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CAPOETA SVANETICA (TELEOSTEI, CYPRINIDAE), A NEW SPECIES FROM THE LUCHUNIS RIVER (RIONI RIVER DRAINAGE) IN GEORGIA

A. Roman[1,2], S. Afanasyev[2], O. Golub[2], O. Lietytska[2]

[1]*Technical University "Metinvest Politecnica", Sechenova st., 71 a, Mariupol, 87524 Ukraine*
E-mail: anatoliy.roman@mipolytech.education
[2]*Institute of Hydrobiology of NAS of Ukraine, Prospect Geroiv Stalingradu, 12, Kyiv, 04210 Ukraine*
E-mail: aroman.fish@gmail.com
E-mail: safanasyev@ukr.net
E-mail: oleggolyb@gmail.com
E-mail: lietitska@ukr.net

S. Afanasyev (https://orcid.org/0000-0002-5247-3542)
O. Lietytska (https://orcid.org/0000-0001-7026-4093)

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***Capoeta svanetica* (Teleostei, Cyprinidae), a New Species from the Luchunis River (Rioni River Drainage) in Georgia. Roman, A., Afanasyev, S., Golub, O., Lietytska, O.** — Recent Georgia's fish fauna includes four *Capoeta* species: *C. capoeta* (Kura River basin), *C. kaput* (Araxes River and its left tributaries, the Akhuryan and Mezamor rivers), *C. sieboldii* (East and South-East Black Sea river basins), and *C. banarescuii* (Chorokh River basin). Based on morphological data analysis new species of the genus *Capoeta* — *C. svanetica* sp. n. is described. It is more similar to the *Capoeta damascina* complex group (Anatolian-Iranian group) which also includes *C. banarescui*, *C. baliki,* and *C. sieboldii* spread at East and South-East Black Sea coastal rivers. The Anatolian-Iranian group, also known as small-scales species group well distinguished from Aral-Caspian species (*C. capoeta* and *C. kaput* in Georgia) by highest scales number in lateral line. *C. svanetica* sp. n. is distinguished from other *Capoeta* species of Black Sea basin rivers in Georgia and adjacent waters by combination of characters: two pairs of barbels are present (*C. sieboldii* and *C. oguzelii* have one barbels pair); no spots on the body (*C. oguzelii* has small black spots); lower lip has keratinised edge without fringe (*C. sieboldii* and *C. oguzelii* are characterized by fringed lips); scales small, 70–74 total lateral line scales (in *C. sieboldii* only 52–60 scales); 10–12 scale rows above lateral line (*C. banarescui, C. baliki* and *C. oguzelii* have more than 12 scale rows) and 7–8 scale rows below lateral line (*C. baliki* and *C. oguzelii* have more than 10 scale rows); 12–15 gill rakers on the first gill arch (*C. sieboldii* and *C. baliki* have more then 16); last unbranched fin ray soft, serrae number on it is 7–9 in adult and 0 in juvenile samples (all other *Capoeta* species of Black Sea basin rivers have well ossified last unbranched ray with high serrae number); anal fin base length is only 7.4–9.4 % of SL (more shorter than *C. banarescui, C. baliki* and also *C. tinca*); as well as mouth width (25.4–29.4 % of HL); eye diameter (19.0–28.7 % of HL) is biggest than same in *C. banarescui, C. baliki* and also *C. tinca.*
Key words: new species, *Capoeta*, Svaneti, *Capoeta damascina* complex group, West Georgia.

Introduction

According to Ninua and Japoshvili (2008) in Georgia's water flows were known four taxons of the genus *Capoeta*: *Capoeta capoeta* (Güldenstädt, 1773) and it subspecies *Capoeta capoeta sevangi* de Filippi, 1865 (Caspian Sea basin rivers); *Capoeta tinca* (Heckel, 1843) and *Capoeta sieboldii* (Steindachner, 1864) — both from Black Sea basin rivers. Later (Baycelebi et al., 2015) for Chorokh [Çoruh] River fish fauna were listed also *Capoeta ekmekciae* Turan, Kottelat, Kirankaya & Engin, 2006 (Turan et al., 2006 a) and *C. banarescui* Turan, Kottelat, Ekmekci, Imamoglu, 2006 (Turan et al., 2006 b), instead of *C. tinca* which was noted only for the Sea of Marmara basin (Turan et al., 2006 b). Subspecies *Capoeta capoeta sevangi* based on DNA analysis data was considered as a distinct species *Capoeta sevangi* de Filippi, 1865 (Zareian et al., 2016; 2018). Thus, based on main revisions of fish fauna of Georgia should include five species of the genus *Capoeta*: *C. capoeta* (Kura River basin), *C. sevangi* (Sevan Lake), *C. sieboldii* (all Georgian Black Sea basin Rivers from Rioni to Chorokh), *C. banarescuii* and C. ecmekcii (in Georgia Chorokh River basin only). *C. banarescuii* according to D. Turan's data (Turan et al., 2006 b) was known from the Chorokh River drainage from the Kachkar Mountains in Turkey, but based on the Chorokh River lowermost course flowing in Georgia which flows to the Black Sea at Batumi it was noted as fish fauna of Georgia potential component. As well as *C. ecmekcii* also known for the Chorokh River drainage but only for Turkey. Recently (Kuljanishvili et al., 2020) Caucasus freshwater fishes were revised and it was noted four *Capoeta* species for freshwater fauna of Georgia. They are *C. capoeta* (Kura River basin), *Capoeta kaput* Levin, Prokofiev et Roubenyan, 2019 (Araxes River and its left tributaries, the Akhuryan and Mezamor rivers.), *C. sieboldii* (West Georgia's river basins), and *C. banarescuii* (Choroh River basin).

At one of the worst investigated mountain regions of Georgia–Kvemo–Svaneti on the Luchunis River (Rioni River tributary) at Uravi were found samples of *Capoeta* genus which could not be noted as any one of four known species. After detailed morphological data analysis showed these samples as distinct ones.

Material and methods

Fish specimens were sampled at the high mountain region of Kvemo–Svaneti during the spring-fall period (fig. 1). In total, 7 specimens were collected using hand-nets. All of them were caught in the Luchunis River (Rioni River drainage) at Uravi (Kvemo–Svaneti, Georgia).

All used samples are deposited in the National Museum of Natural History of NAS of Ukraine (NMNH NASU).

Sampled fish specimens were fixed in 4 % formaldehyde and stored in 70 % ethanol. Measurements were recorded using a dial caliper (with 0.1 mm accuracy). All measurements were made point-to-point on fixed fish samples. The methods used for counts and measurements followed those of Turan et al. (2006 b), for best comparison results, and previously it was taken from Kottelat & Freyhof (2007). The standard length (SL) of the fish was measured from the tip of the snout to the end of the hypural complex. The last two-branched rays articulating on a single pterygiophore in the dorsal and anal fins were noted as '1½' (Kottelat, Freyhof, 2007). Also used next abbreviation: Du — number of unbranched (simple) rays in dorsal fin; Db — number of branched rays in dorsal fin; P — number of branched (soft) rays in pectoral fin; V — number of branched rays in ventral fin; l.l. — scales number in lateral line; sc. ab. l.l. — scales number above lateral line (between l.l. and dorsal-fin origin); sc. bl. l.l. — scales number below the lateral line (between l.l. and ventral fin origin).

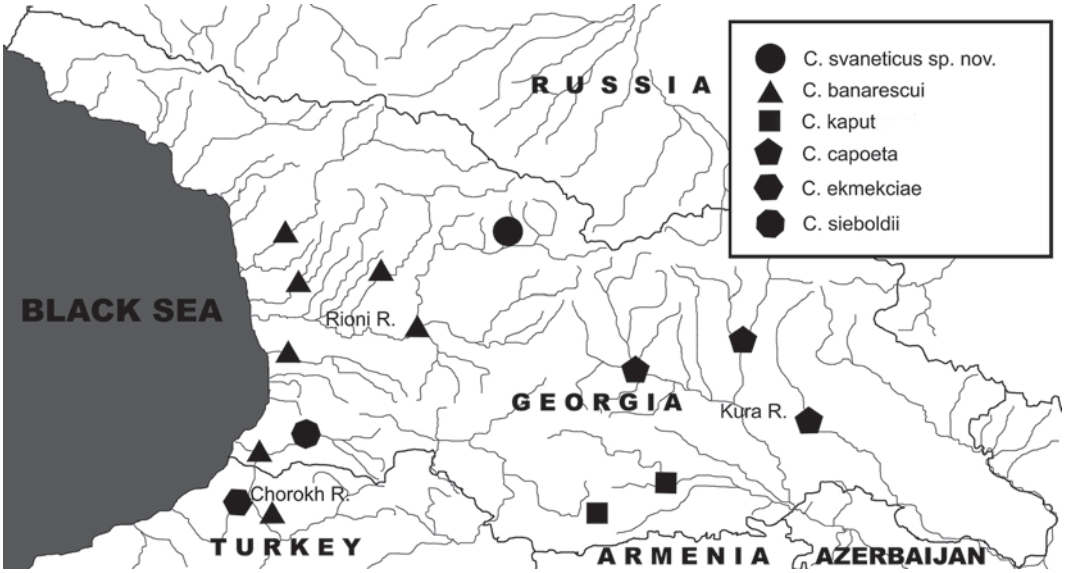

Fig. 1. Genus *Capoeta* distribution in river basins of Georgia and some neighbors.

