

Supplementary Data 3. Details of morphological traits of the new dwarf goby species and specimens from Karpov Yar, Naslavcea, northern Moldova. Measurements are given in mm, values in brackets indicate standardized value using the standard length (SL) as a reference, except for head length (HL) and jaw length, for which with HL is used as a reference.

Species	† <i>Moldavi gobius gloriae</i> sp. nov.	† <i>Moldavi gobius</i> sp.	† <i>Cryptograciles conicus</i> gen. et sp. nov.			† <i>Cryptograciles robustus</i> gen. et sp. nov.			† <i>Alienagobius pygmaeus</i> gen. et sp. nov.			
Collection number	PIN 5274/46 a-b holotype	PIN 5274/58 a-b	PIN 5274/70 holotype	PIN 5274/51 a-b paratype	PIN 5274/47 cf.	PIN 5274/34 holotype	PIN 5274/27a paratype	PIN 5274/67a -b	PIN 5274/68a-b holotype	PIN 1306/85b paratype	PIN 5274/43 paratype	PIN 5274/27b cf.
SL (mm)	33.5	c. 34.3	25.5	16.8	21.3	c. 18.4	19.5	20.5	20.1	17.5	c. 16.1 (based on HL)	17.7
MORPHOMETRIC CHARACTERS												
Head length	7.9 (23.6)	9.1 (c. 26.5)	6.5 (25.5)	4.8 (28.6)	5.3 (24.9)	4.9 (26.6)	c. 5.6 (28.7)	4.9 (23.9)	5.1 (25.4)	4.8 (27.4)	4.1	4.7 (26.5)
Length eye (% HL)	c. 2.3 (c. 29.1)		1.7 (26.1)			1.13 (26.5)	c. 1.3 (c. 23.2)	c. 1.4 (28.6)	1.3 (25.5)	1.4 (29.2)	1.2 (29.3)	1.0 (21.2)
Length lower jaw (% HL)	3.7 (46.8)	3.6 (39.6)	2.7 (41.5)			2.3 (46.9)	2.6 (c. 46.4)	c. 2.2 (44.9)	2.1 (41.2)			
SN/D1	12.2 (36.4)	11.7 (c. 34.1)	9.6 (37.6)	5.8? (32.5?)				c. 7.1 (34.6)	7.5 (37.3)		5.9 (36.6)	6.9 (39.0)
SN/D2	18.6 (55.5)	18.1 (c. 52.8)	14.1 (55.3)					10.9 (53.1)	11.1 (55.2)		8.8 (54.6)	9.7 (54.8)
D2C	3.3 (18.8)					3.9 (21.2)		4.0 (19.5)	3.0 (14.9)			
SN/A	19.7 (58.8)		14.5 (56.9)				11.5 (59.0)		11.6 (57.7)			
CPL	6.8 (20.3)		6.4 (25.1)			4.3 (23.4)	4.7 (24.1)		5.2 (25.9)			4.2 (23.7)
CPD	2.9 (8.6)	2.3 (c. 6.7)	1.9 (7.4)	1.1 (6.2)		1.6 (8.7)	1.7 (8.7)	c. 1.7 (c. 8.3)	c. 1.5 (c. 7.5)	1.54 (8.8)		1.6 (9.0)
BD1	4.2 (12.5)	3.5 (c. 10.2)	4.3 (16.9)	c. 1.3 (7.3)	c. 1.9 (8.9)				2.7 (13.4)		c. 1.8 (11.2)	c. 2.2 (12.4)
BD2	4.3 (12.8)	3.4 (c. 9.9)	3.5 (13.7)			2.7 (14.7)			2.5 (12.4)			c. 2.1 (11.9)
D1 base	3.9 (11.6)	2.1 (c. 6.1)	2.6 (10.2)					2.1 (10.2)	2.4 (11.9)			2.0 (11.3)
D2 base	7.5 (22.4)	4.5 (c. 13.1)	5.0 (19.6)			2.9? (15.8?)		4.0 (19.5)	5.0 (24.9)			

