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Notes on natural history and distribution of *Callopistes flavipunctatus* (Squamata: Teiidae) in northwestern Peru

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The false monitor, *Callopistes flavipunctatus* (DUMÉRIL & BIBRON, 1839), was originally described as *Apomera flavipunctata* but later transferred by GRAY (1845) to the genus *Callopistes* as the only sister taxon of *C. maculatus* GRAVENHORST, 1838. Nowadays some taxonomists prefer to place it in a monotypic genus, *Tejovaranus*, due to its distribution that is very distant (more than 2,000 km) from the Chilean *C. maculatus* (SCHLÜTER 2004) and morphological differences especially with respect to the sexual organs: females of *C. flavipunctatus* have distinctly larger hemilophites (18 mm in length compared to *C. maculatus* with 1 mm in length) (ZIEGLER & BÖHME 1997). In accordance with a recent revision of teiid taxonomy (HARVEY et al. 2012) and a revision of the whole order Squamata (PYRONS et al. 2013), we herein adhere to applying the name *Callopistes*.

According to SCHLÜTER (2004), *C. flavipunctatus* is a large teiid species of up to 1000 mm in total length. Males grow to snout–vent lengths (SVL) of 300 mm and females up to 230 mm. The tail is very long and reaches up to 2.5 times the body length. Apart from the larger SVL, males have larger and more massive heads than females (SCHLÜTER 2004).

Callopistes flavipunctatus is believed to be endemic to the equatorial dry forests of the western slopes of northern Peru and southern Ecuador (SCHLÜTER 2004, VENEGAS 2005). In Peru, it is so far known to inhabit dry forest savannah and hills (VENEGAS 2005) in the Tumbes, Piura and Lambayeque departments (CARRILLO & ICOCHEA 1995).

The heliophilic lizards are ground-dwellers that excavate burrows in the ground where they outlast unfavourable climatic periods (SCHLÜTER 2004). Information on their diet is scarce. The information that is available indicates that teiids of the genus *Dicrodon* represent the species' main prey, amongst other lizard species, small rodents and large

insects (SCHMIDT & INGER 1957, SCHLÜTER 2004). The recurved teeth together with a particularly muscular and expandable stomach (WHITE & ANDERSON 1994) further indicate an adaptation to the predation and digestion of large prey. However, very little is as yet known about the ecology and distribution of this species. Herein, we add information on the natural history of *C. flavipunctatus* and provide new data on its distribution range.

Several field trips to different localities in the equatorial dry forests of northern Peru in the Cajamarca, Lambayeque and Piura departments were conducted between July 2005 and November 2010. During these surveys, we found specimens of *C. flavipunctatus* from October to May active during the day (09:00–15:00 h) at air temperatures of up to 43.6°C. On several occasions, we observed individuals entering or exiting their burrows, which seem to feature a complex architecture with multiple entries (Fig. 1). After 15:00 h and in the winter months (June to September), we did not find individuals of this thermophilic species, indicating that they were holing up in their burrows during the night and cold periods.

In the Chaparri Reserve, Chongoyape, Lambayeque ($06^{\circ}32'08''$ S, $79^{\circ}28'24''$ W, 466 m above sea level), an individual of *C. flavipunctatus* with a regenerated tail was observed eating the fruits of a *Cordia lutea* bush (Boraginaceae) at 14:00 h on 8 April 2005. The same individual was later seen feeding on some chicken bones and a raw egg that were offered to him by rangers of the reserve. It carefully cracked the egg with its jaw and licked out the content with its tongue.

At the Quebrada Gramadal, El Angolo Hunting Reserve, Piura ($04^{\circ}25'16''$ S, $80^{\circ}47'39''$ W, 500 m a.s.l.), we detected an individual in the leaf litter near some bushes of *Cordia lutea* at 13:18 h on 28 November 2008. It leapt onto a female

Peruvian meadowlark, *Sturnella bellicosa* (FILIPPI, 1847), a bird that is fairly common along the Peruvian coast, the Marañón valley and in the upper Huallaga valley (SCHULENBERG et al. 2010). The false monitor firmly grasped the bird between the wings and the neck (Fig. 2), paused for about a minute, and then ran off swiftly and disappeared.

