Zootaxa 5493 (5): 542–560
https://www.mapress.com/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5493.5.4
http://zoobank.org/urn:lsid:zoobank.org:pub:B4CED705-D265-4465-9614-C671836C5C8B

Johann Gottlieb Georgi or Peter Simon Pallas: review regarding the authorship and description of *Lacerta taurica* (Squamata, Lacertidae)

OLEG KUKUSHKIN[1, 2]*, FRANK TILLACK[3], IGOR DORONIN[2], NIKITA KLUGE[4] & DANIEL JABLONSKI[5]
[1]*T.I. Vyazemsky Karadag Scientific Station – Nature Reserve – Branch of A.O. Kovalevsky Institute of Biology of the Southern Seas of the RAS, Department of Biodiversity Research and Ecological Monitoring, Nauki Street 24, stm. Kurortnoe, 298188 Theodosia, Crimea*
mtasketi2018@gmail.com; *https://orcid.org/0000-0002-9311-0860*
[2]*Zoological Institute of the Russian Academy of Sciences, Laboratory of Herpetology, Universitetskaya Embankment 1, 199034 Saint Petersburg, Russia*
https://orcid.org/0000-0003-1000-3144
[3]*Museum für Naturkunde, Leibniz-Institut für Evolutions- und Biodiversitätsforschung, Invalidenstrasse 43, 10115 Berlin, Germany*
https://orcid.org/0000-0003-1418-6531
[4]*Saint-Petersburg State University, Department of Entomology, Universitetskaya Embankment 7/9, 199034 Saint Petersburg, Russia*
https://orcid.org/0000-0001-9741-7790
[5]*Comenius University in Bratislava, Ilkovičova 6, Mlynská dolina, 842 15 Bratislava, Slovakia*
https://orcid.org/0000-0002-5394-0114
**Corresponding author*

Abstract

From the beginning of the 19th century to the present, the authorship of the description of the Balkan wall lizard, *Podarcis tauricus* (Pallas, 1814) was considered undoubted. Recently, Schmidtler (2022) has been concluded that the description of this species should be attributed to J.G. Georgi. Therefore we have chosen to discuss this issue. The description of *Lacerta taurica* by Georgi in 1801 was based on earlier works by C.L. Hablitz (1785, 1789). However, his description does not align with our current understanding of the morphological and ecological characteristics of the taxon currently recognized as *P. tauricus*. Some details contained in this description suggest that it was based not on the species recently known as *Podarcis tauricus*, but on another lizard inhabiting the same place and recently known as *Darevskia lindholmi* (Szczerbak, 1962). If recognize authorship of the name *Lacerta taurica* as belonging to Georgi (1801), this would require transferring that name to the species currently known as *D. lindholmi* and the need to introduce a new name for the species currently known as *P. taurica*, that will cause numerous confusions. To provide the stability of the names, we suggest to continue to regard Pallas (1814) as the author of the name *Lacerta taurica* and will apply to the Commissuion of Zoological Nomenlature for conservation of this status. Regrettably, a specimen collected by Pallas himself in Crimea has not been located until now. However, the search for preserved historic specimens continues.

Key words: Lacertidae, Crimean Peninsula, Lindholm's rock lizard, type specimen

Introduction

The Balkan wall lizard, *Podarcis tauricus* (Pallas, 1814), is one of the most widespread members of the Mediterranean genus *Podarcis* Wagler, 1830, which includes up to 26 species (Kiourtsoglou *et al.*, 2021). The distribution range of this species extends across southeastern Europe (central and eastern Balkan Peninsula, and southwestern Ukraine) and reaches as far east as Crimea. In addition to its main distribution area, *P. tauricus* can also be found in central Europe and northwestern Anatolia (Kabisch, 1986; Psonis *et al.*, 2017; Göcek and Tok, 2022). Until recently, it was widely accepted that the authorship of the name *P. tauricus* (originally as *Lacerta taurica*) should be attributed to Prussian zoologist Peter Simon Pallas (1741–1811). However, new investigations have emerged challenging this previously unquestioned attribution (Schmidtler, 2022).

Pallas resided in the Russian Empire for 43 years, during which he extensively studied vast territories, primarily in its Asian part. Following the annexation of the Crimean Peninsula and other territories in the Northern Black

 Accepted by S. Carranza: 3 Jul. 2024; published: 14 Aug. 2024

Sea region in 1783, Pallas became one of the pioneering explorers of this previously uncharted area, which had remained *terra incognita* to European science (Pallas, 1795, 1801, 1999). During his expeditions across Crimea in 1793 and 1794, Pallas traversed approximately 9,000 km on horseback or by foot, meticulously documenting 908 geographical features (Yena *et al.*, 2007). Between 1795 and 1810, Pallas established a permanent residence in Crimea (Khrapunov, 2022), dedicating himself to extensive research, specifically in preparation for the publication of his fundamental work, "*Zoographia Rosso-Asiatica*". In addition to his research endeavours, Pallas undertook significant organizational work here, including the establishment of the first state school of the viticulture in the Russian Empire. This endeavour demanded substantial efforts and consumed a significant portion of the scientist's time (Timirgazin, 2015). Therefore, preparations for the publication of his scientific works slowed down.

Recently, Schmidtler (2022) has been argued that the authorsip of the name *Lacerta taurica* should be attributed to Johann Gottlieb Georgi (1729–1802). This explorer, best known for his work in ethnography, arrived in Russia in 1770 and joined Pallas' expeditions, however, he had never visited Crimea. Georgi (1801, pp. 1876–1877) published the binomen *Lacerta taurica* for the first time and gave a concise description of the species with the attribution of authorship to Carl Ludwig Hablitz. However, Hablitz never publish this name; among three species of lizards which he reported (Hablitz, 1785: p. 195; Hablitz, 1789: p. 350), one species was described under the name "*Lacerta agilis* var." and reported from Balaklava (which is located in southwestern Crimea, about 44.49° N, 33.60° E). Georgi did not specify to which species and in which Hablitz's publication did he attribute the name *Lacerta taurica*, but only reported its authorship as "*Lacerta taurica* Hablz.".

Hablitz is recognized as the author of one of the earliest scientific reports on Crimean geography, flora, and fauna (Hablitz, 1785, 1789). However, his expedition to Crimea was relatively brief, spanning from May to December 1784, during which he conducted extensive field research (Hablitz, 1821; Konkin, 2017). The findings of this expedition were subsequently compiled and published in a treatise. Descriptions of "*Lacerta agilis* var." in the Russian edition of the book (Hablitz, 1785, p. 195) and "*Lacerta agilis* L. *varietas*" in the later German edition (Hablitz, 1789, p. 350) are identical, except for a few minor details. This variety of lizards is referred to in these sources under numbers 7 and 6, respectively. After 1787, Hablitz left scientific activity for the sake of public service, and a year later he took the position of vice-governor of the Tauride Region (Prokhorov, 1998). It is noteworthy that Hablitz and Pallas were friends, and shared new findings and information (Pallas, 1801, 1999), although they did not always agreed on interpretations of natural phenomena and the history of Crimea (Mogarichev, 2017; Khrapunov, 2022). According to Schmidtler (2022), it is proposed that Pallas (1814), having undoubtedly been familiar with the works of his fellow scientists, adopted the species name from Georgi (1801) for his own description of *L. taurica*. The absence of a direct reference to the original source can be attributed to a misunderstanding stemming from the challenges encountered during the delayed publication of "*Zoographia Rosso-Asiatica*", which was ultimately released posthumously. As of now, the whereabouts of the type specimens of *L. taurica* described by Pallas remains unknown (Uetz *et al.*, 2019).

Nikolsky (1892) emphasized the incompleteness and uncertainty in the description of *L. agilis* var. in Hablitz (1785), considering the species' identification based on it as doubtful. Later he did not consider the description of *L. taurica* by Georgi (l.c.) as appropriate: this name was declared by him a *nomen nudum* but listed among the synonyms of *L. taurica* Pallas (Nikolsky, 1915, p. 338). It is worth mentioning that such an expert on the Crimean herpetofauna as Szczerbak (1966, p. 142) referred to the name *Lacerta agils* var. as a synonym of *Lacerta saxicola lindholmi* (with authorship ascribed to Lantz et Cyrén, 1936). Recently, a similar conclusion was voiced by Kukushkin *et al.* (2019). To clarify which species was actually described by Hablitz (1785, 1789) and Georgi (1801), we have undertaken the comprehensive zoogeographic and comparative morphological analysis.

Materials and Methods

A revision of primary sources (original descriptions) and comparison with the data of recently published work has been done. We examined the historical context surrounding the description of *Lacerta taurica*, considering the works of Hablitz, Georgi, and Pallas. Clarifying contributions of these scientists and their potential mutual influences is crucial for understanding the taxonomic history of the species that is the focus of our study.

Through a morphological comparison of species, we sought to determine the actual species described by Hablitz. We analyzed key morphological traits and their applicability to different taxa of Crimean lacertids. We studied

342 specimens of the family Lacertidae from Crimea, focusing on their size characteristics. These measurements included the body length (SVL), tail length (TRL), and total length (TL = SVL + TRL), as well as the relative tail length index (SVL/TRL). Among the 342 individuals with SVL greater than 50 mm, we examined following species: *P. tauricus*—135 specimens, *Darevskia lindholmi* (Szczerbak, 1962)—124 specimens, and *Lacerta agilis* Linnaeus, 1758—83 specimens. To ensure accuracy, we used a ruler with a precision of 0.5 mm for body and tail length measurements, while other measurements were taken with a caliper with a precision of 0.1 mm. When converting the dimensional characteristics provided by naturalists from the 18th century to the metric system, we considered one inch to be equal to 25.4 mm, one line (1/10 inch) as 2.54 mm, and "vershok" (a unit of length used in old Russia) as 44.45 mm. To describe the body colour and employ suitable terminology, we utilized the colour scale of Bondartsev (1954).