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MORPHOMETRIC CHARACTERS (continued)												
Distance insertion D1-spine VI to begin of D2	2.5 (7.5)		2.2 (8.6)					1.8 (8.8)	1.2 (6.0)			
Distance insertion D1-spine V to VI	1.5 (4.5)	0.85 (c. 2.5)	0.9 (3.5)					0.7 (3.4)	c. 1.0 (c. 5.0)			0.8 (4.5)
Distance insertion D1-spine IV to V	0.62 (1.8)	0.34 (c. 1.0)	0.4 (1.6)					0.4 (1.9)	0.4 (2.0)			0.3 (1.7)
Ratio distance D1-spines V–VI to IV–V	2.4	2.5	2.2					1.7	2.5			2.7
D2 spine length	3.7 (11.0)	3.5 (c. 10.2)							min. 1.2			
A base	7.0 (20.9)		4.5? (17.6)			2.9 (15.8)	3.3 (16.9)		3.6 (17.9)			c. 3.5 (c. 19.8)
A spine length	2.1 (6.3)								0.95 (4.7)			
A spine length in % of next ray	73%											
Caudal fin length		c. 7.0 (20.4)	6.1 (23.9)		5.8 (27.2)	5.1 (27.7)			4.7 (23.4)	c. 4.2 (24.0)		4.6 (26.0)
Pectoral fin length			5.1 (20.0)				3.4 (17.4)					
Pelvic fin length	5.1 (15.2)		c. 3.6 (c. 14.1)				3.2 (16.4)		3.2 (15.9)			
Pelvic fin spine length	1.7 (5.1)	0.95 (c. 2.8)							c. 1.0 (c. 5.0)			
Abd. vert. column length	10.3 (30.7)		6.9 (27.0)		5.9 (27.7)	5.5 (29.9)	5.5 (28.2)	6.0 (29.3)	5.4 (26.9)		c. 4.2 (26.1)	4.7 (26.5)
Caudal vert. column length	15.7 (46.8)		12.0 (47.0)		10.3 (48.3)	8.2 (44.6)	8.7 (44.6)	9.3 (45.4)	9.8 (48.7)			8.3 (46.9)
Abd. vert. column in % of caudal vert. column	65.6		57.5		57.3		63.2	64.5	55.1			56.6

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MERISTIC AND OTHER FIN-RELATED CHARACTERS												
Vertebrae (abd. + caudal)	27 (10+17)		27 (10+17)	27 (10+17)	27 (10+17)	10+17	10+17	27 (10+17)	27 (10+17)		10+min. 14	27 (10+17)
D1 spines	VI	VI	VI				VI	VI	VI			VI
D1 pterygiophore formula	possibly 3-22110		3-...00)					probably 3-122100	3-12...	3-1...		
D2 elements	I, 11	I, 7 ?	I, 11				I, c. 9	I, 10	I, 11			I, c. 10
A elements	I, 11	I, 7 ?				I, c. 9	I, c. 10		I, 12			I, c. 11
AP			2									2
Caudal fin rays, segmented (dorsal/ventral)	9/8	7/7	8 or 9/8	9/8		9/8	17	8 or 9/7	8/8	8/7		17
Caudal procurent rays (dorsal/ventral)	5/min3		7 or 8/3					7 or 8/6	c. 7/-			
Pectoral fin rays			16, stiff				12, stiff			14		min 12
Pelvic fin elements	I, 5	I, 3 or 4	I, 5 separated				I, 5 separated		I, 4			
Insertion of D2 opposite to	v11/12	opp A	v12			v11/12			v11/12			v11?
Insertion of A opposite to	v12/13	opp D2	v12			v12/13	v12		v12/13			v11
Caudal fin shape	slightly fan-shaped		slightly fan-shaped	slightly fan-shaped		slightly fan-shaped	fan-shaped	slightly fan-shaped	rel. long, slightly fan-shaped	slightly fan-shaped		slightly fan-shaped