Morphological data of *C. baliki*, *C. banarescui*, *C. capoeta*, *C. ekmekciae*, *C. sieboldii*, *C. sevangi, C. kaput*, *C. tinca* and *Capoeta oguzelii* Elp, Osmanoğlua, Kadak and Turan, 2018 were taken from Berg, 1912–1914; 1949; Turan et al., 2006 a; 2006 b; Levin et al., 2012; 2019; Elp et al., 2018.

Also for studying morphological data were used additional materials.

C. capoeta: Georgia. Borjomi Municipality, Samtskhe–Javakheti Region: Kura River at Akhaldaba [41.9104 N, 43.4848 E]; 25.09.1966; 1 individual (V. Pinchuk).

C. sevangi: Azerbaijan. Fuzuli District: Araxes River [39.3484 N, 47.2525 E]; 06.06.1970; 6 individuals (M. Golovushkin); Sharur District: Arpa River at Diza, Araxes River Basin [39.5987 N, 45.0709 E]; 27.08.1975; 599 individuals (M. Golubiev).

C. banarescui: Georgia. Autonomous Republic of Imeretia, Kutaisi Region: Gubistskali River, Rioni River basin [42.3043 N, 42.5020 E]; 16.04.2016; 1 individual (A. Roman); Autonomous Republic of Adjara, Khelvachauri district: Chorokh River at Khelvachauri [41.5663 N, 41.6785 E]; 22.04.2016; 3 individuals (A. Roman).

Results

Capoeta svanetica Roman, Afanasyev, Golub et Lietytska **sp. n.**

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Capoeta tinca (non Heckel, 1843): Berg, 1912–1914: 0168 (Olty-tschai, Chorokh drainage and Rion drainage).

Varicorhinus tinca (non Heckel, 1843): Berg, 1912–1914: 554 (Olty-tschai, Chorokh and Rion drainages), 1948–1949: 684 (in part; Chorokh and Rion drainages, Georgia).

Material. Type. **Holotype**: NMNH NASU 10420, ♂: 136 mm SL; Georgia: Kvemo–Svaneti Region: Luchunis River at Uravi, Rioni River Basin, [42.6123 N, 43.2623 E]; 12.08.2016 (S. Afanasyev, O. Golub). **Paratypes.** NMNH NASU 10421, 2 individuals, 44–118 mm SL; same data as holotype, 12.08.2016 (S. Afanasyev, O. Golub). **Non-Type. Georgia:** Kvemo–Svaneti Region: Luchunis River at Uravi, Rioni River basin [42.6123 N, 43.2623 E]; 14.08.2016; 5 individuals (S. Afanasyev, O. Golub).

Diagnosis. *C. svanetica* sp. n. is distinguished from the other genus *Capoeta* species by combination of the following characters: two pairs of barbels are present; snout rounded without any spots; mouth is narrow and slightly arched; lower lip slightly arched and has keratinised edge without fringe; scales small, 70–74 total lateral line scales (73 in holotype); 10–12 scales rows above lateral line (12 in holotype) and 7–8 scales rows below lateral line (8 in holotype); 12–15 gill rakers on the first gill arch (14 in holotype); serrae number in the last unbranched fin ray is 7–9; lateral head length (HL) is 22.1–27.7 % of SL (22.1 % in holotype); anal fin base length is 7.4–9.4 % of SL (7.4 % in holotype); eye diameter is 19.0–28.7 % of HL (19.0 % in holotype); snout depth at nostrils is 34.2–38.6 % of HL (37.7 % in holotype); length of anterior barbel is 13.9–20.1 % of HL (19.3 % in holotype); length of posterior barbel is 18.7–28.6 % of HL (22.7 % in holotype); mouth width is 25.4–29.4 % of HL (29.0 % in holotype).

Description. General body appearance presents in figure 2; morphometric and meristic data are present in tables 2–5. The body is elongated and cylindrical with a slightly convex upper profile and less convex ventral one. The head is relatively short; the upper profile is slightly convex in the interorbital and is slightly concave at the level of the nostrils. The mouth is inferior, narrow, and slightly arched (fig. 3). Lips are slightly fleshy. The lower lip is slightly arched and covered with a sharp-edged horny sheath in both sexes. Anterior barbel reaches to the nostrils (it is 13.9–20.1 % of HL), and the posterior barbel is longer and reaches the center of the eye (it is 18.7–28.6 of HL).

Dorsal fin with 3 or 4 simple (unbranched) and 7 branched rays (4 and 7 in holotype, respectively), the outer margin is slightly concave, origin slightly in front of vertical through the pelvic-fin origin, last simple ray only slightly ossified, proximal two thirds rigid, and without serrae on posterior margin in small fish (less than near 100 mm standard length) or with 7–9 small serrae in adult (fig. 4).

Pectoral fins do not extend to the pelvic-fin base; their outer margins are usually slightly convex with 16–22 branched rays (table 1) in total (18 in holotype). Pelvic fins (table 1)

Table 1. Meristic (counted) features of *Capoeta* species from Black, Caspian and Marmara Seas basins

Counted features	Black Sea basin					Caspian Sea basin				Marmara Sea basin
	C. svanetica sp.n.	*C. banarescui*	*C. sieboldii*	*C. baliki*	*C. oguzelii*	*C. ekmekciae*	*C. capoeta*	*C. sevangi*	*C. kaput*	*C. tinca*
	n = 8	n = 25	n = 23	n = 35	n = 21	n = 24	n = 31	n = 6	n = 17	n = 25
barbels	II	II	I	II	I	I	I	I	I	II
gill rakers	12–15 (13.3)	12–16 (14.7)	28–33 (30.1)	16–22 (19.3)	7–10 (8.3)	18–24 (60.4)	18–25 (21.3)*	21–24 (22.5)	24–25 (24.5)	19–23 (20.6)
serrae	7–9 (7.4)	12-20	no data	17–23 (19.5)	0–12	no data	20–41 (26.0)	15–20 (17.0)	24–35 (30.7)	24–28 (26.6)
Du	IV	III-IV	III–IV	III–IV	IV	III–IV	IV	III-IV	IV	III
Db	7–8 (7.1)	7–9 (8.0)	8–9 (8.0)	8–9 (8.1)	7 ($7^1/_2$)	8–9 (8.1)	7–9 (7.9)	7–8 (7.8)	8–9 (8.9)	8 (8.0)
P	16–18 (17.3)	17–19 (17.8)	15–16	17–20 (18.4)	16–17 (16.6)	16–20	18	18–21 (19.0)	no data	18–20 (18.8)
V	8–9 (8.6)	9–10 (9.1)	8–9	9–10 (9.0)	8–9 (8.1)	12	10	10–11 (10.2)	no data	8–9 (9.0)
l.l.	70–74 (72.0)	64–77 (70.8)	52–60 (55.8)	72–86 (78.4)	72–82 (77.0)	55–61 (57.5)	47–59 (53.6)*	50–56 (53.0)	52–60 (55.9)	69–80 (74.9)
sc. ab. l.l.	10–12 (11.1)	12–14 (12.8)	9–11 (9.6)	14–17 (14.9)	12–17 (13.8)	9–10 (9.4)	8–10 (9.0)*	8–9 (8.2)	9–12 (10.6)	14–17 (15.7)
sc. bl. l.l.	7–8 (7.9)	8–9 (8.1)	8–10 (8.9)	10–11 (10.1)	11–13 (11.6)	6–7 (6.8)	6–8 (7.0)*	16–8 (6.5)	7–8 (7.4)	9–11 (9.5)

* total used samples are different, see tables 2–4.

Note. Data on *C. banarescui*, *C. baliki* and *C. tinca* noted after Turan et al., 2006 b; data on *C. ekmekciae* were taken from Turan et al., 2006 a; data on *C. oguzelii* and *C. sieboldii* were taken from Elp et al. (2018); data on *C. capoeta* and *C. kaput* were taken from Levin et al., 2019; data on *C. svanetica* sp.n. and *C. sevangi* are ours.

Fig. 2. The general body appearance of *C. svanetica* sp. n. (male — top, SL = 136 mm and female — bottom, SL = 118 mm).

