

scales, large scales on the upperside of the ankle, and color pattern. Petrov's view (1964) that the subspecies obscura should be treated as a synonym of L.s. rudis has not been confirmed by our investigations. From all evidence, the adult male of rock lizards from the Atensk gorge in Georgia described by M<sup>h</sup>ely (1909) as a likely hybrid species Lacerta composita should be placed in the subspecies obscura.

Specimens examined. Georgia: 9859 (9), Borzhomi: 14430 (23) Borzhomi: 14414 (1), Bakuriani; 17057 (3), Borzhomi, road in Akhaltsikhe 17059 (3), gorge of Banis-Khevi near Borzhomi; 17171 (24), between Borzhomi and Akhaltsikhe; 17172 (15), Borzhomi, valley of the Borzhomki River; 17445 (36), around Abastumani; 17516 (3), Atskuri, Akhaltsikh region; 17540 (6), Abastumani, road in the Zekari pass; 17746 (7), upland of the Atensk gorge, Gori region; 17840 (10), gorge of the Borzhomki River; 17943 (1), road from Bakuriani in Tskhra-Tskaro pass; ZIU (63), Akhaldaba, Borzhomi, region; SMG (7), around Akhaltsikhe.

#### CAUCASICA GROUP

Lacerta caucasica caucasica M<sup>h</sup>ely 1909  
(Fig.47; Photo.24)

L. saxicola, Kessler (non Eversmann), 1878:154.-- muralis fusca var. saxicola, Bedriaga (part.) 1886:195 (179).--muralis Boettger (part.), 1893:83.--caucasica M<sup>h</sup>ely, 1909:560, Table 21, fig.1, 2; Table 2, fig.1, Table 23, fig.1; Nikolskii, 1913:31; Mertens, 1922:173.-- muralis var. caucasica, Boulenger, 1913:198, Table 23, 3-5; 1920:275.-- saxicola-caucasica, Nikolskii, 1915:380; Lantz and Cyren, 1936:165; Terentiev and Chernov, 1949:188.

Lectotype. Senckenbergische Natur-Museum (Germany), 12069, ♂, Kazbek in central Caucasus, May 1, 1879, collected by G. Leder.

Description. The frontonasal is wider than long. The rostral is separate from the frontonasal or, rarely, touches across fairly broad suture. The suture between the frontonasal and postnasal scales is usually interrupted or considerably shorter than that between the anterior and posterior nasals; quite often, the postnasal does not reach the frontonasal at all. Between the supraciliaries and supraoculars, there is a full or interrupted row of 1 - 14 granules; in many cases, these granules may be completely absent. The upper postorbital usually does not reach the parietal. The first supratemporal is moderately long, slightly constricted,

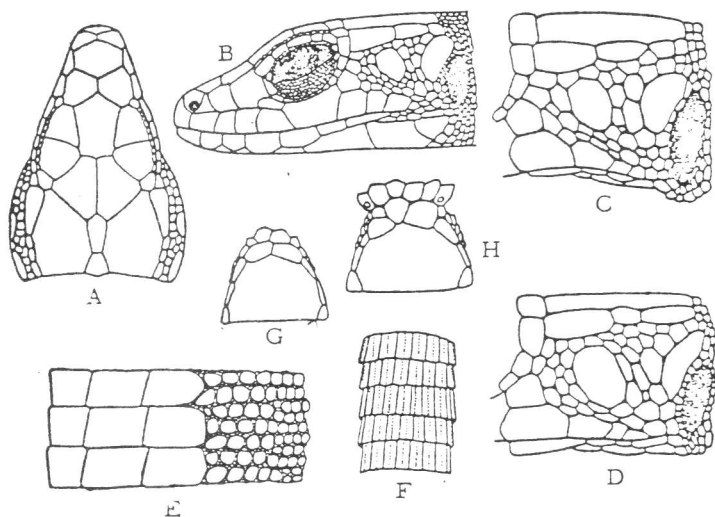


Fig. 47. Major scalation of *L. c. caucasica*.