The data on the spatial distribution features of lacertids in the vicinity of Balaklava town are based on long-term regular observations conducted by the first author from 1993 to 2023. Some of this data has been partially published by Kukushkin *et al.* (2019).

The following abbreviations are used: ICZN—International Code of Zoological Nomenclature; ZISP—Zoological Institute of the Russian Academy of Sciences, Saint Petersburg; ZMB—Museum für Naturkunde, Berlin (formerly Zoologisches Museum Berlin).

Results and Discussion

Unweaving the Georgi's and Hablitz's descriptions

Georgi's (1801: pp. 1876–1877) description of "*L. taurica* Hablz." is an abridged version of Hablitz' (1789) text of "*Lacerta agilis* L. *varietas*" (own translation): "*On the Tauride Ridge Balaklava at the sea. Smaller than common one [i. e. L. agilis—**O.K. et al.**], the tail is very thin, with a green stripe in the middle of the back, and yellow on both sides. It is white greenish below, with eight blue spots on the sides. Fore- and hind limbs with five toes. They are only at the Tauride Ridge*".

However, what exactly was described by Hablitz whom Georgi considered the author of the name *L. taurica*? In the first (Russian) edition of Hablitz (1785) this species was mentioned as "A small motley lizard (*Lacerta agilis* var.)" (own translation): "*It lives between stones on the highest seaside mountains*, near Baluklava (sic!). Its length from the tip of the snout to the tail base is *no more than one and a half vershok*, and *the tail* is much *longer than the body*. *The skin covering the back is smooth*, *green in the middle*, *and yellow on the sides with black transverse spots*. *The underside of the body is white-greenish*, and *on each side there are eight azure spots*. *The tail is dark green above*, but *lighter below*, and *covered with acute scales*. *The legs*, both *front* and *rear, are five-toed*. In other places of Russia, this variety of lizards is not found" (original author's italic emphasis preserved).

The neighbourhood of Balaklava is indicated as a habitat for the "*L. agilis* var." This is a small town on the shore of a narrow fjord-shaped bay where the Main Range of the Crimean Mountains begins. Two lacertid species, *P. tauricus* and *D. lindholmi* are native in the vicinity of Balaklava (Kukushkin *et al.*, 2019). The first reliable mention of these species in this area was made by the British zoologist Carte (1858). The information he gives about the fauna of southwestern Crimea mainly relates to the Balaklava environment, which was the main camp of the British forces during the Crimean War (1854–1856). Among the lacertid lizards, he listed *Podarcis taurica* [sic!], *P. oxycephala* (i. e. *D. lindholmi*, in the current taxonomy), and *L. viridis* (most likely meaning *L. agilis* as *L. viridis* is not native to Crimea) (Carte, 1858, p. 275). Currently, *P. tauricus* is rarely found on the outskirts of the city, which is due to the anthropophobicity of this species avoiding industrial landscapes (Szczerbak, 1966). However, on the steep slopes of the mountains framing Balaklava Bay, this xerophilous lizard is still quite common even at altitudes of less than 50 m above sea level. During the time of Hablitz's visit, the species undoubtedly occurred on the sparsely human-build stony and sandy shores of the bay (as can be seen nowadays everywhere in landscapes preserved in their natural state). After the Russian-Turkish War (1768–1774) and the subsequent annexation of Crimea, Balaklava became almost depopulated and was a semi-abandoned village for several decades (Fig. 1) (Pallas, 1801, 1999; Pinchuk, 2013).

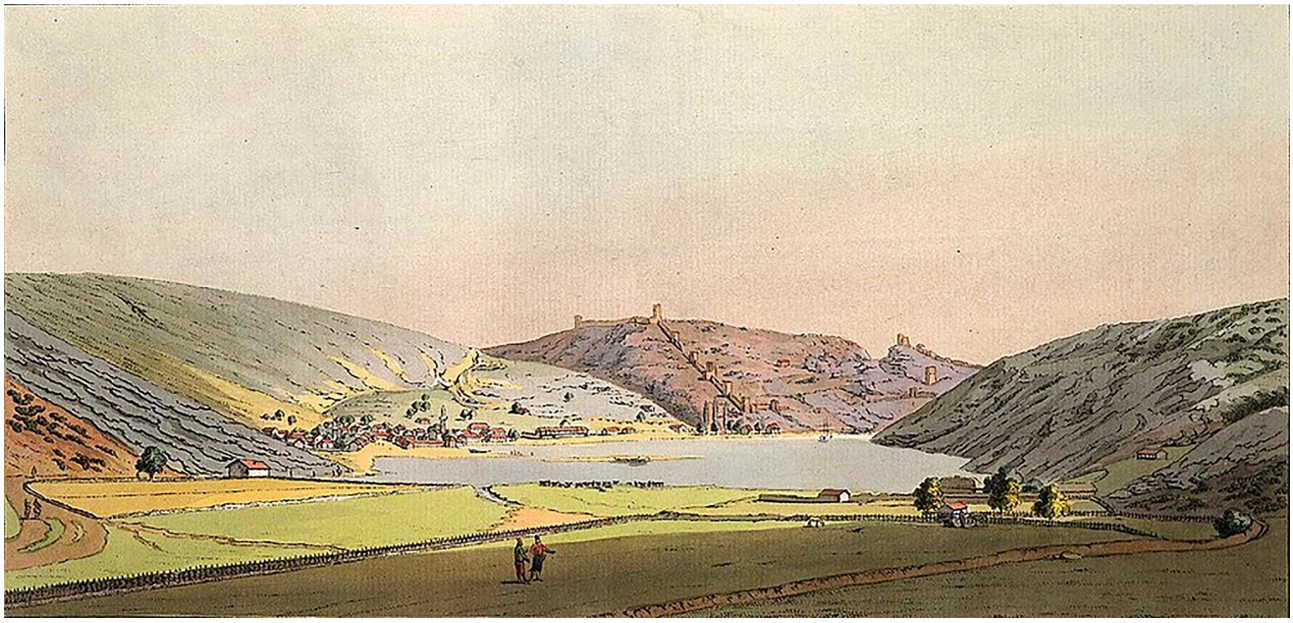

FIGURE 1. View of Balaklava from the bay top in 1794. A painting made by Christian Gottfried Heinrich Geissler, member of Pallas' Crimean expedition, and illustrator of the "*Zoographia Rosso-Asiatica*" (by Pallas, 1801, plate 9).

FIGURE 2. Typical habitats of *Darevskia lindholmi* near Balaklava: **A.** Kastron Mount, ruins of the Genoese fortress Chembalo; **B.** View on the entrance to the Balaklava Bay from its western bank, the highest summit on the background is Asketi Mount (marked with a red ellipse); **C.** Precipitous seaside slope of Asketi Mount; **D.** Kaya-Bash Heights to the west from the Balaklava Bay. Photography by O. Kukushkin.

At the same time, *D. lindholmi* is not widely distributed in this area. The Balaklava surroundings are characterized by a hot and very dry climate, which impacts the spatial distribution of this mesophilic lizard (Kukushkin, 2009). At low altitudes near the town, *D. lindholmi* is sporadically distributed and it can easily be overlooked even with multiple field effort. Despite the lizards' tendency to adapt to human environments, *D. lindholmi* is often absent here, even in suitable human-made habitats. In close proximity to Balaklava, this lizard is found in significant numbers only on the top of Kastron Mount (119 m a. s. l.) which adjoins the entrance to the bay from the east (Fig. 2a). However, *D. lindholmi* becomes significantly more abundant only at altitudes above 250 m a.s.l. For instance, they can be observed on the summit and seaward bluffs of Asketi (or Spilia) Mount, located 1–1.5 km southeast of the city (Fig. 2b, c) as well as along the upper edge of the cliffs of Kaya-Bash Heights on the western shore of the bay (Fig. 2d). Further southeast, approximatelly 3–4 km towards Aya Cape, the landscape transforms into a forested appearance, and the population density of rock lizards becomes more consistent at all altitudes. In the low-mountain region adjancent Balaklava from the east (Khaos, or Ayu-Kaya Ridge), *D. lindholmi* is extremely rare and is only occasionally found below 400 m a.s.l., about 3–5 km away from the town. Therefore, in the immediate vicinity of Balaklava, *D. lindholmi* (but not *P. tauricus*) is limited to the highest peaks (Hablitz explicitly mentions this circumstance). Additionally, the petrophilic *D. lindholmi* has a preference for rocky habitats, while *P. tauricus* is less reliant on their presence and occupies a wider range of habitats. Moreover, Hablitz purposely visited and studied the archaeological sites of medieval fortresses and fortified observation posts (so called "hisars") in Crimea, which were typically situated on mountain tops (including Balaklava area; Hablitz, 1803). These ruins are common habitats for rock lizards.

According to Hablitz (1785), the maximum body length of the "*L. agilis* var." does not exceed 67 mm, and its tail length significantly exceeds its body lenght. Based on our data (Table 1), the average dimensions of *P. tauricus* and *D. lindholmi* are quite close, but there are certain differences in maximum sizes. Approximately 23.8% of our *P. tauricus* specimens regardless of sex, have a body length of 70 mm or more, whereas *D. lindholmi* individuals with such sizes are about 2 times less frequent at 10.5%. It is worth noting that *P. tauricus* from southwestern Crimea, characterized by a mild climate with Mediterranean features, exhibit especially large body sizes (Szczerbak, 1966; Kabisch, 1986). In terms of the relative tail length (range and mean values), *P. tauricus* is similar to *L. agilis* (Table 1). Nevertheless, the differences are not significant enough to warrant inclusion in a concise and superficial morphological description. In contrast, 41.9% of all examined *D. lindholmi* specimens have a tail that is two or more times longer than the body, which represents a distinct trait. Only 5.6% of *P. tauricus* individuals and a mere 1.2% of *L. agilis* individuals exhibit this tail length ratio for comparison. Rathke (1837) and Nikolsky (1915) have previously noted references to the rock lizard having a relatively much longer tail compared to *P. tauricus*.