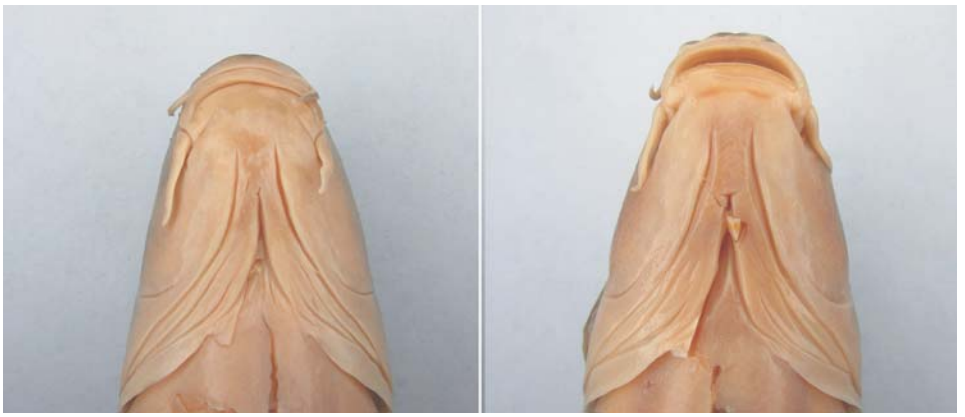

Fig. 3. Mouth shape male (left) SL = 136 mm and female (right) SL = 118 mm.

with 1 simple and 8–9 branched rays (9 in holotype), it is not extending to anal-fin base, their outer margin straight or slightly convex; pelvic axillary scales present. Anal fin with 3 simple and $5^1/_2$ branched rays, the outer margin is convex. The caudal fin is long and deeply forked, its upper lobe often longer than the lower one.

Scales small, total lateral-line scales 70–74 (table 2), 10–12 between dorsal-fin origin and lateral line, and 7–8 between anal-fin origin and lateral line (table 1). Ventral mid-line and pectoral region covered with deeply embedded scales of reduced size.

Gill rakers number 12 (1), 13 (3), 14 (1), and 15 (1) on the outer side of the first-gill arch (table. 4). Pharyngeal teeth arranged in 3 rows as 4.3.2–2.3.4.

Coloration. In formaldehyde-fixed samples, the total body color is greyish on the back and upper part of the flank and light grey on the lower flank. There are no spots on the body and head. Dorsal and caudal fins are grey; pectoral, anal, and pelvic fins are yellowish (fig. 2).

Sexual dimorphism. All samples were collected at the second half summer period when spawning was finished. Thus, we can speak of sexual dimorphism as independent of the spawning period. But breeding tubercles present in anal-fin rays in males are more typical for the spawning period. Thus, this question needs to be investigated in detail. We can

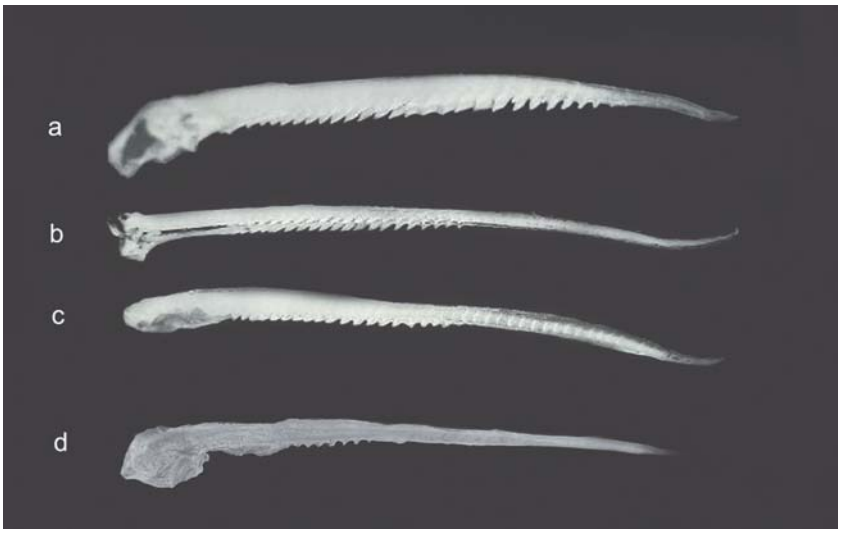

Fig. 4. Last simple (unbranched) dorsal fin rays: a — *C. tinca*, 139 mm SL, female (after Turan et al., 2006 b); b — *C. banarescui*, 144 mm SL, female (after Turan et al., 2006 b); c — *C. baliki*, 148 mm SL, female (after Turan et al., 2006 b) and d —*C. svanetica* sp. n. 118 mm SL, female — only 7 serrae are present.

Table 2. Lateral line scales number variation in *Capoeta* species (columns without data are excluded from table)

Species	Number of lateral line scales																																			
	N	47	49	50	51	52	53	54	55	56	57	58	59	60	61	64	65	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	84	85	86	mean
C. svanetica sp. n.	7																				2	1	1	2	1												72.0
C. banarescui	25															1	2	1	2		2	4	2	4	3	1		1									70.8
C. sieboldii	23					2	2	3	2	5	4	3	1	1																							55.8
C. baliki	35																						1		2	4	2	5	7	4	3	1	1	3	1	1	78.4
C. oguzelii	21																						2		3	2	2	3	1	4	2	1	1				77.0
C. ekmekciae	24								6	4	1	3	6	2	2																						57.5
C. capoeta	61	1	3	2	2	11	9	10	12	4	5	1	1																								53.6
C. sevangi	6			1		2	1		1	1																											53.0
C. kaput	17					2	2	1	1	3	5		1	2																							55.9
C. tinca	25																			1		2	4	2	3	2	4	2		2	1						74.9

Table 3. Branched dorsal fin rays and scales rows number above and below lateral line variation in *Capoeta* species

Species	Branched Dorsal Fin Rays						Above Lateral Line													Below Lateral Line									
	n	6	7	8	9	mean	n	8	9	10	11	12	13	14	15	16	17	18	mean	n	6	7	8	9	10	11	12	13	mean
C. svanetica sp. n.	7		6	1		7.1	7			1	4	2							11.1	7		1	6						7.9
C. banarescui	25			25		8.0	25					6	17	2					12.8	25			23	2					8.1
C. sieboldii	23			22	1	8.0	23		11	10	2								9.6	23			4	17	2				8.9
C. baliki	35			33	2	8.1	35							18	17	5	1		14.9	35					23	2			10.1
C. oguzelii	20		20			$7^{1}/_{2}$	13					3	3	4	1	1	1		13.8	13						6	6	1	11.6
C. ekmekciae	23			21	2	8.1	24		13	11									9.4	24	5	19							6.8
C. capoeta	31		5	25	1	7.9	30	6	18*	6									9.0	29	5*	20*	4*						7.0
C. sevangi	6		1	5		7.8	6	5	1										8.2	6	4	1	1						6.5
C. kaput	10			1	9	8.9	7		1	3	1	2							10.6	9		5	4						7.4
C. tinca	25			25		8.0	25							1	9	10	5		15.7	25				16	6	3			9.5

* Levin et al., 2019 are noted also 8.5 and 9.5 scales numbers above and 5.5; 6.5 and 7.5 scales numbers grades below lateral line. We added this numbers to next full number for best comparison.

Table 4. Gill rakers on outer side of first gill arch variation in *Capoeta* species

Species	Number of gill rakers on outer side of first gill arch																												
	n	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	mean
C. svanetica sp. n.	6						1	3	1	1																			13.3
C. banarescui	25						2	2	4	11	6																		14.7
C. sieboldii	23																						5	5	4	2	5	2	30.1
C. baliki	35										2	5	4	6	8	9	1												19.3
C. oguzelii	15	4	3	7	1																								8.3
C. ekmekciae	24												6	4	2	5	2	4	1										20.4
C. capoeta	28												2	3	6	6	5		3	3									21.3
C. kaput	2																		1	1									24.5
C. tinca	25													6	8	4	5	2											20.6

only conclude about the presence of epithelium tubercles in adult males in the second summer half and their absence in mature females at the same period.

Small epithelial tubercles (fig. 5) are present on the head, anal fin rays, and flank scales (one per apical edge of scales) in males during the second half summer season at least.

In females, epithelium tubercles are absent during the second half summer season. Any differences based on meristic (tables 1–4) or morphometric (table. 5) data were not found as like as no clear differences in the lower lip shape (fig. 3)

Habitat and biology. *C. svanetica* sp. n. is too rare species that was collected in the Luchunis River (Rioni River basin) at Kvemo–Svaneti Region at Uravi village (729 masl) in the middle and lower parts of the river. The species occurs in medium-fast flowing rivers with usually gravel substrates and clear waters. Sampling sites of the Luchunis River should be divided into two types (fig. 6), but both are characterized by a substrate consisting of coarse gravel and boulders, and fast-flowing and translucent waters (Afanasiev et al. 2022).