A - Head, dorsal view; B - head, lateral view; C, D - temporal region; E - contact zone between body and ventral scales of males; F - dorsal anterior third of tail; G, H - anal region. (D - Kazbegi; rest - Mletii).

and transected posteriorly; posterior of it, along the edge of the parietal lie 1-3 subequally enlarged supratemporals. The moderate or large mid-temporal sometimes reaches the first supratemporal; more often, however, it is separated from it by 1 - 3 transverse rows of tiny scales. Between the midtemporal and the fairly large tympanic, 1 - 3 noticeably enlarged scales lie in the narrowest zone. The collar is strongly serrated. Along the midline of the throat up to the collar, there are 14 - 26 scales. The body scales are smooth, faintly bulging, not noticeably enlarged laterally where tiny granules usually lie singly or between the individual clusters of scales. Around midbody, there are 37 - 53 scale rows. The outer ventral scales are bordered by 2 - 3 body scales in males and 2, rarely 3, in females. The ventral scales are in 21 - 26 transverse rows in males and 22 - 28 in females. In front of the large anal, there are 2 or 3 slightly enlarged preanals or enlarged preanals are absent. The femoral pores number 9 - 19. On the underside of the thigh between the pores and the outer row of large scales, there are 3 - 5 transverse rows of scales. The dorsal scales of the crus are almost smooth or have faint keels not exceeding the size of the spinal ones; around the middle of the crus, there are 13-20 scales in single file. The scales on the anterior third of the tail have very faint longitudinal keels dorsally and laterally; some caudal scales, generally project posteriorly at an somewhat acute or obtuse angle. The

snout-vent length is 45 - 61 mm in males and 43 - 64 mm in females; the ratio of snout-vent length to that of the tail is 0.48 - 0.70 and 0.51 - 0.70 respectively. Thus, the females generally are noticeably larger than the males. The dorsal color of both sexes is green, yellowish-green, grass-green, grayish-green, olive green, ivy green, bluish-green, brownish gray, sandy, ochreous or honey yellow. On the whole, the green tones are more characteristic of males than females. Usually a much darker monochromatic stripe of the background color runs along the spine; along it, there are innumerable tiny black or brown blotches covering the middle of the back and often forming 2 more or less prominent parallel rows. In some cases, specially in males, these blotches are hardly distinguishable from the dark background. The broad temporal stripes with scalloped upper edges are usually formed of 2 rows of dark ocelli fused together and having fairly distinct bright (bluish in the pectoral zone) centers; quite often, only 1 - 3 anterior centers are evident or even the dark temporal stripes are completely devoid of any gaps. Laterally bright ciliary stripes usually run between the occipital and temporal stripes; these stripes are narrowest anteriorly and gradually enlarge posteriorly. Some dark spots are scattered along these stripes. The lower edge of temporal stripe is usually bordered by a row of more or less distinct bright blotches frequently fused into a continuous supra-maxillary stripe. The top of the head is monochromatic or shows a few dark specks. In some specimens, the individual elements of pattern are very faint or completely absent. The venter including the throat and chin is yellow, yolk-yellow, yellowish-green, green, or white.

Geographical distribution. This subspecies is extensively distributed in the southern and northern slopes of the Bolshoy Kavkaz range from the northern foothills of Elbruz in the west to the southeastern extremity of the Caspian range in the east. The southwestern edge of the range extends along the upper reaches of the Inguri River and its tributaries including the spur of the Svanet range in Verkhnyaya Svanetiya where it is bordered in the south by the upper reaches of the Khobi, Tekuri, Kviril, and other rivers arising on the slopes of the Egriss, Lechkhum, and Rachin ranges. Farther southward in southern Osetia, the edge of the range extends along the spur of the Dvalet range roughly to the latitude of the Dzhev health resort in the south and emerges along the southern spurs of the Khuarul, Lomis, Kartalin, and Kakhetin ranges onto the slopes of the Vodorzdel range in Alazan valley. Further, in Azerbaijan, it extends into the upper course of the rivers flowing from the Bolshoy range, reaching in the east the upper course of Pirsagat and Sumgait on the slopes of the Baba-Dag mountain. No less extensive is this lizard's distribution on the northern slopes from the upper courses of Baksan gorge in Kabardino-Balkariya in the west to the Samur range in Daghestan in the east.