In the village of Batanes, Chulucanas, Piura ($05^{\circ}08'54''$ S, $80^{\circ}06'33''$ W, 97 m a.s.l.), we observed a specimen around 13:00 h on 23 December 2008. It was waiting in ambush in the grass after having detected a specimen of *Dicroidon guttulatum* DUMÉRIL & BIBRON, 1839, at which it stared atten-

tively while flicking its tongue. It positioned itself for attack with its chest raised and the belly remaining on the ground, the front limbs almost straight while the hind limbs were inclined backwards with the thighs almost lifted off the ground, giving an appearance of pushing. When the prey was within reach, the false monitor jumped quickly and grabbed the lizard in the neck. A similar situation was photographed by JORGE NOVOA in Olmos, Lambayeque (12:24 h on 10 October 2010) (Fig. 3a).

On 24 December 2008 at 13:05 h, we observed a very active *C. flavipunctatus* in Batanes, foraging at 2 m above



Figure 1. Two entries to a burrow of *Callopistes flavipunctatus* in the Chaparri Reserve, Lambayeque.



Figure 2. *Callopistes flavipunctatus* capturing a female *Sturnella bellicosa*, Quebrada Gramadal, El Angolo Hunting Reserve, Piura.

the ground in bushes (*Jathropa curcas*: Euphorbiaceae) (Fig. 3b), probably looking for eggs or nestling birds, as it was nesting season. The bushes were covered with creeping vines. According to our observations, *C. flavipunctatus* forages for prey mainly on the ground but occasionally also climbs on bushes and trees. Its predation habits provide further evidence that it is as carnivorous as its Chilean congener *C. maculatus*, which also consumes lizards, birds, insects and small mammals (DONOSO-BARROS 1960, BONACIC & IBARRA 2010).

An adult male (SVL 310 mm) and a juvenile (SVL 151 mm) of this species were detected on 8 May 2008, and another juvenile (SVL 144 mm) on 2 April 2009, in Bellavista, Jaén, Cajamarca ($05^{\circ}40' S$, $78^{\circ}40' W$, 450 m a.s.l.). With these sightings we can add the department Cajamarca to the known distribution range of the species and provide the first record of this species from an inter-Andean valley. Thus, *Callopistes flavipunctatus* is amongst the few reptile species (*Phyllodactylus reissii*, *Boa constrictor ortonii*, *Leptodeira septentrionalis larcorum*, *Mastigodryas*



Figure 3. (A) *Callopistes flavipunctatus* with its dead prey, a male *Dicrodon guttulatum*, Olmos Lambayeque. Photo by JORGE NOVOA; (B) *C. flavipunctatus* foraging in bushes (*Jathropa curcas*), Villa Batanes Chulucanas, Piura.

boddaerti, *Mastigodryas heathii*, *Oxybelis aeneus*) that inhabit both sides of the Western Andean Mountain Range.

The above observations of juveniles together with another detection of a juvenile with a SVL of only 103 mm at the end of April of 2005 in the Chaparri Reserve, Lambayeque, also give some indication of the times of hatching of this species.

West of the Andes, we found *C. flavipunctatus* occurring in sympatry with the teiid lizards *Dicrodon guttulatum*, *Medopheos edracanthus* (BOCOURT, 1874), and the tropidurid lizards *Microlophus occipitalis* (PETERS, 1871) and *M. koepckeorum* (MERTENS, 1956). In the intra-Andean valley of the Maranon River, the species was sympatric with the teiid *Ameiva nodam* KOCH, VENEGAS, RÖDDER, FLECKS & BÖHME, 2013 and the tropidurid *Microlophus stolzmanni* (STEINDACHNER, 1891).

With respect to the fact that *Callopistes flavipunctatus* is considered to be Near Threatened in Peru (El Peruano 2014), further studies on the ethology and population ecology as well as the true distributional limits of this species are highly recommended.

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