The first riverbed type is classified as a braided channel (fig. 6, a and 6, c). Two islands divide the main flow into three branches. The first island parameters are 80 m length and in average 9 m width (23 m max.); the second island had 25 m length and in average 5 m width (12 m max.). The riverbed cross-sections were made for each branch separately (fig. 6, c). Valley is U-shape; banks were covered by trees, bushes, and grass. The average velocity is 1.03 m/s, with the maximum at 1.67 m/s. Flow types include chaotic, broken standing waves, and unbroken standing waves. The right branch average width is 9 m (it is varied between 2 and 7.5 m); the left branch average width is 6 m (between 3.8 and 9 m). The average depth is 0.24 m with the maximum at 0.45 m. Both river banks were mainly made by pebble and the riverbed was covered by cobble (52 %), pebble (24 %), and 9 % of boulders.

The second riverbed type (fig. 6, b) is classified as a single channel type. The average velocity is 0.99 m/s, with the maximum at 1.39 m/s. Flow types include turbulent, broken, and unbroken standing waves and ripples. The average width is 8 m (it is varied between 6,5 m and 10 m). Bed elements include bars, rapids, riffles, rocks, and step/pools. The average depth is 0,49 m with the maximum at 1.7 m. Valley is U-shape evenly covered by cobble riverbed. Among substrate types also prevails cobble and pebble.

Etymology. The name of the species is derived from the name Svaneti, the historical region in Georgia where this species occurred.

Table 5. Morphometric features of most similar to *Capoeta svanetica* species (*Capoeta svanetica* include holotype and paratypes

Morphometric features	*C. svanetica* sp.n. n = 7	*C. banaresqui* n = 26	*C. tinca* n = 24	*C. baliki* n = 25
	Percentage of standard length			
Lateral head length	22.1–27.7 (24.6)	22.2–25.8 (24.4)	23.3–26.7 (24.9)	21.9–24.8 (23.5)
Body depth at dorsal fin origin	22.0–24.8 (23.2)	21.4–25.1 (23.0)	24.4–28.0 (26.0)	21.2–24.9 (23.2)
Predorsal length	48.8–54.1 (51.4)	48.7–54.5 (50.6)	48.0–53.4 (51.0)	48.6–55.5 (51.3)
Postdorsal length	37.5–42.1 (38.4)	34.9–40.1 (37.2)	34.8–39.3 (37.3)	34.4–38.8 (36.6)
Prepelvic length	51.7–56.7 (54.1)	50.5–57.3 (54.7)	52.4–57.8 (54.5)	51.8–56.7 (54.1)
Preanal length	72.5–79.5 (76.4)	73.3–79.9 (76.3)	74.9–79.8 (77.0)	74.7–79.3 (77.0)
Pectoral-fin origin to anal fin	50.8–58.8 (54.2)	50.3–58.2 (54.7)	52.6–57.6 (55.1)	52.3–58.4 (55.3)
Pectoral-fin origin to pelvic fin	28.6–34.6 (32.0)	29.1–35.3 (33.0)	30.1–34.9 (32.0)	28.9–34.0 (32.0)
Pelvic-fin origin to anal fin	20.9–24.5 (22.9)	18.5–23.6 (21.5)	20.9–26.2 (23.5)	22.1–24.4 (23.3)
Dorsal fin length	12.6–18.5 (15.0)			
Dorsal fin height	13.9–19.1 (16.3)	15.9–20.7 (18.6)	17.4–21.9 (19.2)	15.6–21.1 (18.3)
Anal fin base length	7.0–10.0 (8.7)	15.9–21.8 (18.7)	17.0–21.7 (18.8)	15.1–21.3 (17.0)
Anal fin height	17.4–20.2 (18.8)			
Pectoral fin length	19.6–21.8 (20.4)	16.2–21.6 (19.4)	17.3–21.3 (18.9)	16.5–19.5 (18.3)
Pelvic fin length	15.0–19.0 (17.4)	14.0–17.0 (15.9)	15.2–17.7 (16.5)	14.4–16.8 (15.8)
Upper caudal-fin lobe	22.1–26.4 (23.7)	20.3–25.5 (22.9)	22.8–26.6 (24.7)	19.3–24.6 (22.3)
Lower caudal-fin lobe	22.5–26.4 (24.8)			
Length of middle caudal fin rays	8.4–13.2 (10.1)	10.6–15.1 (13.3)	13.1–15.7 (14.2)	11.6–14.7 (13.4)
Length of caudal peduncle	13.0–18.5 (16.5)	15.5–19.9 (17.4)	15.4–18.5 (16.8)	16.0–20.2 (17.6)
Depth of caudal peduncle	9.8–16.2 (11.5)	9.8–11.7 (10.7)	10.8–13.4 (11.7)	9.7–12.3 (10.9)
	In percent of head length			
Snout length	29.5–38.9 (34.7)	35.4–41.2 (38.3)	33.1–40.4 (37.3)	33.7–40.6 (37.3)
Eye diameter	19.0–28.7 (22.3)	13.2–18.9 (15.1)	14.2–18.6 (16.3)	13.1–18.8 (15.9)
Postorbital distance	46.6–50.0 (48.8)			
Interorbital width	30.3–37.0 (33.5)	35.9–42.1 (38.3)	33.9–42.5 (38.7)	36.3–43.2 (39.5)
Head width at anterior margin of eyes	35.2–45.0 (40.7)	40.9–46.8 (43.8)	39.8–46.5 (43.0)	42.4–49.6 (45.4)
Head depth at interorbital region	50.6–54.9 (53.0)	45.7–53.3 (49.0)	45.4–54.4 (49.4)	49.1–59.2 (53.6)
Snout width at nostrils	34.9–45.9 (37.3)	36.4–45.0 (40.4)	35.9–41.1 (38.3)	35.5–47.6 (40.3)
Snout depth at nostrils	34.2–38.6 (36.3)	29.7–35.1 (32.7)	30.0–41.1 (34.2)	33.1–41.6 (37.3)
Length of anterior barbel	13.9–20.1 (16.7)	12.4–20.8 (16.9)	8.1–14.1 (10.6)	9.8–14.3 (12.7)
Length of posterior barbel	18.7–28.6 (22.2)	18.4–28.8 (21.9)	13.1–19.3 (15.4)	14.7–18.5 (16.5)
Mouth width	25.4–29.4 (28.3)	29.5–37.9 (34.3)	27.4–34.2 (30.8)	29.5–38.5 (33.3)

Note. Data on *C. tinca, C. baliki* and *C. banaresqui* after Turan et al., 2006 b.

Fig. 5. Epithelial tubercles on each scale and anal fin rays of *C. svanetica* sp. n. males during the second half summer season.

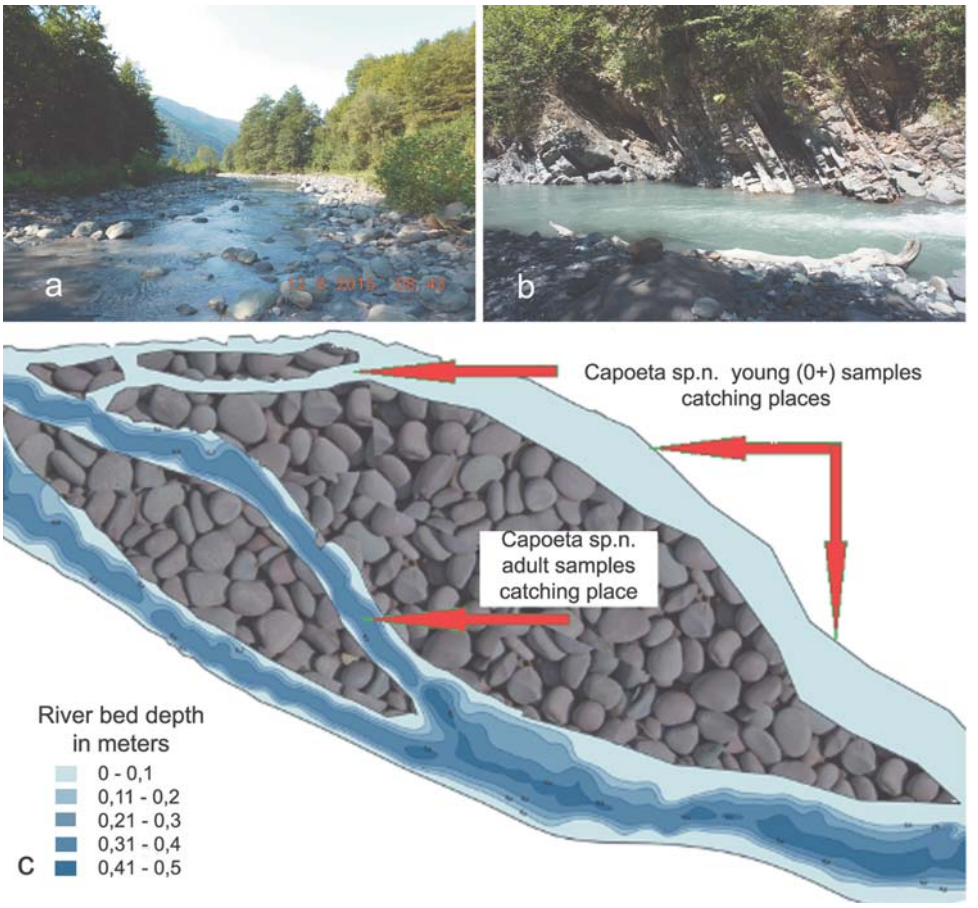

Fig. 6. Type habitats of juvenile *Capoeta svanetica* sp. n. (a) and adult (b) with detailed river bed structure (c).