TABLE 1. Comparison of three lacertid species from Crimea by morphometric parameters.

Species (n)	Traits (range; mean±SD)				Number (n) and proportion of individuals with:	
	SVL, mm	TRL, mm	TL, mm	SVL/TRL	SVL ≥ 70 mm	SVL/TRL ≤ 0.5
P. tauricus						
(68) males	50–77 63.9±0,87	82–155 117±1.90	136–229 181±2.64	0.47–0.73 0.55±0.006	(20) 29.4%	(7) 10.3%
(67) females	50–75 63.4±0,74	74–110 106±1.58	131–205.3 169±2.21	0.46–0.78 0.60±0.007	(14) 20.9%	(1) 1.5%
D. lindholmi						
(82) males	50–75.4 62.6±0.58	89–160 124±1.66	125.5–231 186±2.51	0.43–0.65 0.51±0.005	(9) 11.0%	(46) 56.1%
(42) females	50.3–71 59.7±0.88	93–138 109±1.66	123.7–207.5 168±2.57	0.47–0.66 0.55±0.007	(4) 9.5%	(6) 14.3%
L. agilis						
(38) males	50–103 79.0±2.35	86.5–189 136±4.56	136.5–292 215±6.77	0.48–0.77 0.59±0.008	(28) 73.7%	(1) 2.6%
(45) females	53.7–98 75.6±1.73	78.1–160 120±2.62	131.8–248 196±4.18	0.54–0.75 0.63±0.008	(20) 44.4%	(0) 0.0

Hablitz (1785, 1789) stated that the dorsal scales of the "*L. agilis* var." are smooth. In contrast, *P. tauricus* has convex scales on the centre of its back with the noticable ribs or small spines (see Rathke, 1837; Nikolsky, 1915; Szczerbak, 1966; Arnold *et al.*, 2007). On the other hand, *D. lindholmi* has completely smooth dorsal scales (Rathke, 1837). Both species have carinate scales on their tails, but the ribs are more pronounced in *D. lindholmi*, particularly in the proximal section. Rathke (1837) described the tail shields of *D. lindholmi* as strongly keeled, with keels that extend backward resembling spines. This gives the tail of *L. grammica* (referring to *D. lindholmi* in the present context) a rough texture when touched.

The green central portion of the back is a distinguishing feature of both sexes of *P. tauricus* and only males of *D. lindholmi* during the reproductive period. In females of the latter species, grey-brown shades dominate the back coloration, although occasional individuals with a greenish coloration can be found in the extreme southwest of Crimea, particularly in the Balaklava District of Sevastopol (Szczerbak, 1966; personal observations). It is important to note that the dorsal surfaces of *P. tauricus* exhibit a bright green colour (Fig. 3a, b) only during certain periods and not throughout the year. By mid-summer, the back of both sexes assumes a brownish, olive-grey, or ashy hue, blending with the dry grassy vegetation (Kukushkin & Doronin, 2013; Fig. 3c, d). The green tones are better visible only prior to hibernation.

FIGURE 3. Colour pattern features in *Podarcis tauricus,* dorsolateral view: **A.** The mating pair, Karadag Nature Reserve, Theodosia Urban Territory, 14th May 2021; **B.** Male, near Balaklava, Sevastopol City, 25th April 2023; **C.** Male, near Shchebetovka settlement, environs of the Karadag Nature Reserve, 17th July 2019; **D.** Female, same locality and date. Photography by M. Beskaravaynyi (**A**), O. Kukushkin (**B**), K. Milto (**C**, **D**).

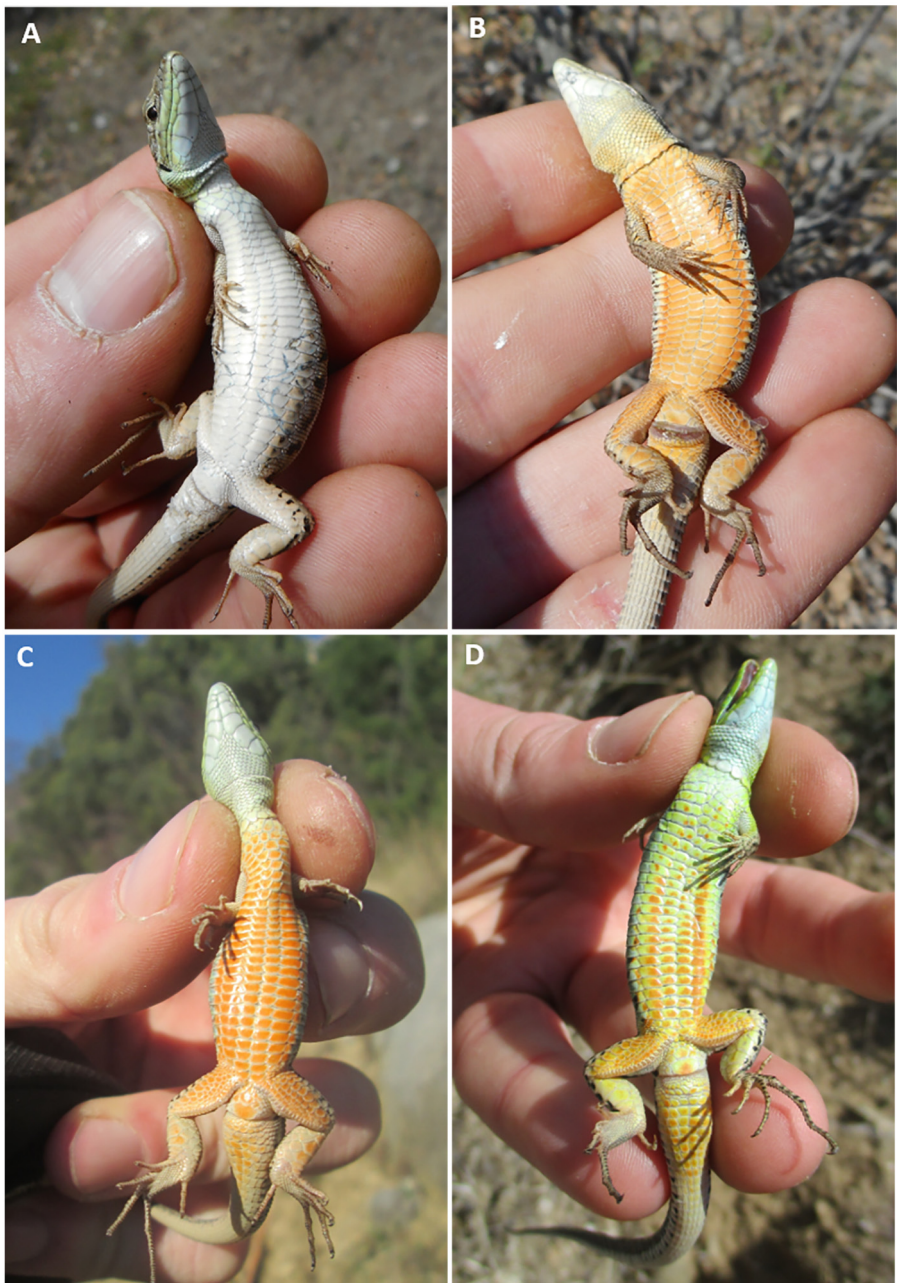

FIGURE 4. Colour pattern features in *Podarcis tauricus*, ventral view: **A.** Female, Laspy Bay area, Balaklava Distict of Sevastopol, 24th Arpil 2021; **B.** Male, Karadag Reserve, 2nd April 2021; **C.** Male, near Foros settlement, Balaklava District of Sevastopol, 6th January 2018; **D.** Male, Asketi Mount, near Balaklava, 25 th April 2023. Photography by O. Kukushkin.

Both lacertids species exhibit a characteristic pattern of transversely oriented dark spots on the body flanks. In *P. tauricus*, the large spots typically do not extend to the middle of the back, whereas *D. lindholmi* often display a complex spotted pattern that cover the entire dorsal surface. However, there is significant individual variability in this trait, and it is not uncommon to find rock lizards with a back pattern reduced to small specks and dots. It is important to point out that Hablitz and Georgi do not mention a distinctive feature of *P. tauricus* which is presence of narrow longitudinal light stripes on the body sides. These stripes known as dorsolateral, begin at the posterolateral edge of the parietal shield, and there are also a wider lower lateral stripes that starts behind the ear opening (Arnold *et al.*, 2007).

The flanks of *P. tauricus* are not yellow; rather, they have a brownish or grey background colour. Ocassionally, there may be yellow-green shades present on the jaws and lateral surface of the throat. The belly of *P. tauricus*

females is white or whitish, sometimes with a touch of grey (Fig. 4a). In males, orange-yellow elements in the belly coloration often persist even outside the breeding season. However, when viewed from above, the brightly colored belly of *P. tauricus* males (Fig. 4b–d) is almost imperceptible. On the other hand, the flanks of *D. lindholmi*, particularly in males, may appear yellow, due to their higher body position and the presence of a longitudinal fold on the flanks, which expose the bright belly coloration (Fig. 5a, b). This impression is further intensified by the well-defined yellow coloration on the underside of the thighs, and sometimes on the jaws, throat, and shins. It is important to note that observers typically view these lizards from the side or even from abdomen, since they moving freely along vertical surfaces (behaviour not typical for *P. tauricus*). The belly colour of male *D. lindholmi* is lighter compared to *P. tauricus*, reanging from egg yellow to lemon or honey yellow, while females tend to have paler shades (Szczerbak, 1966). In some populations, even during the breeding season, the belly remains predominantly whitish even in males, with yellow tones present only on the marginal ventral plates, giving the impression of being "on the flanks" (Fig. 5c, d; 6a, b). The greenish-white colour of the belly mentioned for *L. agilis* var. (Hablitz, 1785) is more characteristic of *L. agilis* than any other Crimean Lacertidae. However, some *D. lindholmi* females may exhibit pale greenish hues on on outer ventral plates.