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SQUAMATION												
Flank scales	ctenoid, aliform, height	unclear if cycloid or ctenoid	ctenoid, short ctenii	only remains	ctenoid?	ctenoid	ctenoid	ctenoid	cycloid + ctenoid?	ctenoid	unclear if cycloid or ctenoid	ctenoid
Radii number	c. 14	up to 15	8, weak		radii present	radii present	7-8		< 10		6	radii present
Scale height (% SL)	3.9–4.2	5.1	2.3				2.0		2.9–3.5	3.1		2.6–2.9
Scales in longitudinal row	< 30		44				41			44		
Belly scales	small, clear circuli	small	present				present		present, cycloid			
Predorsal scales	small, c. 9 weak radii, clear circuli	small	present			present			present, cycloid			

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OTOLITH (SAGITTA) MORPHOMETRY (in case of sagitta pairs, measurements of left and right sagitta are given)												
Otolith length (OL)	1.52, 1.54		1.04, 1.08	0.69	0.93	0.86	0.87, 0.86	0.89	0.84, 0.85	0.73	0.71	0.81
Otolith height (OH)	1.49, 1.42		1.07, 1.10	0.77	1.03	0.88	0.90, 0.89, 0.97	0.87	0.89, 0.86	0.77	0.74	0.86
LH	1.02, 1.08		0.97, 0.98	0.89	0.90	0.98	0.97	1.02	0.94, 0.99	0.95	0.96	0.94
CoL (%OL)	51.3, 50.7		44.1, 40.4	36.5	39.4	40.7	37.2, 42.6	49.4	48.8, 49.4	46.6	42.3	46.9
SuAngle	16.8, 15.9		18.0, 13.1	18.4	25.1	12.0	7.5, 8.0	22.1	11.6, 11.2	15.7	13.0	15.6
SuL (%OL)	58.5, 61.4		45.7, 42.2	46.6	43.1	51.2	46.0, 50.3	51.7	56.0, 52.9	54.8	53.5	54.3
SuL (%OH)	59.7, 66.6		44.4, 41.5	41.6	38.7	50.0	44.5, 48.8	52.9	52.8, 52.3	51.9	51.4	51.2
SuH (%OL)	29.2, 34.2		22.8, 23.0	25.1	26.6	23.3	18.1, 20.0	33.7	26.2, 25.9	26.0	23.9	25.9
SuH (%OH)	29.7, 37.04		22.2, 22.5	22.5	23.9	22.7	17.5, 19.4	34.5	24.7, 25.6	24.7	23.0	24.4
SuTipV (%SuEndV)	64.8, 65.2		72.9, 75.3	69.9	74.8	89.5	86.5, 83.0	57.4	78.0, 67.4	71.1	73.7	71.4
SuTipV (%OH)	30.2, 30.3		35.9, 36.1	33.3	34.6	38.6	40.0, 39.0	31.0	36.0, 33.7	35.1	37.8	33.7
SuEndV (%OH)	46.6, 46.5		49.2, 47.9	47.7	46.3	43.2	46.3, 47.0	54.0	46.1, 50.0	49.4	51.4	47.2

Empty cells indicate that the trait was not detectable due to poor preservation or not preserved. **Abbreviations for skeletons:** **A**, anal fin; **Ab**, anal-fin base; **AP**, number of pterygiophores of anal fin inserting before the haemal spine of first caudal vertebra; **BD1**, body depth at insertion of D1; **BD2**, body depth at insertion of A; **CPD**, lowest caudal peduncle depth; **CPL**, caudal peduncle length; **D1**, first dorsal fin; **D2**, second dorsal fin; **D2C**, distance between the end of D2 and the first procurent caudal-fin ray; **HL**, head length; **SN/A**, preanal distance; **SN/D1**, predorsal distance to D1; **SN/D2**, predorsal distance to D2; **v**, vertebra, vertebrae; -, not preserved; ?, not certain due to preservation issues. **Abbreviations for otoliths:** **CoL**, colliculum length; **LH**, ratio OL-OH; **SuA**, sulcus inclination angle; **SuH**, vertical sulcus height; **SuL**, horizontal sulcus length; **SuEndV**, vertical distance from the end of the sulcus to the ventral otolith margin; **SuTipV**, vertical distance from the tip of the sulcus to the ventral otolith margin.