Comparison with closely related species

Using morphological data analysis (tables 1–4) were compared *C. svanetica* sp. n. samples with such from Black Sea basin rivers: *C. banarescui*, *C. sieboldii,* and *C. ekmekciae* as the similar distributed species; *C. baliki* (widest spread species at South Black Sea rivers basins), *C. oguzelii* from adjacent water flows. From the Sea of Marmara basin: *C. tinca* as previously known species distributed in the Rioni River drainage; and also from Caspian Sea basin: *C. capoeta*, *C. sevangi,* and *C. kaput*. For more detailed analysis also used body measurement analysis (table 5) most closely related to *C. svanetica* sp. n. species: *C. banarescui*, *C. baliki,* and *C. tinca*.

We did not use coloration in detail for comparison *C. svanetica* sp. n. with other *Capoeta* species because all our samples were fixed in formaldehyde during the year and they practically lost their coloration. We can state only complete any spots absence on the fish body, head, and fins in *C. svanetica* sp. n. (fig. 2) the same as closely related *C. banarescui* (fig. 7, a) and *C. baliki* (fig. 7, d, Turan, et al., 2006 b) from Black Sea rivers basins and previously known for the same areal *C. tinca* (fig. 8, a, Turan et al., 2006 b) This live and formaldehyde preserved specimens are characterized by dark brown on back and flanks, yellowish-white on the belly.

As a result of *C. svanetica* sp. n. comparison with the *Capoeta* species from rivers of the Black Sea basin were found new species samples is distinguishing from *C. sieboldii*, *C. oguzelii* and *C. ekmekciae* by two barbels pairs presence (table 1). *C. baliki* and *C. banaerscui* are also characterized by two pairs of barbels, but the first of them (*C. baliki*) has

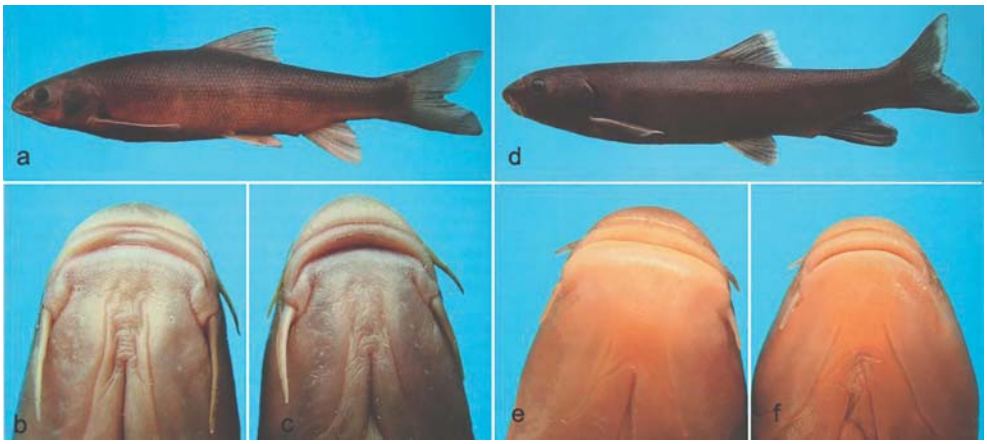

Fig. 7. a–c: *C. banarescui*, holotype, ESFM-PISI/2004-072, 177 mm SL; Turkey, Chorokh drainage at Torum (a); female lower lip, 192 mm SL (b) and male lower lip, 178 mm SL (c), after Turan et al, 2006 b; d–f: *C. baliki*, holotype, ESFM-PISI/2004-74, 202 mm SL; Turkey, Sakarya drainage at Kızılcahamam; female lower lip, 176 mm SL (e) and male lower lip, 164 mm SL (f), after Turan et al, 2006 b.

shorter anterior (mean 12.7; range 9.8–14.3) and posterior (mean 16.5; range 14.7–18.5) barbels than *C. svanetica* sp. n. (mean 16.7; range 13.9–16.7 and mean 22.2; range 18.7–28.6 respectively). Another species (*C. banaerscui*) has approximately the same pairs of barbels length. But the last one clearly distinguishes from *C. svanetica* sp. n. by more highest serrae number in the last unbranched fin ray (fig. 4; 12–20 in *C. banaerscui* compared to *C. svanetica* sp. n. without serrae in the last unbranched fin ray in small fish (less than near 100 mm standard length) or with 7–9 small serrae in adult). Also, *C. banaerscui* has the highest scale rows number upper lateral line (12–14 (mean 12.8) compared to 10–12 (mean 11.1) in *C. svanetica* sp. n., table. 1 and table 3). All Black Sea basin rivers *Capoeta* species, excluding *C. oguzelii*, are also distinguished from *C. svanetica* sp. n. by the fewer number of branched dorsal fin rays (7–8 (mean 7.1) vs. 8–9 in other species); from *C. sieboldii* and *C. oguzelii C. svanetica* sp. n. also differs by the fewer number of pectoral fin rays (15–16 and 16 (common) — 17 (mean 16.6) respectively vs. 16–18 (mean 17.3)); and from *C. ekmekciae* the last one differs by the fewer number of pelvic fin rays — 12 in *C. ekmekciae* and 8–9 (mean 8.6) in *C. svanetica* sp. n. *C. oguzelii* is also the species which characterized by the keratinized edge on the lower lip absence (Elp et al., 2018). And *C. sieboldii* is also characterized by fringed lips.

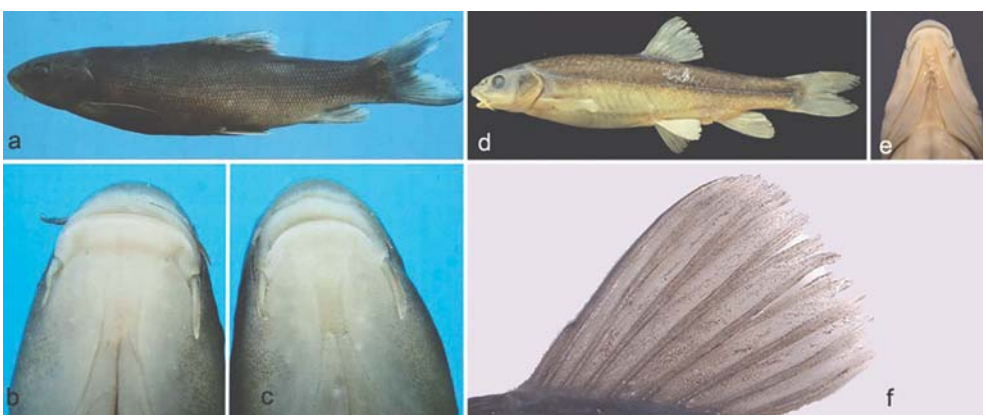

Fig. 8. a–c: *C. tinca*, general body appearance, FFR 718, 129 mm SL; Turkey: Koca River (a); female lower lip, 129 mm SL (b) and male lower lip, 136 mm SL (c), after Turan et al, 2006 b; d–f: *C. oguzelii*, holotype, FCME 2017-05a, 109 mm SL; Ezine Stream (d); lower lip (e); dorsal fin with soft last unbranched fin ray (f), after Elp et al., 2018.

Both, *C. sieboldii* and *C. ekmekciae* are characterized by the fewer number of scales in lateral line (52–60 (mean 55.8) and 57–60 (mean) respectively vs. 70–74 (mean 72.0)) than *C. svanetica* sp. n.; *C. sieboldii* and *C. ekmekciae* have also fewer scales rows number above lateral line (9–11 (mean 9.6) and 9–10 (mean 9.4) respectively) and *C. sieboldii* have fewer number of scales below (8–10 (mean 8.9)) lateral line (table 2) than *C. svanetica* sp. n. The last one is characterized by the fewer number of scales rows above and below the lateral line (table 3) than *C. oguzelii* (12–17 (mean 13.8) above and 11–13 (mean 11.6) below l.l.) and *C. baliki* (14–17 (mean 14.9) above and 10–11 (10.1) below l.l.).

Based on the outer side of the first gill arch rakers number we should conclude *C. svanetica* sp. n. (12–15 with mean 13.3) is more similar to *C. banarescui* (12–16 with mean 14.7). *C. oguzelii* differenced from *C. svanetica* sp. n. by fewer (7–10, mean 8.3) gill rakers number. *C. baliki*, *C. ekmekciae* and *C. sieboldii* differenced from *C. svanetica* sp. n. by highest gill rakers number (16–22, mean 19.3; 18–24, mean 20.4 and 28–33, mean 30.1 respectively).

