Critically Endangered and Possibly Extinct. This status presumably was based on the assessment of Lips et al. (2004), in addition to the paucity of recent records for the species at the Museo de Zoología, Universidad Nacional Autónoma de México. Lamoreux et al. (2015) also listed *C. trux* as possibly extinct, based on the information from IUCN.

On 16 July 2016, we were sampling for direct-developing frogs of the genus *Eleutherodactylus* (subgenus *Syrrohophus*) and stream-breeding hylids on the windward slopes of Cerro Teotepec, Guerrero, between the settlement of Puerto del Gallo and the town of El Paraíso. We sampled the transect by car from 0900 h (on 15 July) until 0700 h (on 16 July), stopping approximately every 1,500 m to listen for vocalizing amphibians. Previously, we downloaded the known stream-breeding hylid collecting localities from GBIF (2016), as well as from the literature (Adler, 1965; Adler and Dennis, 1972; Duellman, 2001). We mapped each of these localities in Google Earth, and downloaded the KMZ file to our cellular phones. We stopped at each stream to listen for vocalizations, and where possible walked upstream from the highway to escape the sound of water crossing under or over the road. We searched the larger and permanent streams more thoroughly. We collected and photographed all animals, and deposited the images at the University of Texas at Arlington Digital Photo Voucher Collection (UTADC).

On 16 July 2016 at 0130 h, we discovered an adult male *C. trux* (UTADC 8670–8672; Fig. 1) perched on a mossy rock above a large, permanent stream, ca. 500 m east of the settlement of Nueva Dehli, Municipio de Atoyac de Álvarez, Guerrero (17.423689°, -100.192541°; datum WGS 85); elev. 1,450 m; (Fig. 2). This locality is 4.9 km S (airline distance) from the Type Locality of *C. trux*. Jonathan Campbell verified the identification of the frog. The individual was inactive and not vocalizing when it was found. The discovery of this frog prompted a thorough search of the immediate area, along approximately 120 m of the bank. No other individuals were located, and the only anurans found vocalizing along the stream were *Exerodonta sumichrasti* and an undescribed species of *Eleutherodactylus* (subgenus *Syrrhophus*).



Fig. 1. An adult male *Charadrahyla trux* (UTADC 8670–8672) from 500 m E of Nueva Dehli, Atoyac de Álvarez, Guerrero. © Christoph I. Grünwald

Around noon on 16 July 2016 we revisited the stream in search of *C. trux*, specifically for tadpoles and metamorphs. In a large pool about 110 m above the rock where the adult *C. trux* was discovered (Fig. 3), we found approximately 150 tadpoles (Fig. 4) that we tentatively identified as *C. trux*. We compared photos of these tadpoles with those of *Charadrahyla nephila* Mendelson and Campbell, 1999 and *Charadrahyla altipotens* Duellman, 1968. The overall size, shape, and coloration of the tadpoles in the pool were similar, and we believe they were *C. trux*. Further, William Duellman also considered that the tadpoles likely were those of *C. trux*.

Importantly, all known specimens of *C. trux* had been collected in December, at the beginning of the dry season, and sampling for the above mentioned studies was conducted in June and July, during the heavier portion of the rainy season. Our specimen represents the first individual of *C. trux* found during the rainy season.

Our results confirm the continued existence of *C. trux* in the area from where it originally was described. Whereas a single specimen is insufficient to speculate as to the health of the population, hundreds of tadpoles apparently of this species suggest that it continues to reproduce in this stream. We did not notice any major habitat destruction or disturbance in the area where the frog was discovered. Minutes before encountering the frog we observed a Jaguar (*Panthera onca*) on the road. While irrelevant to the frog, this observation is indicative of the health of the habitat, as large predators like *P. onca* typically are the first animals to be extirpated with human disturbance (Cuervo-Robayo and Monroy-Vilchis, 2012). The highway near the type locality of *C. trux* is being paved, and the construction process is causing major siltation in some streams below the road. Further sampling should be conducted in the area to determine the true conservation status of *C. trux*.



Fig. 2. Locality where an adult male *Charadrahyla trux* (UTADC 8670–8672) was discovered at 500 m E of Nueva Dehli, Atoyac de Álvarez, Guerrero.

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Fig. 3. Locality where presumed tadpoles of *Charadrahyla trux* were observed near Nueva Dehli, Atoyac de Álvarez, Guerrero.

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Fig. 4. Two tadpoles, presumably of *Charadrahyla trux*, photographed near Nueva Dehli, Atoyac de Alvarez, Guerrero.

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