FIGURE 5. Colour pattern features in *Darevskia lindholmi,* lateral view: **A.** Male, near Ternovka village, Balaklava District of Sevastopol, 25th April 2018; **B.** Male, near Bakhchisaray town, 20th August 2007; **C.** Male, near Orlinoe village, Balaklava District of Sevastopol, 25th April 2022; **D.** Female, same point and date. Photography by M. Khrisanova (**A**), I. Doronin (**B**), O. Kukushkin (**C**, **D**).

Podarcis tauricus lacks or only weakly expresses blue (azure) spots on the flanks. Only a portion of adult individuals, regardless of gender, may have one or two small blue spots behind the forelimbs. On the other hand, well-defined blue eyespots (ocelli) on the flanks are a characteristic feature of many members of *Darevskia* species, including *D. lindholmi* (Darevsky, 1967; Abramjan *et al.*, 2020). In *P. tauricus*, similar to other members of the genus (Badiane & Font, 2021), only the edges of the outer row of ventral scutes and adjacent dorsal scales exhibit a grey-blue or greenish-blue (turquoise), coloration. However, this pattern, often inconspicuous from a distance, forms an almost continuous stripe in males (Fig. 3a, b) and does not appear as separate spots, as observed in *D. lindholmi*. In addition to the bright ocelli against a dark flank background, *D. lindholmi* also possesses distinct blue spots on the outer ventral scutes (Fig. 6c, d). In *P. tauricus* females, blue spots are minimally expressed and barely noticeable,

particularly during the breeding season, and some individuals may lack them. It is worth noting that von Nordman (1840) mentions small blue spots on the underside of the body of *L. taurica*, while Rathke (1837) overlooks this feature entirely in his detailed description of morphology but mentions it in the morphology description of "*L. grammica* Lichtenstein" (referring to *D. lindholmi*).

Contrary to the descriptions by Hablitz and Georgi, the upper side of the tail in *P. tauricus* is not dark green. Typically, the tail is grey on top, occasionally with a slight brownish hue at the root. In contrast, juveniles of *D. lindholmi*, up to one year of age, do have a distinctively green-blue or greenish yellow coloration on the distal half of the tail (Fig. 7). Additionally, in some adult males of *D. lindholmi*, the base of the tail can be brownish green.

FIGURE 6. Colour pattern features in *Darevskia lindholmi,* ventral view and blue ocelli and spots on the body flanks and outer-ventral plates: **A.** Female, Khaos Ridge, Kamara hisar ruins, near Balaklava, 29th May 2022; **B.** Male, Asketi Mount, near Balaklava, 29th May 2022; **C.** Male, same point and date; **D.** Male, Karadag Nature Reserve, Theodosia Urban Territory, 18th July 2019. Photography by O. Kukushkin (**A**–**C**), K. Milto (**D**).

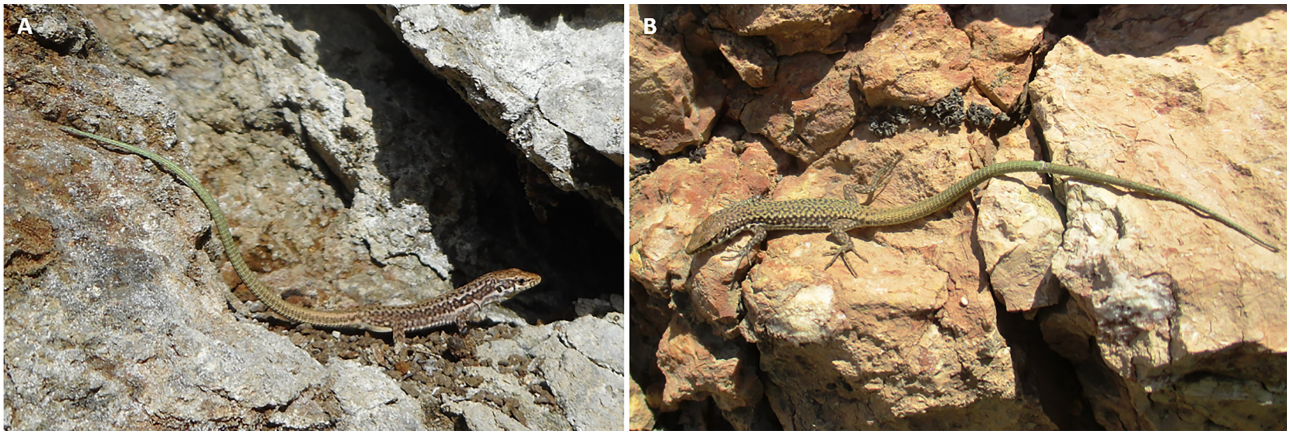

FIGURE 7. Tail coloration in juveniles of *Darevskia lindholmi*: **A.** Karadag Nature Reserve, Theodosia Urban Territory, 17th October 2021; **B.** Genoese fortress of Balaklava, 25th April 2023. Photography by O. Kukushkin.

In the Northern Black Sea region, *P. tauricus* is found in Crimea as well as in the steppe Tauria and Bessarabia, extending from the left bank of the Lower Dnieper to the Danube Delta (Szczerbak, 1966; Kabisch, 1986). However, until the early 20th century, it was widely accepted that the distribution of this species within the former Russian Empire is limited exclusively to Crimea (Nikolsky, 1915). In contrast, *D. lindholmi*, a narrow-range Crimean endemic of species, was not recognized as a distinct from *P. muralis* (Laurenti, 1768) by zoologists until beginning of 20th century (see Kessler, 1853; Nikolsky, 1892, 1905; Méhely, 1909), and it was not distinguished from the nominal subspecies of *D. saxicola* (Eversmann, 1834) until the second half of 20th century (see Szczerbak, 1962, 1966; Doronin, 2012).

Hablitz's mention of the presence of *L. agilis* var. in a specific area in Crimea could potentially apply to both species with equal likelihood. However, it seems peculiar that the distribution range of *P. tauricus*, the most abundant lacertid species on the Crimean Peninsula, would be exclusively limited to Balaklava (moreover, only surrounding highest peaks). The same applies to *D. lindholmi*, considering that Hablitz visited "cave towns" in the piedmont areas (such as Tepe-Kermen, Eski-Kermen, Mangup-Kale, Inkerman) (Hablitz, 1785, 1803; Mogarichev, 2017) and other regions in southwestern Crimea where, according to our data, this mountain lizard is significantly more abundant (unlike Balaklava).

Therefore, upon reviewing Hablitz's description, it becomes evident that the reliable identification of his "*L. agilis* var." (and consequently *L. taurica* Georgi) is problematic. However, the arguments presented lean towards *D. lindholmi* as a much more likely candidate, since this is indicated by the external signs listed by Hablitz (a very long tail, smooth dorsal scales and many signs of body coloration) and topographic reference to the highest peaks near Balakava where the characteristic habitats of this species in this area are located. It should be noted that Pallas correctly identified all three species of Lacertidae inhabiting the Crimean Mountains long before the publication of "*Zoographia Rosso-Asiatica*". He wrote: "*Green lizards of extraordinary size inhabit the limestone country. Another variety of the yellow-bellied lizard is found everywhere; and the third is very thin lizards, between the rocks. The latter run with such agility that they almost seem to fly*" (Pallas, 1795, p. 63). The first species mentioned is undoubtedly *L. agilis*, the second is *P. tauricus*, and the description of the third species aligns well with the characteristics of *D. lindholmi*. It is surprising, however, that Pallas, who extensively traveled in the Caucasus and spent a significant amount of time in Crimea, especially in Sudak where *D. lindholmi* is abundant, did not provide a detailed description of the rock lizard. It can be assumed that there was a situation similar to his omission of the "*olive-grey lizard with a pale rufous belly and the base of the tail dotted with black dots*" from Siberia (undoubtedly *Zootoca vivipara* (Lichtenstein, 1823)). Regarding the latter, Pallas explained, "*I did not describe it in detail, being overloaded with other duties*" (Pallas, 1814, p. 31).

Pallas's description

Pallas (1814) described several morphological traits of *Lacerta taurica*. He noted that the back of the lizard has a characteristic spotted-striped pattern with a green middle. The overall background colour of the back is grey or bluish grey, and there are three rows of black spots on each side of the body, extending to the tail. The tail continues with a double row of spots for about half of its length. The limbs have the same colour as the body. The underside of the tail is yellowish. Pallas used the Latin term "*fulvus*" to describe the colour of the belly, indicating a pale red or rufous shade (see Bondartsev, 1954). In adult individuals, the belly is described as "*fulvissimae*", meaning a particularly bright reddish-yellow hue. It is worth noting that Pallas used the term "*flavus*" or "*flavo*" to describe the coloration of the ventral side of snakes such as *Coluber sauromates* (= *Elaphe sauromates* (Pallas, 1814)) and *Coluber trabalis* (= *Dolichophis caspius* (Gmelin, 1789)), which denotes yellow without reddish or reddish hues, aligning with the actual coloration (Bondartsev, 1954). The distinction in shades of yellow is further emphasized in the description of *Coluber Natrix* Lin., where Pallas mentioned that neck spots can vary from "*alba vel pallida, calidis flava, fulva, imo fulvo-rubra*", meaning "*white or pale, warm yellow, reddish, or even yellow-red*" (Pallas, 1814, p. 36). Later sources indicated that the belly of mature *P. tauricus* specimens is lemon or even orange-yellow (Rathke, 1837; Nordmann, 1840). Pallas also accurately described the juvenile pattern of *L. taurica*, noting that the belly of male juveniles is whitish in the first year of life, with hardly noticeable dark spots on the flanks but well-defined light longitudinal stripes.