Capoeta species from the Caspian Sea Basin (East Georgia) also clearly distinguished from *C. svanetica* sp. n. by only one pair of barbels (table 1) and fewer scales number in lateral line (47–59 (mean 53.6) in *C. capoeta*, 50–56 (mean 53.0) in *C. sevangi* and 52–60 (mean 55.9) in *C. kaput*); above l.l. (8–10 (mean 9.0) in *C. capoeta* and 8–9 (mean 8.2) in *C. sevangi*) and below it (6–8 (mean 7.0) in *C. capoeta* and 6–8 (mean 6.5) in *C. sevangi*). *C. svanetica* sp. n. as well as *C. capoeta* and *C. sevangi* characterized by fewer branched rays in dorsal fin number than *C. kaput*. The last one has 8–9 (8.9) — only one sample had 8 rays, all others have 9. All studied *Capoeta* species from Caspian Sea Basin (*C. capoeta*, *C. sevangi* and *C. kaput*) are well distinguished from *C. svanetica* sp. n. by well ossified last unbranched fin ray with high serrae number and also by highest gill rakers number on the first gill arch.

For morphometric features comparing were used only the most similar species *C. banarescui* and *C. baliki* distributed in Black Sea basin rivers and also *C. tinca* as previously known species for Rioni River drainage (table 5). Thus, *C. svanetica* sp. n. is distinguished from *C. banarescui*, *C. baliki* and *C. tinca* by next morphometric features: anal fin base length, eye diameter, snout depth at nostrils, length of anterior and posterior barbel and mouth width. *C. svanetica* sp. n. is characterized by shorter anal fin base length (7.0–10.0 (mean 8.7)) and less mouth width 25.4–29.4 (mean 28.3) than three other compared species (15.9–21.8 (mean 18.7) and 29.5–37.9 (mean 34.3) in *C. banarescui*, 17.0–21.7 (mean 18.8) and 27.4–34.2 (mean 30.8) in *C. baliki*, 15.1–21.3 (mean 17.0) and 29.5–38.5 (mean 33.3) in *C. tinca* respectively (table 5). Also *C. svanetica* sp. n. has the biggest eye diameter (19.0–28.7 (mean 22.3)) and snout depth at nostrils (34.2–38.6 (mean 36.3)) than three other species (13.2–18.9 (mean 15.1) and 29.7–35.1 (mean 32.7) in *C. banarescui*; 14.2–18.6 (mean 16.3) and 30.0–41.1 (mean 34.2) in *C. baliki*; 13.1–18.8 (mean 15.9) and 33.1–41.6 (mean 37.3) in *C. tinca* respectively, table. 5). *C. tinca is* characterized by longer middle caudal fin rays 13.1–15.7 (mean 14.2) compared with *C. svanetica* sp. n. 8.4–13.2 (mean 10.1) and also shorter anterior and posterior barbels like and *C. baliki*. *C. svanetica* sp. n. also characterized by 13.9–20.1 % (mean 16.7 %) and 18.7–28.6 % (mean 22.2 %) of anterior and posterior barbels length respectively compared to 8.1–14.1 % (mean 10.6 %) and 13.1–19.3 % (mean 15.4 %) in *C. tinca* and 9.8–14.3 % (mean 12.7 %) and 14.7–18.5 % (mean 16.5 %) in *C. baliki* respectively.

In total, for best taxonomic comparison were used only such features, which show the lowest variability level, do not overlap in related taxa and can be easily identified. These primarily are meristic (accountant) features (fig. 1–4). Identification key is proposed primarily based on such ones.

Identification key for *Capoeta* Genus from Eastern and South-Eastern Black Sea basin rivers

Below we provide identification key and taxonomic accounts of Capoeta species distributed in Georgia and some Turkish rivers. Also to identification is included previously known in such area *C. tinca*, recently renowned for the Sea of Marmara basin.

(1a) Lateral line scales equal to or less than 61 (large scales *Capoeta capoeta* group, the Aral-Caspian group)
(1b) 64 or more lateral line scales. If 61 or less — one pair of barbels.....2 (small scales *Capoeta damascina* complex group, the Anatolian-Iranian group)
(2a) One pair of barbels, lips are fringed .....*C. sieboldi* (East and South–East Black Sea drainage)
(2b) Two pairs of barbels 3
(3a) Usually 11 or more scales below lateral line; 7–10 total gill rakers; one pair of barbels .*C. oguzelii* (Ezine Stream (Black Sea basin) in Turkey)
(3b) Usually less than 11 scales below lateral line; more than 12 total gill rakers.....4
(4a) Last unbranched fin ray well ossified, with 12 or more well-developed serrae.....5
(4b) Last unbranched fin ray not ossified, soft; serrae are not well developed, their total number less than 7 or absent in samples with SL less than 100 mm ...*C. svanetica* sp. n. (Luchunis River (Rioni River basin) in Georgia)
(5a) the number of scales rows below the lateral line is equal to 9 or less ..... *C. banarescui* (East Black Sea drainage from Rioni to Choroch)
(5b) Number of scales rows below the lateral line is equal to 10 or more 6
(6a) More than 24 serrae on the last unbranched fin ray *C. tinca* (Marmara Sea basin)
(6b) Less than 24 serrae on the last unbranched fin ray ..... *C. baliki* (Sakarya and Kızılırmak rivers)

Capoeta sieboldi (Steindachner, 1864)

Types. No types known.

Type Locality. Amasya.

Diagnosis. Meristic characters (tables 1–4): D: III–IV 8–9 (8.0), P: I 15–16, V: I 8–9, A: III 5½, lateral line: 52–60 (55.8), scales number above/below lateral line: 9–11 (9.6)/8–10 (8.9).

C. sieboldi is distinguished from other *Capoeta* species of East and South-East Black Sea rivers (*C. svanetica* sp. n., *C. oguzelii*, *C. banarescui*, *C. baliki*, *C. ekmekciae,* and also from *C. tinca* of Marmara Sea basin) by the combination of the following characters: one pair of barbels are present (only *C. oguzelii* have also one barbels pair); lower lip is fringed; scales large, only 52–60 total lateral line scales (all other compared *Capoeta* species of East and South-East Black Sea rivers have more than 64 scales); 9–11 scales rows above lateral line (fewer than for all other compared *Capoeta* species of East and South-East Black Sea rivers) as well as fewer gill rakers on the first-gill arch number (28–33 (30.1)).

Distribution. *C. sieboldi* is known from the western South Caucasus to the Sakarya River (Turan et al., 2006 a). Later this species is noted in the Chorokh, Yesilırmak, and Sakarya rivers in Turkey (Elp et al., 2018) and total for Georgia (Kuljanishvili et al., 2020).

Capoeta oguzelii Elp, Osmanoğlua, Kadak and Turan, 2018

Types. **Holotype**. FCME 2017-05a, 109 mm SL; Turkey: Kastamonu prov.: Ezine Stream at Devrekani, Black Sea drainage, 41°44'02" N, 33°52'58" E, M. Elp, A. Kadak, M. Osmanoglu, 29.06.2017. **Paratypes**. FCME 2017-05b, 9 individuals, 51–139 mm SL; same data as holotype. FCME 2017-34, 13 individuals, 54–78 mm SL; same location as holotype; 04.10.2017 (Elp et al., 2018).

Type Locality. Ezine Stream, a coastal stream in the southern Black Sea basin (Elp et al., 2018).

Diagnosis. Meristic characters (tables 1–4): D: IV 7 ($7^1/_2$), P: I 16–17 (16.6), V: I 8–9 (8.1), A: III 5, lateral line: 72–82 (77.0), scales number above/below lateral line: 12–17 (13.8)/11–13 (11.6).

C. oguzelii is distinguished from other *Capoeta* species of East and South-East Black Sea rivers (*C. svanetica* sp. n., *C. sieboldi*, *C. banarescui*, *C. baliki*, *C. ekmekciae,* and also from *C. tinca* Sea of Marmara basin) by the combination of the following characters: one pair of barbels are present (only *C. sieboldi* have also one barbels pair); lower lip without keratinized edge; *C. oguzelii* well distinguished from *C. sieboldi* by small scales and its highest (72–82) total number; 11–13 scales rows below the lateral line (more than for all other compared *Capoeta* species of East and South-East Black Sea rivers); but only 7–10 (8.3) gill rakers (in comparison with previous); last unbranched dorsal-fin ray not well ossified (up to 20 %, Elp et al., 2018) with small serrae number, the similar to *C. svanetica* sp.nov. *C. oguzelii* is also characterized by small black spots presence.

Distribution. Species is known only from Ezine Stream (Black Sea basin) in Turkey (Elp et al., 2018).

