

## The first record of the Cumberland slider *Trachemys scripta troostii* (Thunberg & Schoepff, 1792) (Testudines: Emydidae) in Slovenia

### Prva najdba okrasne gizdavke *Trachemys scripta troostii* (Thunberg & Schoepff, 1792) (Testudines: Emydidae) v Sloveniji

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The pond slider (*Trachemys scripta*) is a freshwater turtle species native to the South-Eastern part of USA, but has also been introduced to many other countries around the world through pet trade (Escoriza et al. 2021b). Due to its colourful appearance, it has been the most numerous turtle species in pet shops for decades with millions of hatchlings reared every year on turtle farms. Their owners are eventually releasing many turtles to the nature, after overgrowing their confinements or simply becoming too difficult to keep (Cadi & Joly 2004). Pond sliders established populations in wetlands around the world (Espindola et al. 2019) and have a negative effect on indigenous turtles (Cadi & Joly 2004, Escoriza et al. 2021a). Today, pond sliders are banned from sale in many countries worldwide. In Slovenia, the sale of this turtle species was banned in 2017, after it was proven that it reproduced (Vamberger et al. 2012) and established vital populations in the country (Standfuss et al. 2016).

In their natural range, the pond slider has three accepted and one putative subspecies that differ in colouration of the neck and plastron and the shape and texture of the carapace (Praschag et al. 2017, Vamberger et al. 2020). The nominal subspecies, the yellow-eared slider (*T. s. scripta*) is distinguishable by a vertical yellow S-shaped stripe behind its eye, a yellow coloured plastron with only a few small black markings and a less elongated and more domed carapace (Praschag et al. 2017, Ernst & Lovich 2009). The commonest subspecies in pet trade was the red-eared slider (*T. s. elegans*), having a red horizontal stripe on its neck and a

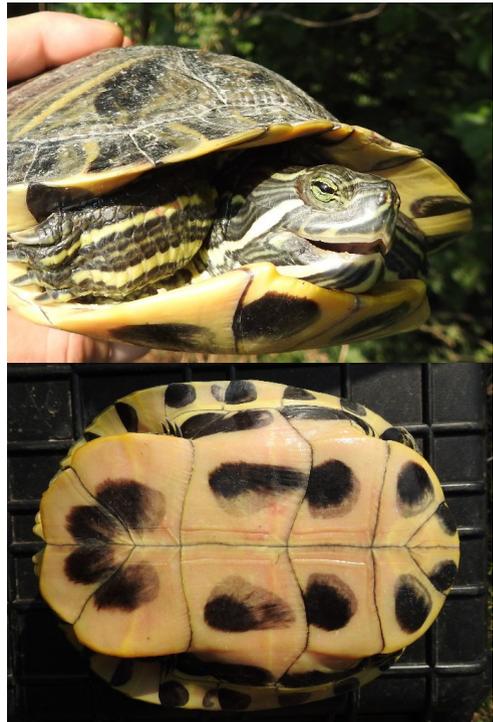
yellow plastron with large black spots on each scale (Praschag et al. 2017, Ernst & Lovich 2009). Cumberland slider (*T. s. troostii*) generally resembles *T. s. elegans*, but is distinguishable by its narrower horizontal neck stripe that starts with pale green or yellow colour and fades into dark red towards the end of the neck. Their plastron is yellow with medium-sized black spots on each scale (Carr 1937, Ernst & Jett 1969, Parham et al. 2020, Vamberger et al. 2020). The fourth subspecies, the Western slider, has only recently been proposed based on a DNA study of the *T. scripta* species (Vamberger et al. 2020). It was considered a distinct morph of the *T. s. elegans* and some authors considered it the result of hybridization with adjacent taxa. The Western slider has, in general, more elongated head than *T. s. elegans*, the red neck stripe is smaller and often split into two patches and the black spots on the plastron scales are the largest of all *T. scripta* subspecies. The status of these alleged subspecies remains to be resolved in further studies. Considering the species natural ranges, the Cumberland slider has the smallest natural range. It inhabits only the upper reaches of the Cumberland and Tennessee Rivers, its range overlapping with *T. s. scripta* and *T. s. elegans* only in the southernmost part of its range (Ernst & Lovich 2009, Vamberger et al. 2020).

Despite the recent ban on selling pond sliders in Slovenia, this species has already spread through most of the country and established several large reproducing populations (Standfuss et al. 2016). One of such population inhabits the waterways and wetlands in the Vipava Valley in Western Slovenia. One of the goals of the VIPava project (a nature conservation project, financed by EU Cohesion funds, link: <https://www.projektvipava.si/>), led by The Fisheries Research Institute of Slovenia, is to improve the habitat conditions for the highly protected European pond turtle (*Emys orbicularis*), the species included in the Appendix 2 of the Habitats Directive (OJ EC 1992). This native freshwater turtle has small fragmented populations in the Vipava Valley, concentrated in and around small ponds, channels and oxbow lakes close to the Vipava River (Vamberger et al. 2015). Removing pond sliders from waterbodies close to the Vipava River is one of the actions to improve the habitat for the European pond turtle. Invasive turtles currently represent one of the major ecological threats to the indigenous European pond turtle by competing for sources of food and most importantly basking places (Cadi & Joly 2004). Since the pond sliders

grow bigger and are much more active and aggressive, they can easily compete for the best basking places in the water bodies, at least under controlled conditions in the laboratory (Cadi & Joly 2004).

During our fieldwork carried out in 2017, we focused on catching and removing pond sliders from water bodies, known to be inhabited by the European pond turtles, or larger ponds, where significant numbers of reproducing pond sliders had been detected (Standfuss et al. 2016). The turtles were caught with fishing pods for catching crayfish and with basking traps. In 20. 9. 2019, we sampled the Vogršček water reservoir in the central Vipava Valley. Among a total of 16 turtles caught (15 *T. s. elegans*, 1 *T. s. elegans* × *T. s. scripta*), one individual of the captured turtles generally resembled the *T. s. troostii* subspecies (Fig. 1). The individual was an adult female with carapace length of 186 mm and a weight of 1001 grams. The neck stripe was thin and yellow to pale green in colour that faded into dark green, without any shades of red or orange. The carapace was light green with a pattern of lighter and darker green stripes and curves, and was not domed as in *T. s. scripta*. The surface of the carapace was rough. The plastron was yellow with medium sized black markings on each scale. The colouration of the front legs was typical of the *T. s. troostii* subspecies with broad yellow parallel stripes (Fig. 1). The age of the individual was estimated at 18–20 years by counting the growth rings on its plastron. It is uncertain whether it had been released from captivity or hatched in the wild, but judging by the size of the turtle, its general good condition and lack of any damage or scars it was most likely the former case.

Despite no DNA sample was collected, the typical morphological characters enabled reliable subspecies identification. It is unclear how the *T. s. troostii* subspecies came to Slovenia, since it is the least known and attractive of the four pond slider subspecies, and there is no record of it ever being sold in pet shops in the country. One possible explanation is that it was imported on a personal request or even came to Slovenia from the neighbouring Italy.



**Figure 1.** Photos of head (top) and plastron (below) of a *T. s. troostii* individual, caught in Vogršček in September 2019. Notice the thin yellow to pale-green neck stripe and medium sized black spots on plastron (Photo: ZZRS).

**Slika 1.** Fotografiji glave (zgoraj) in plastrona (spodaj) osebka *T. s. troostii*, ujetega septembra 2019 v Vogrščku. Opazne so tanka rumena do blede zelena proga na vratu ter srednje velike črne lise na luskah plastrona (Foto: ZZRS).

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