The northwestern edge of the range extends into the Baksan gorge roughly from around Tegenekli in the south, continuing eastward along the northern foothills of Skalisty and Bokovoi ranges where the northernmost occurrences are in the gorges of the Adyr-Su, Chegem ravine, and Goluboi lake in Kabardino-Balkariya around Alagir and the village Balta in northern Ossetia and from the northern slopes of Adii range in Checheno-Ingush. In mountainous Daghestan, *L. caucasica* occurs both on the northeastern spurs of the Caspian network of the Bolshoy range and also on the slopes of the Samur, Sarfun-yal and Adii ranges to the upper reaches of the Chirakhchai and Uluchai Rivers in the east (Fig.48,2). In considerable portion of its range both on the southern as well as the northern slopes of the Bolshoy range, this lizard occurs with *L.r. rudis*. Sympatry with *L.s. saxicola* and *L. caucasica alpina* occurs at several places in the Northern Caucasus. It is encountered at some places in Daghestan with *L.s. daghestanica*.

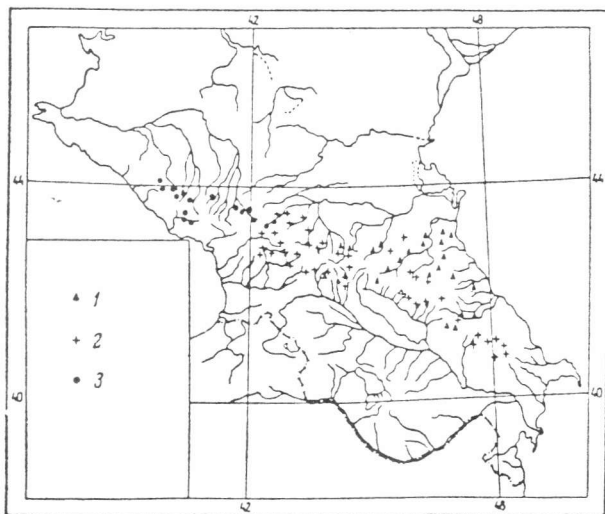


Fig. 48. Main occurrences within the Caucasus.

1 - *L. s. daghestanica*; 2 - *L. c. caucasica*; 3 - *L. c. alpina*.

Geographical variation. Samples were studied from 9 populations (Table 20) on the southern and northern slopes of the Glavny Caucasus range. On the northern slope, from east to west, these populations are 180, 125, 110, and 25 km apart; whereas the distances between the populations are 160, 60, and 180 km in the south. The extreme north-eastern populations in the Adii range (around Vedeno) are at present isolated from the rest of the range.