Capoeta banarescui Turan, Kottelat, Ekmekçi and İmamoğlu, 2006

Types. **Holotype.** ESFM-PISI/2004-072, 177 mm SL; Turkey: Artvin: Tortum District: Çoruh drainage, stream Tortum, 100 km north of Erzurum; 40°34' N 41°36' E; D. Turan, F. Ekmekci, H. Imamoglu, O. Serdar, S. Kırankaya, 19.07.2004. **Paratypes.** ESFM-PISI/2004-073, 4, 166-201 mm SL; FFR 712, 16, 85-232 mm SL; CMK 18474, 5, 135-193 mm SL; same data as holotype. — FFR 711, 9, 163 — 231 mm SL; CMK 18540, 9, 121 — 193 mm SL; Turkey: Artvin: Chorokh drainage, Bulanık stream, Savsat, 30 km east of Artvin, 41°34' N 42°14' E; D. Turan, F. Ekmekci, H. Imamoglu, O. Serdar, S. Kırankaya, 19.06.2004. — FFR 720, 3, 92 — 125 mm SL; CMK 18549, 1, 145 mm SL; Turkey: Cavuslu, Borcka, 41°21' N 41°42' E; D. Turan, 13.10.2004 (after Turan et al., 2006 b).

Type Locality. Chorokh River.

Diagnosis. Meristic characters (tables 1–4): D: III-IV 7–9 (8.0), P: I 17–19 (17.8), V: I 9–10 (9.1), A: III 5, lateral line: 64–77 (70.8), scales number above/below lateral line: 12–14 (12.8)/8–9 (8.1).

C. banarescui is distinguished from other *Capoeta* species of East and South–East Black Sea rivers (*C. svanetica* sp. n., *C. sieboldi*, *C. oguzelii*, *C. baliki*, *C. ekmekciae,* and also from *C. tinca* Sea of Marmara basin) by the combination of characters. Two pairs of barbels (*C. sieboldi* and *C. oguzelii* have only one pair); gill rakers number (12–16 (14.7)) higher than in *C. oguzelii* but fewer than for *C. sieboldi*, *C. baliki*, *C. tinca,* and *C. ekmekciae*; last unbranched dorsal-fin ray well ossified with the high number of serrae (unlike *C. sieboldi* and *C. oguzelii*); 8–9 scales rows below the lateral line (less than in *C. baliki* and *C. oguzelii*). *C. banarescui* is also characterized by longer posterior barbels 18.4–28.8 (21.9) than the same parameter for *C. baliki* and *C. tinca*.

Distribution. *C. banarescui* is known from Chorokh and Yesilırmak rivers (Turan et. al., 2006 a; Elp et al., 2018). This species is also noted for Georgian waters (Kuljanishvili et al., 2020). Some additional samples were studied from the Rioni River basin (Gubistskali River, fig. 9) and Chorokh River (fig. 10). These individuals were recognized as *C. banarescui* Thus, we should conclude *C. banarescui* is the widest distributed species in West Georgian rivers from Rioni to Chorokh.

There are no clear differences in morphological features (meristics and morphometrics, including mouth arching — fig. 9, b and, 10 b) but some differences in general body appearance and coloration should be concluded. Specimen from Gubistskali River is slightly elongated with more concave dorsal and anal fins. Specimen from Chorokh River is slightly highest with straightly edged dorsal and anal fins. The coloration of the first is goldish in total, darker on the back and lighter on the belly, with more dark (up to brown) fins. Chorokh's specimen had more greyish coloration on the back and lighter (up to white) on the belly. All fins are gray. These differences in coloration may be connected with conditions in the river. In the first case, the specimen was sampled during floods, when river water was rich in sediments. The second case was different — the specimen was collected in clear water.

Fig. 9. Live specimen of *C. banarescui* adult sample general body appearance (a), Gubistskali River and its lower lip structure (b).

Fig. 10. Live specimen of *C. banarescui* juvenile sample general body appearance (a), Chorokh River and its lower lip structure (b).

Capoeta tinca (Heckel, 1843)

Types. **Lectotype**: Naturhistorisches Museum Wien 55931:1, designated by Banarescu & Herzig-Straschil (after Banarescu, 1999).

Type Locality. "Brussa in Natolien"

Diagnosis. Meristic characters (tab. 1–4): D: III 8 (8.0), P: I 18–20 (18.8), V: I 8–9 (9.0), A: III 5, lateral line: 69–80 (74.9), scales number above/below lateral line: 14–17 (15.7)/9–11 (9.5).

C. tinca, previously known from the Rioni and Chorokh rivers was revised recently and noted only for the Marmara Sea basin in Turkey. This species is distinguished from the *Capoeta* species of East and South- East Black Sea rivers (*C. svanetica* sp. n., *C. sieboldi*, *C. oguzelii*, *C. baliki*, *C. ekmekciae,* and *C. banarescui*) by the combination of characters. Two pairs of barbels (*C. sieboldi* and *C. oguzelii* have only one pair); gill rakers number (19–23 (20.6)) higher than in *C. svanetica* sp. n., *C. banarescui*, *C. baliki* and *C. oguzelii* but fewer than for *C. sieboldi*; last unbranched dorsal-fin ray well ossified with the high number of serrae (unlike *C. sieboldi* and *C. oguzelii*); 14–17 scales above the lateral line are highest than in *C. svanetica* sp. n., *C. banarescui* and *C. sieboldi*; 9–11 scales rows below lateral line are highest than in *C. svanetica* sp. n. and *C. banarescui*. *C. tinca* also characterized by less length of anterior and posterior barbels 8.1–14.1 (mean 10.6) and 13.1–19.3 (mean 15.4) respectively than the same parameter for *C. svanetica* sp. n. (13.9–20.1 (mean 16.7) / 18.7–28.6 (mean 22.2)) and *C. banarescui* (12.4–20.8 (mean 16.9) / 18.4–28.8 (mean 21.9)).

Distribution. *C. tinca* is known from the rivers draining to the southern shore of the Sea of Marmara (Turan et al., 2006 b).

Capoeta baliki Turan, Kottelat, Ekmekçi and İmamoğlu, 2006

Types. **Holotype**. ESFM-PISI/2004-74, 202 mm SL; Turkey: Ankara: Sakarya River: Kızılcahamam Stream, Kızılcahamam, 60 km west of Ankara, 40°29' N 32°39' E; D. Turan, M. Turan, 15.04.2004. **Paratypes**. ESFM-PISI/2004-75, 4, 140–190 mm SL; FFR 713, 5, 121–219 mm SL; CMK 18541, 10, 128–188 mm SL; same data as

holotype. FFR 714, 5, 151-209 mm SL; Turkey: Ankara: Sakarya River, Ova Stream, Kazan, 50 km west of Ankara, 40°11' N 32°39' E; D. Turan, M. Turan, 15.04.2004. FFR 715, 5, 121-183 mm SL; same data, 16.06.2004. FFR 716, 10, 168-217 mm SL; Turkey: Sıvas: Kızılırmak River, Delice Stream; F. Ekmekci, S. Kırankaya, 22.11.2002 (after Turan et al., 2006 b).

Type Locality. Sakarya River.

Diagnosis. Meristic characters (tables 1–4): D: III–IV 8–9 (8.1), P: I 17–20 (18.4), V: I 9–10 (9.0), A: III 5, lateral line: 72–86 (78.4), scales number above/below lateral line: 14–17 (14.9)/10–11 (10.1).

C. baliki is distinguished from other *Capoeta* species of East and South-East Black Sea rivers (*C. svanetica* sp. n., *C. sieboldi*, *C. oguzelii*, *C. banarescui*, *C. ekmekciae,* and also from *C. tinca* of Marmara Sea basin) by the combination of characters. Two pairs of barbels (*C. sieboldi* and *C. oguzelii* have only one pair); gill rakers number (16–22 (19.3)) higher than in *C. svanetica* sp. n., *C. banarescui* and *C. oguzelii* but less than for *C. sieboldi*; last unbranched dorsal-fin ray well ossified with the high number of serrae (unlike *C. sieboldi* and *C. oguzelii*); 14–17 scales rows above the lateral line and 10–11 scales rows below the lateral line (more than in *C. svanetica* sp. n., *C. sieboldi,* and *C. banarescui*). *C. baliki* also characterized by less length of anterior and posterior barbels 9.8–14.3 (mean 12.7) and 14.7–18.5 (mean 16.5) respectively than the same parameter for *C. svanetica* sp. n. (13.9–20.1 (mean 16.7) / 18.7–28.6 (mean 22.2)) and *C. banarescui* (12.4–20.8 (mean 16.9) / 18.4–28.8 (mean 21.9)).

Distribution. *C. baliki* is presently known from the Sakarya and Kızılırmak river drainages (Turkey), including lakes and reservoirs (Turan et al., 2006 b; Elp et al., 2018).