Pallas measured the total length of an adult specimen to be 6 inches and 8 lines, approximately 173 mm, with a tail length of 4 inches and 2½ lines, around 108 mm. Consequently, the body length of this specimen was approximately 65 mm, and the tail relative length index was 0.6. Pallas's recorded body length is slightly shorter than that mentioned by Hablitz (1785), but it is evident that Pallas was referring to the measurements of a specific individual, and the maximum size of the species may vary. The behavioral traits described by Pallas (1814) align with the known ecological data of *P. tauricus*. They include such important details as using abandoned rodent burrows as shelters rather than solely relying on rock crevices, rapid movement along the soil surface, an early start and late end to the active period, and a negative response to low temperatures and high humidity (population decline following extremely cold and wet years). In contrast, *D. lindholmi* is adapted to cold and wet climates, as indicated by its inhabitation in highlands up to elevations of about 1500 m above sea level (in Crimea, *P. tauricus* rarely occurs above 700 m above sea level). Furthermore, *D. lindholmi* shows a response to increased precipitation during the warm season by expanding its range (Kukushkin *et al.*, 2019, 2021).

It is noteworthy that Pallas (1814) mentioned that *L. taurica* was found not only along the southern coast of the Crimean Mountains ("*orae meridionalis montosae Tauricae*") but also in the Caucasus. This could be a result of misidentification, possibly confusing it with the Meadow lizard, *D. praticola* (Eversmann, 1834), which inhabits the Azov-Kuban region, including the Taman Peninsula (Doronin, 2015), explored by Pallas in 1794. The latter ground-dwelling *Darevskia* species to some extant shares a similar habitus with *P. tauricus*, leading to confusion in the publications of some authors (see Szczerbak, 1966, pp. 119–120). This mistake, indicating the Balkan wall lizard in the Taman Peninsula, was replicated by some herpetologists in the mid-20th century (Terentjev & Chernov, 1949; Tarashchuk, 1959). The Russian name "*krymskaya yashcheritsa*" (i.e. Crimean lizard) for "*L. Taurica*, Pall." was introduced by Dwigubsky (1832, p. 13), although he, following Pallas, cited erroneous data regarding its presence in the Caucasus.

The History of Type Collections

After Pallas returned to the Kingdom of Prussia in 1810, some of his zoological collections remained in Crimea. However, the fate of these materials is uncertain, as they were lost (Wendland, 1992). Nevertheless, Pallas took some specimens that could be useful for further work on the "*Zoographia Rosso-Asiatica*" to Berlin. Following Pallas's death in 1811, his herpetological collections were passed on to K.A. Rudolphi, a foreign corresponding member of the Imperial Academy of Sciences, who then donated them to the ZMB (Zoologisches Museum Berlin, now Museum für Naturkunde Berlin). The first references to Pallas's herpetological objects appear in handwritten inventories by M.H.C. Lichtenstein titled "*Catalogus Amphibiorum Musei regii Berolinensis III.*" These unpublished lists, created between 1813 and 1824, serve as the initial catalogues of the ZMB amphibian and reptile collections.

Order II, Saurii, lists five species with one specimen each: *L.*[*acerta*] *tigrina*, *L. taurica*, *L. sericea* (sheet 6; Fig. 8), *St.*[*ellio*] *caudivolvulus*, and *St. helioscopus* (sheet 8). The location is indicated as "*Siberica*", and the collector is noted as "Pall.; Rud." (referring to Pallas and Rudolphi).

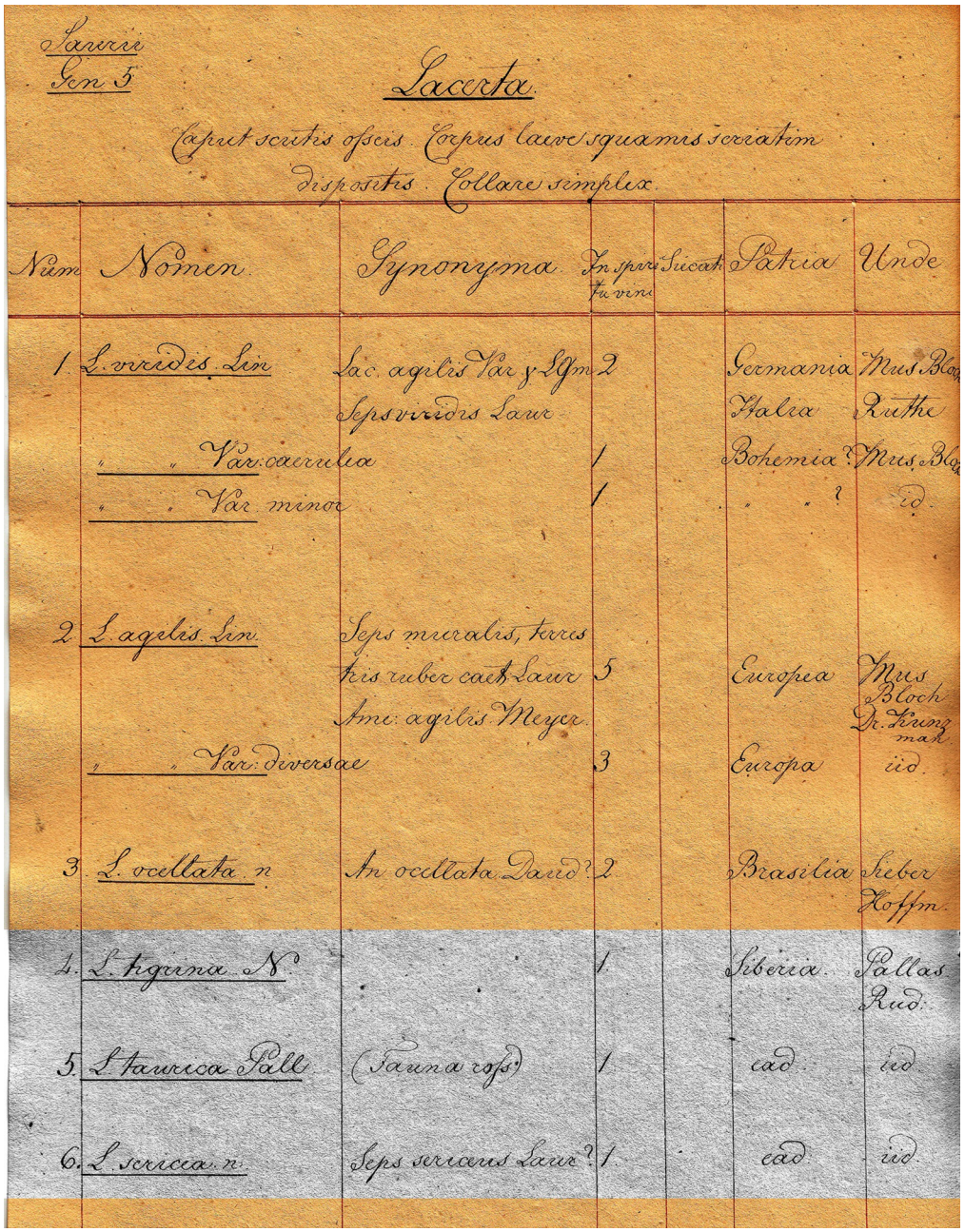

FIGURE 8. List 6 from Martin Heinrich Carl Lichtenstein's manuscript "*Catalogus Amphibiorum Musei regii Berolinensis III*". A specimen of *Lacerta taurica* Pall. is listed under number 5, with the reference to Pallas' "*Fauna Rossica*" (under this title, in academic protocols and letters of Pallas usually referred to as "*Zoographia Rosso-Asiatica*"). Photography by F. Tillack.

A systematic inventory of the ZMB herpetological collections began around 1858, led by Lichtenstein and W.C.H. Peters. The first volume of the numeric inventory catalogue on amphibians and reptiles (catalogue number 1-11331) mentions eight lizard specimens that can undoubtedly be attributed to Pallas's collection. These include ZMB 439: *Stenodactylus pipiens*; ZMB 781: *Phrynocephalus helioscopus*; ZMB 793–794: *Phr. caudivolvulus*; ZMB 1015, ZMB 1020: *Lacerta muralis*; ZMB 1060: *Acanthodactylus arguta*; ZMB 1102: *Eremias variabilis*. Examination of photographs of these specimens revealed that *P. tauricus* is not among them, but individuals ZMB 1020 (presumably *D. lindholmi*) and ZMB 1102 (*Eremias arguta* (Pallas, 1773)) could be linked to Crimea based on their origin. Additionally, Peters mentions a specimen, ZMB 1939: *Tropidonotus natrix*, with "Crimea" listed as the

locality and Rudolphi as the donor. For most specimens from Pallas's collection, the original location data, if they ever existed, have not been found. Indications such as "Siberia" or "Southern Siberia", introduced by the curator Lichtenstein and followed by Peters in the first catalogue, were likely assigned arbitrarily based on Pallas's known travel routes or borrowed from Lichtenstein's unpublished inventories. Therefore, based on current knowledge, only a few reptile specimens currently housed in the ZMB represent remnants of the extensive herpetological material collected by Pallas and his assistants across the vast territories of Northern Eurasia. Also there is a slim hope that some of Pallas's collections from the Natural Cabinet of the Kunstkamera (which he curated until his move to Crimea in 1795; Abaydulova, 2021) may be discovered in the future in the collections of ZISP.

Taxonomical and nomenclatural conclusions

We found serious inconsistencies between the Georgi's and Hablitz's descriptions and external morphology of *P. tauricus*. Among two species of lacertids, *P. tauricus* and *D. lindholmi* which could be reported by Georgi (1801) under the name *Lacerta taurica*, the last one is more probable. Very long and thin tail and presence of azure spots on the body sides reported by Georgi (1801) and Hablitz (1785, 1789) are usual for *D. lindholmi*, but not for *P. tauricus*. Georgi and Hablitz did not mention narrow longitudinal light stripes on the body sides, which are characteristic for *P. tauricus* but are absent in *D. lindholmi*. Smooth dorsal scales reported by Hablitz, also suggest that its was *D. lindholmi*, but not *P. tauricus*. Assumption that the lizard described by Hablitz was *D. lindholmi*, is supported by the fact that it was found only on the highest peaks in the vicinity of Balaklava. In contrast to this, the description given by Pallas (1814) is undoubtedly to be assigned to *P. tauricus* in the current sense.

