

## New data for the threatened Collared Dwarf Racer *Platyceps collaris* (Müller, 1878) (Squamata: Colubridae) in Bulgaria

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**Abstract.** New data on the distribution and habitats of the Collared Dwarf Racer come from two female specimens killed on the roads in Bulgaria at the northern limit of the species range. The species was discovered for the first time the Strandzha Mountains, inland some 30 km from the Black Sea coast at about 230 m a.s.l. The remoteness of this locality from previously known habitat in the intensive developed tourist region along the coast is encouraging news for the conservation of this threatened species in Bulgaria.

**Key Words:** distribution, new record, road mortality, Serpentes, Strandzha Mountains, Bulgaria.

The Collared Dwarf Racer *Platyceps collaris* (Müller, 1878) is an eastern Mediterranean inhabitant of mostly dry, rocky and grassy places up to 1500 m a.s.l. ranging from Israel and Jordan to western Anatolia in Turkey (Sindaco et al. 2013). Two records in Turkish Thrace near Istanbul (Hadımköy (Schatti et al. 2001) and Habibler Köyü [Metris] / İstanbul (Baran 1976) and localities along the southern Bulgarian Black Sea coast (Stojanov et al. 2011) delimit its limited European range. The nine known localities in Bulgaria are situated in open stony habitats with grassy vegetation and low shrubs in a 10-km strip along the coast up to 100 m a.s.l. (Stojanov et al. 2011, Golemanski 2015). An exception is the northernmost locality at about 220 m a.s.l. in the Eminska Mountain (Panner 2009). Only a few dozen specimens have been registered from these isolated localities (Stojanov et al. 2011). Accordingly, the Collared Dwarf Racer is strictly protected under the national biodiversity law and is the only reptile in the "critically endangered" category of the national Red Data Book (Golemanski 2015). Major threats to Bulgarian population are intensive searching and gathering by collectors, road construction, and resort and tourism development along the southern Black Sea coast (Stojanov et al. 2011, Golemanski 2015). Therefore, all information about the distribution of the species is valuable for its conservation. Non-disclosure of known localities and of any other sites found in the future (Golemanski 2015) is necessary. This paper presents new data on *Platyceps collaris* collected during wildlife research in the Strandzha Mountains.

The material included only road killed *Platyceps collaris* collected in the Strandzha Mountains, southeastern Bulgaria (see also Milchev & Georgiev 2014). The carcasses were measured and processed at the University of Forestry in Sofia. The number of ventrals was used in determining the sex according to Rehák (1985).

A road killed Collared Dwarf Racer was found south of the town of Ahtopol in the square NG75 around 10.00 on 23<sup>th</sup> May 2009 (Figure 1, 2). The female specimen with 557 mm snout-vent length, 48 mm tail length and 201 ventrals was deposited in the zoological collection of the University of Forestry in Sofia. The two-lane intercity road in the area with the carcass traversed through abandoned pastures and farmlands with xerothermic grass communities and scattered shrubs, principally Christ's thorn *Paliurus spina-christi* at

about 40 m a.s.l. The habitat was not rocky, but concrete

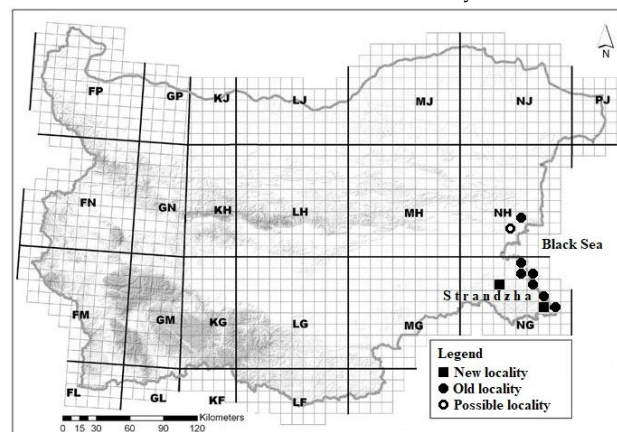


Figure 1. Distribution of *Platyceps collaris* in Bulgaria with a 10-km Universal Transverse Mercator (UTM) grid.



Figure 2. *Platyceps collaris* from UTM square NG75 in SE Bulgaria.

foundations and parts of destroyed buildings were present next to the shrubs by the snake' carcass.

The second female specimen with 553 mm snout-vent length was discovered in the square NG37 in the Strandzha Mountains around 12.30 on 3<sup>th</sup> July 2020 (Figure 1, 3). Remains of three eggs were near the carcass (accession no. VR0231 in the National Museum of Natural History), and the shells of three other ruptured eggs were found in the abdominal cavity during subsequent dissection. Pastures and abandoned farmlands with xerothermic grasslands were situated along the road at about 230 m a.s.l. Individual stones protrude above the grassy vegetation, and scattered shrubs, mostly Oriental Hornbeam *Carpinus orientalis* and groups of

trees (mostly oaks *Quercus* sp.) were present.



Figure 3. *Platyceps collaris* from UTM square NG37 in SE Bulgaria.

The record near the Black Sea coast falls within the known species range (Stojanov et al. 2011), while the second locality lies almost 30 km inland. The new locality in the Strandzha Mountains and that of Panner (2009) on Eminska Mountain provide the basis for considering square NH42 (Fig. 1) for future research on Collared Dwarf Racer. A specimen in a bottle of alcohol without a label was found in the biology classroom in the Dabnik village school in 1998 and donated to the collection of the Faculty of Biology, Sofia University "St. K. Ohridski" (Kovachev, Burgas, pers. comm., 2020). The distance of this locality some 35 km from the previous northernmost known localities along the Black Sea, and some 13 km from the coast itself at about 250 m a.s.l. would not have been considered previously as potential habitat of *Platyceps collaris*.

This paper reports the first instances of Collared Dwarf Racers killed by vehicles on Bulgarian roads. Snakes are one of the animal groups most impacted by road infrastructure and increasing traffic (Siers et al. 2016, Heigl et al. 2017, Ile et al. 2020), but the problem of snake mortality on roads is little studied in Bulgaria (Kambourova-Ivanova et al. 2012). Mortality resulting from road traffic affects not only common snake species but also species of high conservation interest and limited distribution such as Collared Dwarf Racer (Insacco et al. 2015, Covaciu-Marcov et al. 2012, 2020).

The new locality in square NG75 near the coast lies within the Strandzha Nature Park and is part of the European Union's Natura 2000 network of protected areas. Discovery of a Collared Dwarf Racer in the sparsely populated and economically disadvantaged Strandzha Mountains (see also Milchev & Georgiev 2014), removed from the tourist development on the Black Sea coast, offers encouraging hope for the survival of the species in Bulgaria. The locality is outside the Bulgarian protected area network, but without a pressing or potential threat to the habitat. The inclusion of this locality in a new protected area according to the national Protected Areas Act will not contribute to the conservation of *Platyceps collaris*. Such action will promote widespread knowledge of the location in the absence of actual measures for effective security for the species and its habitat. The gap between intended conservation habitat designation and

funded protection measures is a problem that has already led to fatal consequences with the extirpation of threatened bird species in Bulgaria (Milchev & Georgiev 2014, Milchev et al. 2019).

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