Capoeta ekmekciae Turan, Kottelat, Kirankaya and Engin 2006

Types. **Holotype**. ESFM-PISI/2004-076, 203, 203 mm SL. **Paratypes**. ESFM-PISI/2004-077, 4, 150–209 mm SL (after Turan et al., 2006 a).

Type Locality. Chorokh River.

Diagnosis. Meristic characters: D: III–IV 8–9 (8.1), P: I 16-20, V: I 12, A: III 5½, lateral line: 55–61 (57.5), scales number above/below lateral line: 9–10 (9.4)/6–7 (6.8).

C. ekmekciae is well distinguished from other *Capoeta* species of East and South-East Black Sea rivers (*C. svanetica* sp. n., *C. sieboldi*, *C. oguzelii*, *C. banarescui*, *C. baliki*, *C. ekmekciae* and also from *C. tinca* of the Sea of Marmara basin) by the combination of characters. Only one pair of barbels is present, 55–61 lateral line scales and the keratinized edge of the lower lip (*C. sieboldi* and *C. oguzelii* have only one pair, but first also had fringed lower lip and the second had lower lip without keratinized edge and 72–82 scales in lateral line). Based on other meristic features *C. ekmekciae* is more similar to the Aral-Caspian group (tables 1–4). This group, known as large scales, is well distinguished by fewer scales number in lateral line (less than 61), fewer scales rows above the lateral line and below lateral it but higher gill rakes number.

Distribution and some taxonomic remarks. Based on the phylogenetic relationship of *Capoeta* species using COI and *cytb* sequences was shown (Zareian et al., 2016; 2018) that *C. ekmekciae* belongs to the *Capoeta capoeta* complex (Aralo-Caspian group). This data is based on one sample analysis with an unknown locality. *Capoeta capoeta* complex includes species characterized by large scales, their fewer number in lateral lines (fewer than 64), absence of irregular black spots on the dorsal half of the body, and by only one pair of barbels. Our comparison (tables 1–4) shows it well similar to this group species. But, based on all known data (Baycelebi et al., 2015; Zareian et al., 2016; 2018; Elp et al., 2018 and others) including the first description (Turan et al., 2006 a) *C. ekmekciae* is known only from the lower Chorokh River near Borcka and Cavuslu (Black Sea basin). Thus, this species recent distribution needs to be reviewed.

Discussion

According to Berg (1912–1914 and 1949), only three species of the genus *Capoeta* were known for Caucasus water flows in total (and for Georgia in particular): *Varicorhinus capoëta* (Güldenstaedt, 1787), *Varicorhinus sieboldii* (Steindachner, 1864) and *Varicorhinus tinca* (Heckel, 1843). First species distributed within the Kura River basin and Araxes River basin particularly. The second species inhabited Northern Minor Asia coastal rivers and the Western Caucasus from the Sakarya River to Rioni. The third of them was distributed as in Minor Asian rivers (from Bursa to Trabzon towns) and the Chorokh River basin. *Varicorhinus capoëta* as distinct species also included three subspecies: *V. capoëta sevangi* (Sevan Lake, Araxes River basin and some Kura River tributaries), *V.* capoë*ta gracilis* (Lenkoran Region rivers) *and V.* capoë*ta heratensis* (Turkmenistan water flows). In 1969 (Karaman, 1969) all these taxons were replaced to the genus *Capoeta* and later (Zareian et al., 2016; 2018) three subspecies based on genetic data were redescribed as distinct species: *Capoeta sevangi* De Filippi, 1865, *C. gracilis* (Keyserling, 1861) and *C. heratensis* (Keyserling, 1861). These three species belong to *Capoeta capoeta* complex (Aralo-Caspian group) which is characterized by larger scales and their fewer number in the lateral line and absence of irregular black spots on the dorsal half of the body (Zareian et al., 2016; 2018). Also, *C. kaput* (Levin et al., 2019) was described. *C. svanetica* sp. n. with two pairs of barbels, small scales and spotting absents is more similar to *Capoeta damascina* complex group (Anatolian–Iranian group (Levin et al., 2012; Zareian et al., 2018)) which also includes *C. banarescui*, *C. baliki* and *C. sieboldii* (Levin et al., 2012). This group of species also called the Young Evolutionary Group (Zareian et al., 2016): younger than Aral-Caspian one, widespread and diversified group of species. The first species to diverge within this group clade was *C. sieboldi* (samples from the Kizilirmak River, Black Sea drainage (Levin et al., 2012)). Within this group, *C. sieboldi* a single species with a single pair of barbells, an arched mouth and fringed lips. Separation of the Black Sea clade (including also *C. baliki* and *C. banarescui*) took place during Pliocene (Levin et al., 2012). Noted species are characterized by two pairs of barbels and large scales numbers in the lateral line and above it. Members of this group have 2–4 barbels and a horseshoe-shaped lower jaw (Karaman, 1969). *C. tinca* should also belong to the Anatolian–Iranian group because it shows high relatedness with *C. baliki* (Zareian et al., 2018). The third *Capoeta trutta* complex group (spotted capoeta group or the Mesopotamian *Capoeta* group includes species spread at Tigris, Euphrates and Orontes drainages — *Capoeta trutta* (Heckel, 1843), at Seyhan drainage and southern Anatolia — *Capoeta turani* Özuluğ and Freyhof, 2008 and at Tigris and Euphrates drainages — *Capoeta barroisi* Lortet, 1894 (Zareian et al., 2016).

There is a clear correlation between molecular and morphological data in *Capoeta* species. Thus, *Capoeta trutta* complex or the Mesopotamian group is characterized by having numerous irregular black spots on the dorsal half of the body or flank and fin. *Capoeta capoeta* complex or the Aralo-Caspian group characterized by large scales and plain body (absence of irregular black spots on the dorsal half of the body) distributed in Aralo-Caspian water bodies (e.g., Kura and Araxes River drainages, Lake Sevan drainages, and many rivers from Sefidrud to Atrak) in the Caspian Sea basin. *Capoeta damasciana* or the Anatolian–Iranian group characterized by small scales and plain body (absence of irregular black spots on the dorsal half of the body) encompasses many species occupying the majority of Capoeta's range, including Anatolia, the Zagros Mountains, Mesopotamia, and the Iranian plateau (Zareian et al., 2016).

It has also been noted that *Capoeta* species with four barbels, like all *Luciobarbus* species with four barbels, are more ancient than species with two barbles (Karaman, 1969; Levin et al., 2012). But this hypothesis was not supported due to phylogenetic relationships between three *Capoeta* species groups (Levin et al., 2012; Zareian et al., 2016; 2018). Species belonging to *C. trutta* group, the earliest lineage in the genus, have two barbels. Samples

belonging to the two other clades have 2–4 barbels. It should be noted (Levin et al., 2012) that the number of barbels may be retained in some taxons, whereas other species could rapidly lose them independently of their branch due to the specialization required to scrape algae from stones. It has been proposed that the number of barbels is an evolutionarily reversible character in *Capoeta* (Levin et al., 2012). It is worth mentioning that a correlation between molecular and morphological data in *Capoeta* species needs to be revised in detail. At a present time, there are no clear data on the phylogenetic structure between all taxons within the *Capoeta* species from all Caucasus drainage and neighbor areas. An example of *C. sieboldi* phylogenetic history shows us morphological features analysis opportunities. The use of this set of data makes it possible to analyze the historical background for studying the formation and development of individual morphological characters.

We had used only clear morphological differences for comparison of *Capoeta* species. The meristic features were preferred as less variable in comparison with metric features. But the last was used also in comparison to the most related morphologically species. We did not include large scales *Capoeta capoeta* (Aralo-Caspian) group into identification keys because of their clear differences from small scales (Anatolian-Iranian) group, distributed in Eastern and South-Eastern rivers of the Black Sea basin.

Conclusion

Based on the results of comparing *C. svanetica* sp. n. with other *Capoeta* species from the rivers of the Black Sea basin, we can conclude that this is a separate species that stands out from the complex group *Capoeta damascina*, also known as the Anatolian-Iranian group (*C. baliki*, *C. banarescui*, *C. sieboldii* and *C. oguzelii*) by the combination of the characters. New species is also well distinguished from the *Capoeta capoeta* complex group (large scales *Capoeta* group, the Aral-Caspian group) which include *C. capoeta*, *C. sevangi*, *C. kaput* and may also include *C. ekmekciae* as more similar to this group based on genetic and morphological data analysis. Finally, *C. svanetica* sp. n. is well distinguished from *C. tinca* previously known for the Chorokh and Rioni River drainage. *C. svanetica* sp. n. known only from the Luchunis River (Rioni basin). *C. banarescui* is recognized as well spread species in East and South-East Black Sea rivers. This species is also noted for so high level of coloration changeability. At present, Georgian fish fauna includes five species of the genus *Capoeta*: *C. capoeta*, *C. kaput*, *C. banarescui*, *C. sieboldii,* and *C. svanetica* sp. n.

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