From the formal point of view, the publication by Georgi (1801) fits criteria of availability for the species name *Lacerta taurica*, because this name was accompanied by a description (ICZN Article 12.1) and satisfies the provisions of Article 11. However, till recently the name *Lacerta taurica* in the publication by Georgi (1801) was erroneously regarded to be *nomen nudum* and because of this unavailable (Nikolsky, 1915, p. 338). In accordance with this, Pallas (1814) was regarded to be the author of the name *Lacerta taurica*. It should be noted also that there are no publications of the species name *L. taurica* indicating the authorship of Georgi (1801). Already in the first half of the 19th century, Pallas always was cited as the author of the description of the species (Dwigubsky, 1832; Rathke, 1837; Duméril & Bibron, 1839; Nordmann, 1840). It seems unlikely that all of these authors were unaware of Georgi's publications. Obviously, they had reasons for recognizing Pallas as the author of this name.

The above indicates that the name *Lacerta taurica* reported by Georgi (1801) was attributed by him not to the species currently known as *Podarcis tauricus*, but to the species currently known as *Darevskia lindholmi*. If now recognize authorship of the name *Lacerta taurica* as belonging to Georgi (1801), this would require transferring the species name "*taurica*" to the species currently known as *D. lindholmi* and creating a new name for the species currently known as *P. tauricus*.

According to the ICZN (Article 23.2), "the Principle of Priority is to be used to promote stability and it is not intended to be used to upset a long-accepted name in its accustomed meaning by the introduction of a name that is its senior synonym or homonym". In accordance with this, the Article 23.9.1 requires to maintain prevailing usage in the cases when "the senior synonym or homonym has not been used as a valid name after 1899, and the junior synonym or homonym has been used for a particular taxon, as its presumed valid name, in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years". This requirement is fulfilled, because the name *Lacerta taurica* with the authorship of Pallas (1814) was used in the numerous papers (see Appendix).

However, this rule is applicable for synonyms (i. e. different names given for one and the same taxon) and for homonyms (i. e. identical names given for wittingly different taxa). Contrary to them, the names *Lacerta taurica* Georgi 1801 and *Lacerta taurica* Pallas 1814 are not synonyms (because they are identical) and not homonyms (because they are considered to belong to one and the same species). The solution to the problem could be the suppressing of the name *L. taurica* Georgi, 1801 by plenary power of the Commission on Zoological Nomenclature, so that Pallas's authorship would become valid. For the time being, to ensure the stability of the nomenclature, we recommend Pallas as the author of the description and the name *P. tauricus*.

With this correction, synonymy and chresonymy of two Crimean lizard species is the following:

***Podarcis tauricus* (Pallas 1814)**
Lacerta taurica: Pallas 1814: 30.
Lacerta taurica Pall.: Dwigubsky 1832: 13.—Rathke 1837: 302.—Duméril et Bibron 1839: 225.—Nordmann 1840: 337.—Nikolsky 1892: 409.—Nikolsky 1905: 127.—Nikolsky 1915: 338.—Szczerbak 1966: 117.
Podarcis taurica: Bonaparte 1836.—Carte 1858: 275.
Zootoca taurica: Boulenger 1881: 740.
Podarcis tauricus: Böhme et Köhler 2005 (by implication).

***Darevskia lindholmi* (Szczerbak 1962)**
Lacerta agilis var.: Hablitz 1785: 195.
Lacerta agilis L. *varietas*: Hablitz 1789: 350.
"*Lacerta taurica* Hablz.": Georgi 1801: 1876 (*nomen oblitum*, to be suppressed by plenary power of ICZN).
Lacerta grammica: Rathke 1837: 303 (non *L. grammica* Lichtenstein 1823).
Lacerta muralis: Kessler 1853: 22.—Nikolsky 1892: 411.
Podarcis oxycephala: Carte 1858: 275 (non *L. oxycephala* Schlegel in Duméril et Bibron 1839).
Lacerta muralis forma *typica*: Boulenger, 1887: 28–30, partim.—Nikolsky 1905, 133, partim.
Lacerta saxicola forma *typica*: Méhely, 1909: 498, partim.
Lacerta saxicola saxicola Eversm.: Nikolsky 1915: 363.
Lacerta saxicola saxicola: Lantz & Cyrén 1936: 164 (non *L. saxicola* Eversmann 1834).
Lacerta saxicola lindholmi: Lantz & Cyrén 1936: 164 (*nomen nudum*).
Lacerta saxicola lindholmi Lantz & Cyrén 1936: Szczerbak 1962: 1378.—Szczerbak 1966: 142.—Darevsky 1967: 66.
Lacerta saxicola lindholmi Szczerbak 1962: Doronin 2012: 30.
Darevskia lindholmi: Arribas, 1999: 17

A putative syntype of *L. taurica* Pallas, initially deposited in the ZMB in the first quarter of the 19th century (according to the primary inventory of herpetological collections compiled by Lichtenstein), could not be located so far. However, the search for this specimen will continue.

Acknowledgements

The authors are sincerely grateful to Dmitry Dmitriev, Anton Nadolnyi, Thomas Pape, Francisco Welter-Schultes, Douglas Yanega, and Hong-Zhang Zhou for consultations on the nomenclatural issues, to Mikhail Beskaravaynyi, Marina Khrisanova, and Konstantin Milto for providing some photographs, and Yuliya Krasylenko for improving of the language and comprehensive support. The work of O.K. was carried out at the Unique Science Facility State Nature Reserve "Karadagsky", within the framework of research topics of the state assignments nos. 124030100098-0 and 122031100282-2. The latter topic number is also relevant for I.D.

References

Abaydulova, A.G. (2021) Peter Simon Pallas and the academic Kunstkamera's cabinet of natural history in the last third of 18th century: on the occasion of the scientist's 280th anniversary. *Kunstkamera*, 4 (14), 222–234. [in Russian] https://doi.org/10.31250/2618-8619-2021-4(14)-222-234

Abramjan A., Arakelyan, M. & Frynta, D. (2020) Does reproductive mode affect sexually-selected coloration? Evaluating UV-blue spots in parthenogenetic and bisexual lizards of the genus *Darevskia*. *Current Zoology*, 67, 201–213. https://doi.org/10.1093/cz/zoaa039

Arnold, E.N., Arribas, O.J. & Carranza, S. (2007) Systematics of the Palaearctic and Oriental lizard tribe Lacertini (Squamata: Lacertidae: Lacertinae), with descriptions of eight new genera. *Zootaxa*, 1430 (1), 1–86. https://doi.org/10.11646/zootaxa.1430.1.1

Arribas, O.J. (1999) Phylogeny and relationships of the mountain lizards of Europe and Near East (*Archaeolacerta* Mertens, 1921, *sensu lato*) and their relationships among the Eurasian lacertid radiation. *Russian Journal of Herpetology*, 6 (1), 1–22.

Badiane, A. & Font, E. (2021) Information content of ultraviolet-refecting colour patches and visual perception of body coloration in the Tyrrhenian wall lizard *Podarcis tiliguerta*. *Behavioral Ecology and Sociobiology*, 75, 96. https://doi.org/10.1007/s00265-021-03023-2

Böhme, W. & Köhler, J. (2004) Do Endings of adjective flectible fpecies names affect stability? A final note on the gender of *Podarcis* Wagler, 1830 (Reptilia, Lacertidae). *Bonner zoologische Beiträge*, 53 (3/4), 291–293.

Bonaparte, C.L.P. (1836) *Iconografia della Fauna Italica: per le quattro classi degli Animali Vertebrati. Tomo II. Amfibi*. Tipografia Salviucci, Roma [unknown pagination]
Bondartsev, A.S. (1954) *The scale of colours (manual for biologists in scientific and applied research)*. Publishing House of the Academy of Sciences, Moscow; Leningrad, 27 pp. [in Russian]
Boulenger, G.A. (1881) On the lizards of the genera *Lacerta* and *Acanthodactylus*. *Proceedings of the Zoological Society of London*, 1881, 739–747.
https://doi.org/10.1111/j.1096-3642.1881.tb01331.x
Boulenger, G.A. (1887) *Catalogue of the lizards in the British Museum (Natural History).* Vol. 3. *Lacertidae, Gerrhosauridae, Scincidae, Anelytropidae, Dibamidae, Chamaeleonidae.* Printed by order of the Trustees, London, 566 pp., 40 pls. with illustrations.
Carte, W. (1858) Observations during the Campaign of 1854, 1855, and 1856, on the Crimea. *The Journal of the Royal Dublin Society*, 1 (1856–1857), 250–280.
Darevsky, I.S. (1967) *Rock Lizards of the Caucasus: Systematics, ecology and phylogeny of the polymorphic group of Caucasian rock lizards of the subgenus Archaeolacerta*. Nauka, Leningrad, 214 pp. [in Russian]
Doronin, I.V. (2012) Review of type specimens of Rock lizards of *Darevskia* (*saxicola*) complex (Sauria: Lacertidae). *Proceedings of the Zoological Institute of Russian Academy of Sciences*, 316 (1), 22–39. [in Russian]
https://doi.org/10.31610/trudyzin/2012.316.1.22
Doronin, I.V. (2015) Distribution data of Rock lizards from the *Darevskia* (*praticola*) complex (Sauria: Lacertidae). *Current Studies in Herpetology*, 15 (1/2), 3–38. [in Russian]
Duméril, A.M.C. & Bibron, G. (1839) *Erpétologie Générale ou Histoire Naturelle Complète des Reptiles. Vol. 5.* Imprimerie de Fain et Thunot, Paris, 871 pp.
Dwigubsky, I. (1832) *The Experience of the Natural History of All Animals of the Russian Empire. Vol. 4. Herptiles, or crawling animals* (*Reptilia*). Moscow University Printing House, Moscow, 48 pp., 12 tables of illustrations. [in Russian]
Georgi, J.G. (1801) n.k. *In*: *Geographisch-physikalische und Naturhistorische Beschreibung des Rußischen Reiches zur Uebersicht bisheriger Kenntnisse von demselben*. *Part 3. Vol. 7. Bisher bekannt gewordene Thierarten*. Friedrich Nicolovius, Königsberg, pp. 1681–2222.
Göcek, Ç. & Tok, C.V. (2022) Identifying the Past, Present, and Future Distribution Patterns of the Balkan Wall Lizard (Sauria: Lacertidae: *Podarcis tauricus*) by Ecological Niche Modelling. *Commagene Journal of Biology*, 6 (2), 146–159.
https://doi.org/10.31594/commagene.1133846
Hablitz, C. (1785) *Physical description of the Tauride region by its location, and by all three Kingdoms of the nature*. Imperial Printing House, Iwan Weitbrecht, Sanct Petersburg, 198 pp. [in Russian]
Hablitz, C.L. (1789) *Physicalische Beschreibung der Taurischen Statthalterschaft nach ihrer Lage und allen drey Naturreichen*. Verlag der Schmidt'schen Buchhandlung, Hannover and Osnabrück, 386 pp.
Hablitz, C.L. (1803) *Geographical information to explain the former state of the current Tauride province from different ancient and medieval times writers*. Printing House of the State Medical College, Sanct Peterburg, 52 pp. [in Russian]
Hablitz, C. (1821) *A brief description of the life and service of Karl Ivanovich Hablitz, the Privy Councilor, Senator and Knight of various orders*. Printing house of N. Grech, Sanct Petersburg, 40 pp. [in Russian]
International Commission on Zoological Nomenclature (1999) International Code of Zoological Nomenclature, Fourth Edition: adopted by the International Union of Biological Sciences, with effect from 1st January, 2012. The International Trust for Zoological Nomenclature. Available from: https://www.iczn.org/the-code/the-code-online/ (accessed 12 May 2024)
Kabisch, K. (1986) *Podarcis taurica* (Pallas, 1814) Taurische Eidechse. *In*: Bohme, W. (Ed.). *Handbuch der Reptilien und Amphiben Europas. Bd. 2/II. Echsen III (Podarcis)*. Aula Verlag, Wiesbaden, pp. 343–362.
Kessler, K. (1853) *Amphibian animals. Natural history of the provinces of the Kiev educational district. Zoology. Systematic part. Issue 5. Transactions of the Commission established at the St. Vladimir Imperial University to describe the provinces of Podolsk, Volyn, Kiev, Chernigov and Poltava of the Kiev educational district. Vol. 2.* University Printing House, Kiev, 94 pp. [in Russian]
Kiourtsoglou, A., Kaliontzopoulou, A., Poursanidis, D., Jablonski, D., Lymberakis, P. & Poulakakis, N. (2021) Evidence of cryptic diversity in *Podarcis peloponnesiacus* and re-evaluation of its current taxonomy; insights from genetic, morphological, and ecological data. *Journal of Zoological Systematics and Evolutionary Research*, 59 (8), 2350–2370.
https://doi.org/10.1111/jzs.12540
Khrapunov, N.I. (2022) A tour of Edward Daniel Clarke and Peter Simon Pallas to the southwestern Crimea in September 1800. *Materials in Archaeology, History and Ethnography of Tauria*, 27, 592–627. [in Russian]
https://doi.org/10.29039/2413-189X.2022.27.592-627
Konkin, D.V. (2017) Economic "discoveries" in Crimea in works by V.F. Zuyev and C.L. Hablitz: "Defect in description". *RUDN Journal of Russian History*, 16 (3), 378–399.
https://doi.org/10.22363/2312-8674-2017-16-3-378-399
Kukushkin, O.V. (2009) About some patterns of the spatial distribution of Lindholm's rock lizard *Darevskia lindholmi* (Sauria: Lacertidae) in the South-Eastern coast of the Crimea. *Samarskaya Luka: Problems of regional and global ecology*, 18 (1), 68–75. [in Russian]
Kukushkin, O.V. & Doronin, I.V. (2013) Distribution peculiarities of the rare colour aberrations in the Balkan wall lizard, *Podarcis tauricus* (Sauria: Lacertidae), from the Crimea. *Proceedings of the Zoological Institute of Russian Academy of*

Sciences, 317 (4), 474–493. [in Russian]
https://doi.org/10.31610/trudyzin/2013.317.4.474
Kukushkin, O.V., Trofimov, A.G., Turbanov, I.S. & Slodkevich, A.Y. (2019) Herpetofauna of Sevastopol city (southwestern Crimea): species composition, zoogeographic analysis, landscape-zonal distribution, current status and protection. *Ecosystem Trasformation*, 2 (4), 4–62.
https://doi.org/10.23859/estr-190530
Kukushkin, O.V., Turbanov, I.S., Gorelov, R.G. & Trofimov, A.G. (2021) On limits of the distribution range of the Crimean rock lizard *Darevskia lindholmi* (Sauria: Lacertidae). *Current Studies in Herpetology*, 21 (3–4), 101–122. [in Russian]
https://doi.org/10.18500/1814-6090-2021-21-3-4-101-122
Lantz, L.A. & Cyrén, O. (1936) Contribution à la connaissance de *Lacerta saxicola* Eversmann. *Bulletin de la Société Zoologique de France*, 61, 159–181.
Méhely, L. (1909) Materialien zu einer Systematik und Phylogenie der Muralis-Ähnlichen Lacerten. *Annales Musei Nationalis Hungarici*, 7, 409–621.
Mogarichev, Y.M. (2017) On history of researching mountain south-west Crimea: A.S. Uvarov on origin of Taurida's cliff architecture. *Scientific notes of V.I. Vernadsky Crimean University. Serie: Historical sciences*, 3 (2), 94–110. [in Russian]
Nikolsky, A.M. (1892) Vertebrate animals of Crimea. *Memoires de l'Académie Impériale des Sciences de St.-Pétersbourg*, 4 (Supplement to Vol. 68), 1–484. [in Russian]
Nikolsky, A.M. (1905) Reptiles and amphibians of the Russian Empire (=Herpetologia Rossica). *Memoires de l'Académie Impériale des Sciences de St.-Pétersbourg*, Serie 8: Physics and mathematics Department, 17 (1). 1–520. [in Russian]
Nikolsky, A.M. (1915) *Fauna of Russia and adjacent countries. Reptiles (Reptilia)*. *Vol. 1. Chelonia et Sauria*. Imperial Printing House, Petrograd, 534 pp. [in Russian]
Nordmann, A. (1840) Observations sur la fauna Pontique. *In*: *Voyage dans la Russie méridionale et la Crimée, par la Hongrie, la Valachie et la Moldavie exécuté en 1837, sous la direction de M. Anatole de Démidoff. Vol. 3.* Ernest Bourdin et Comp, Paris, pp. 1–756.
Pallas, P. (1795) *A Brief Physical and Topographic Description of the Tauride Region*. *Translated from the French by Rizhsky. I*. Imperial Printing House, Sanct Petersburg, 72 pp. [in Russian]
Pallas, P.S. (1801) *Bemerkungen auf einer Reise in die südlichen Statthalterschaften des Rußischen Reichs in den Jahren 1793 und 1794*. *Bd. 2*. Bey Gottfried Martini, Leipzig, 525 pp.
https://doi.org/10.5962/bhl.title.48469
Pallas, P. (1814) *Zoographia Rosso-Asiatica, systens omnia animalium in extenso Imperio Rossico et adjacentibus maribus observatorum recensionem, domicilia, mores et descriptiones, anatomen atque icons plurimorum*. *Tome 3. Imperii Rossici animalia Monocardia seu frigidi sanguinis.* Officina Caes. Academiae Scientarum Impress, Petropoli, 428 pp. [in Latin]
Pallas, P.S. (1999) *Observations made during a trip to the southern governorships of the Russian state in 1793–1794*. *Series: Scientific legacy. Vol. 27.* Translated from German by Bertier de la Garde, A.L. Nauka, Moscow, 246 pp. [in Russian]
Pinchuk, S.A. (2013) Balaklava Greek infantry battalion in the first quarter of the 19th century. *In*: Nikiforov, K.V. & Sokolovskaya, O.V. (Eds.), *Greeks of Balaklava and Sevastopol*: *Collection of scientific papers*. Indrik, Moscow, pp. 77–106. [in Russian]
Prokhorov, D.A. (1998) Government institutions of the Tauride region in the end of 18th century. *Culture of the peoples of the Black Sea region*, 4, 123–138. [in Russian]
Psonis, N., Antoniou, A., Kukushkin, O., Jablonski, D., Petrov, B., Crnobrnja-Isailovic, J., Sotiropoulos, K., Gherghel, I., Lymberakis, P. & Poulakakis, N. (2017) Hidden diversity in the *Podarcis tauricus* (Sauria, Lacertidae) species subgroup in the light of multilocus phylogeny and species delimitation. *Molecular Phylogenetics and Evolution*, 106, 6–17.
https://doi.org/10.1016/j.ympev.2016.09.007
Rathke, M.H. (1837) Zur Fauna der Krym. Ein Beitrag. *Mémoires de l'Academie Impériale des Sciences de St.-Pétersbourg*, Serie 6b, 3, 291–454.
https://doi.org/10.5962/bhl.title.11609
Schmidtler, J.F. (2022) Bibliographische Hintergründe zur kuriosen nomenklatorischen Geschichte der Taurischen Eidechse, nunmehr *Podarcis tauricus* (Georgi, 1801). *Sekretär*, 22, 80–92.
Szczerbak, N.N. (1962) On the systematics of *Lacerta saxicola* Eversmann of the Crimea amd North Caucasus. *Zoologicheskii jurnal*, 41 (9), 1374–1385. [in Russian]
Szczerbak, N.N. (1966) *Amphibians and reptiles of Crimea (= Herpetologia Taurica)*. Naukova dumka, Kiev, 240 pp. [in Russian]
Tarashchuk, V.I. (1959) *Amphibians and reptiles*. *In*: Bilanovsky, I.D., Voinstvensky, M.A., Kasjanenko, V.G., Markevich, O.P. & Pidoplichko, I.G. (Eds.), *Fauna of Ukraine*. *Vol. 7.* Academy of Sciences of Ukrainian S.S.R., Kyiv, 246 pp. [in Ukrainian]
Terentjev, P.V. & Chernov, S.A. (1949) *A determinant to reptiles and amphibians*. Sovetskaya nauka, Moscow, 340 pp. [in Russian]
Timirgazin, A.D. (2015) *Sudak. Chronicle of the Russian period (1783–1917)*. SGT, Simferopol, 576 pp. [in Russian]
Uetz, P., Cherikh, S., Shea, G., Ineich, I., Campbell, P.D., Doronin, I.V., Rosado, J., Wynn, A., Tighe, K.A., Mcdiarmid, R., Lee, J.L., Köhler, G., Ellis, R., Doughty, P., Raxworthy, C.J., Scheinberg, L., Resetar, A., Sabaj, M., Schneider, G., Franzen, M., Glaw, F., Böhme, W., Schweiger, S., Gemel, R., Couper, P., Amey, A., Dondorp, E., Ofer, G., Meiri, S. & Wallach, V. (2019)

A global catalog of primary reptile type specimens. *Zootaxa*, 4695 (5), 438–450.
https://doi.org/10.11646/zootaxa.4695.5.2
Wendland, F. (1992) Peter Simon Pallas (1741–1811): Materialen einer Biographie. *Veröffentlichugen der Historischen Komission zu Berlin. Band 80/I*. W. de Greyuter, Berlin and New York, 1176 pp.
https://doi.org/10.1515/9783110853445
Yena, V.G., Yena, Al.V. & Yena, A.V. (2007) *Discoverers of the Crimean land*. Biznes-Inform, Simferopol, 520 pp. [in Russian]

APPENDIX

Johann Gottlieb Georgi or Peter Simon Pallas: review regarding the authorship and original description of *Lacerta taurica* (Squamata, Lacertidae)

O. Kukushkin, F. Tillack, I. Doronin, N. Kluge & D. Jablonski

Lacerta taurica (Pallas, 1814)

To fulfill the Article 23.9.2 requirements and give evidence that conditions of the Article 23.9.1.2 are met, we present the following list of 25 publications for the preceding 50 year period (1973–2023) in which the name of the species currently known as *Podarcis tauricus* were assigned to P.S. Pallas:

Bannikov, A.G., Darevsky, I.S., Ishchenko, V.G., Rustamov, A.K. & Szczerbak, N.N. (1977) *The determinant to amphibians and reptiles of the U.S.S.R. fauna*. Prosveshchenie, Moscow, 415 pp. [in Russian]

Borkin, L.J. & Darevsky, I.S. (1987) A list of amphibians and reptiles of the U.S.S.R. fauna. *In*: Darevsky, I.S. & Krever, V.G. (Eds.), *Amphibians and reptiles of reserved territories: Collection of scientific papers*. Kalinin Printing House, Moscow, pp. 128–143. [in Russian]

Borkin, L.J., Litvinchuk, S.N. & Rosanov, Yu.M. (1997) Amphibians and reptiles of Moldavia: additions and corrections, with a list of species. *Russian Journal of Herpetology*, 4 (1), 50–62.

Bruno, S. (1989) Introduction to a study of the herpetofauna of Albania. *The British Herpetological Society Bulletin*, 29, 16–41.

Bülbül, U., Kurnaz, M, Eroğlu, A.İ., Koç, H. & Kutrup, B. (2015) New locality record of *Podarcis tauricus tauricus* (Pallas, 1814) (Squamata: Lacertidae) from the western Black Sea region of Turkey. *Turkish Journal of Zoology*, 39, 981–986. https://doi.org/10.3906/zoo-1411-25

Cruce, M. (1977) Structure et dynamique d'une population de *Lacerta taurica taurica* Pallas. *Revue d'Écologie*, 4, 621–636.

Dely, O.G. (1982) Über die morphologische Variation der Taurischen Eidechse (*Lacerta taurica* Pallas). *Vertebrata Hungarica*, 21, 77–83.

Göcek, Ç. & Tok, C.V. (2022) Identifying the past, present, and future distribution patterns of the Balkan wall lizard (Sauria: Lacertidae: *Podarcis tauricus*) by ecological niche modelling. *Commagene Journal of Biology*, 6 (2), 146–159. https://doi.org/10.31594/commagene.1133846

Kabisch, K. (1986) *Podarcis taurica* (Pallas, 1814) Taurische Eidechse. *In*: Bohme, W. (Ed.). *Handbuch der Reptilien und Amphiben Europas. Bd. 2/II. Echsen III (Podarcis)*. Aula Verlag, Wiesbaden, pp. 343–362.

Kotenko, T.I. (2007) The role of the Azov – Black Sea eco-corridor in the conservation of reptiles. *Scientific Bulletin of the Uzhhorod University*, 21, *Series Biology*, 20–54. [in Russian]

Kotenko, T.I. (2010) Amphibians and reptiles of Crimea. *Scientific notes of the "Cape Martyan" Nature Reserve*, 1, 171–224. [in Russian]

Kukushkin, O.V. (2008) New finds of the True lizards (Sauria: Lacertidae) on the Black Sea coast of the Kerch Peninsula (the Crimea). *Proceedings of the Ukrainian Herpetological Society*, 1, 21–28. [in Russian]

Kukushkin, O.V.& Doronin, I.V. (2013) Distribution peculiarities of the rare colour aberrations in the Balkan wall lizard, *Podarcis tauricus* (Sauria: Lacertidae), from the Crimea. *Proceedings of the Zoological Institute of Russian Academy of Sciences*, 317 (4), 474–493. [in Russian]

Kukushkin, O.V., Trofimov, A.G., Turbanov, I.S. & Slodkevich, A.Y. (2019) Herpetofauna of Sevastopol city (southwestern Crimea): species composition, zoogeographic analysis, landscape-zonal distribution, current status and protection. *Ecosystem Trasformation*, 2 (4), 4–62. https://doi.org/10.23859/estr-190530

Oskyrko, O. & Jablonski, D. (2021) The first comprehensive data on the distribution of reptiles within the Southern Bug eco-corridor, Ukraine. *Herpetozoa*, 34, 97–114. https://doi.org/10.3897/herpetozoa.34.e62459

Psonis, N., Antoniou, A., Kukushkin, O., Jablonski, D., Petrov, B., Crnobrnja-Isailovic, J., Sotiropoulos, K., Gherghel, I., Lymberakis, P. & Poulakakis, N. (2017) Hidden diversity in the *Podarcis tauricus* (Sauria, Lacertidae) species subgroup in the light of multilocus phylogeny and species delimitation. *Molecular Phylogenetics and Evolution*, 106, 6–17. https://doi.org/10.1016/j.ympev.2016.09.007

Rehák, I., Fischer, D., Kratochvíl, L. & Rovatsos, M. (2022) Origin and haplotype diversity of the northernmost population of *Podarcis tauricus* (Squamata, Lacertidae): Do lizards respond to climate change and go north? *Biodiversity Data Journal*, 10: e82156. https://doi.org/10.3897/BDJ.10.e82156

Sas-Kovács, É.-H. & Sas-Kovács, I. (2020) Can I borrow your burrow? Use of the burrows of *Geolycosa vultuosa* (Araneae:

Lycosidae) by *Podarcis tauricus* (Squamata: Lacertidae). *Biharean Biologist*, 14 (2), 127–129.
Sokolov, L.V. (2019) Data on the distribution of the Crimean wall lizard, *Podarcis tauricus* (Pallas, 1814) (Sauria: Lacertidae), in the North-Western Black Sea region (Ukraine). *Current Studies in Herpetology*, 19 (3–4), 132–146. [in Russian] https://doi.org/10.18500/1814-6090-2019-19-3-4-132-146
Speybroeck, J., Beukema, W., Dufresnes, C., Fritz, U., Jablonski, D., Lymberakis, P., MartínezSolano, I., Razzetti, E., Vamberger, M., Vences, M., Vörös, J. & Crochet, P.A. (2020) Species list of the European herpetofauna – 2020 update by the Taxonomic Committee of the Societas Europaea Herpetologica. *AmphibiaReptilia*, 41 (2), 139–189. https://doi.org/10.1163/15685381-bja10010
Sharpilo, V.P. (1976) *Helminthes of reptiles of the U.S.S.R. fauna. Systematics, chorology, biology*. Naukova dumka, Kiev, 287 pp. [in Russian]
Sharygin, S.A. (1976) Herpetofauna of the Nature Reservation "Cape Martyan". *Scientific basis for the protection and rational use of the natural resources of Crimea: Transactions of the State Nikitsky botanical garden*, 70, 114–120. [in Russian]
Szczerbak, N.N. (1989) Amphibians and reptiles. *In*: Morozova, A.L. & Vronsky, A.A. (Eds.), *Nature of Karadag*. Naukova dumka, Kiev, pp. 194–197. [in Russian]
Zagorodnyuk, I., Tarashchuk, S., Domashlinets, V., Pysanets, Ye., Karmishev, Yu., Dotsenko, I., Vasilenko, O., Kurilenko, V., Kotserzhins'ka, I. & Kotenko, T. (1999) *Amphibians and reptiles of Ukraine protected by the Bern Convention*. "Omega-L" Printing House, Kyiv, 108 pp. [in Ukrainian]
Zinenko, O.I., Goncharenko, L.A. (2011) *Catalogue of collections of the Museum of Nature at V.N. Karazin's Kharkiv National University. Reptiles (Reptilia): Rhynchocephalia; Squamata: Lizards (Sauria), Amphisbaenians (Amphisbaenia)*. V.N. Karazin Kharkiv National University, Kharkiv, 100 pp. [in Russian]