Table 20

Geographical variation of *Lacerta caucasica caucasica*

Characters	Northern slope of Bolshoi Caucasus range											
	Rutul (southern Dagestan), N = 30 (15 ♂♂, 15 ♀♀)			Vedeno (southeastern Chechena-Ingush) N = 30 (11 ♂♂, 19 ♀♀)			Upland of Darial gorge (Georgia) N = 20 (13 ♂♂, 7 ♀♀)			Golube lakes, gorge of Cherek River Kabardin-Balkariya, N = 10 (5 ♂♂, 5 ♀♀)		
	Range of variation	M ± m	Range of variation	M ± m	Range of variation	M ± m	Range of variation	M ± m	Range of variation	M ± m	Range of variation	M ± m
1 ♂♂	46-53	49.43 ± 0.51	49-60	53.18 ± 0.86	49-61	54.54 ± 0.84	50-57	54.00 ± 1.18				
1 ♀♀	50-54	51.53 ± 0.37	50-61	55.53 ± 0.70	58-64	60.86 ± 0.96	53-56	54.80 ± 0.49				
2 ♂♂	80-102	93.00 ± 2.04	87-93	90.75 ± 1.32	98-104	101.00 ± 3.00	78-107	90.33 ± 8.62				
2 ♀♀	88-100	96.17 ± 1.88	82-105	91.57 ± 2.81	101-122	111.50 ± 10.5	81-99	90.67 ± 5.22				
3 ♂♂	0.48-0.61	0.53 ± 0.01	0.53-0.63	0.56 ± 0.02	0.55-0.56	0.555 ± 0.005	0.50-0.70	0.62 ± 0.06				
3 ♀♀	0.51-0.58	0.54 ± 0.01	0.53-0.64	0.59 ± 0.01	0.53-0.59	0.56 ± 0.30	0.56-0.68	0.60 ± 0.03				
4	37-49	44.13 ± 0.50	38-46	41.90 ± 0.32	40-53	43.50 ± 0.79	42-46	44.00 ± 0.52				
5	14-23	19.53 ± 0.40	16-20	18.07 ± 0.20	17-22	18.60 ± 0.34	17-21	19.30 ± 0.37				
6	9-17	14.50 ± 0.33	12-16	13.95 ± 0.18	12-19	14.65 ± 0.33	15-18	16.65 ± 0.21				
7	1-14	10.18 ± 0.38	0-5	1.35 ± 0.24	5-12	8.52 ± 0.37	9-12	10.55 ± 0.25				
7a	0	—	100	—	65	—	0	—				
9 ♂♂	22-25	23.93 ± 0.27	23-25	23.91 ± 0.25	21-25	23.15 ± 0.37	23-24	23.60 ± 0.25				
9 ♀♀	25-28	26.53 ± 0.28	25-28	26.00 ± 0.18	25-27	26.00 ± 0.31	25-28	26.00 ± 0.55				
10	1-3	2.43 ± 0.09	2-3	2.90 ± 0.05	2-3	2.15 ± 0.08	1-2	1.90 ± 0.10				
11	2-3	2.61 ± 0.11	1-2	1.43 ± 0.09	1-3	1.88 ± 0.14	1-3	2.00 ± 0.10				
11a	0	—	40	—	0	—	0	—				
12	1-5	3.52 ± 0.17	1-4	2.58 ± 0.13	1-4	2.82 ± 0.17	2-4	3.00 ± 0.17				
13 ♂♂	2-3	2.47 ± 0.13	2-3	2.69 ± 0.14	2-3	2.58 ± 0.14	3-3	3.00 ± 0.00				
13 ♀♀	2-3	2.30 ± 0.12	2-3	2.50 ± 0.11	2-3	2.50 ± 0.20	2-3	2.90 ± 0.14				
14	15-19	16.2 ± 0.19	13-17	15.00 ± 0.15	15-18	16.25 ± 0.19	16-17	16.40 ± 0.16				
15	3-5	3.80 ± 0.10	3-4	3.83 ± 0.07	3-5	4.00 ± 0.07	4-5	4.80 ± 0.13				

Contd.

Characters	Northern slope of Bolshoi Caucasus range			Southern slope of Bolshoi/Kavkaz range					
	Gorge of Chegam River at Waterfall (Kabardino-Balkariya), N = 30 (17 ♂♂, 13 ♀♀)			Lagodskhi (Georgia), N = 20 (13 ♂♂, 7 ♀♀)			Mleti, Voenna-Georgia road (Georgia), N = 25 (15 ♂♂, 10 ♀♀)		
	Range of variation	M ± m	Range of variation	M ± m	Range of variation	M ± m			
1 ♂♂	45-53	49.24 ± 0.50	45-56	49.38 ± 1.04	50-57	53.93 ± 0.60			
1 ♀♀	48-54	50.62 ± 0.56	52-59	55.72 ± 0.81	43-59	52.90 ± 1.43			
2 ♂♂	78-98	88.30 ± 1.77	81-101	93.40 ± 2.18	93-98	95.67 ± 1.45			
2 ♀♀	85-102	92.67 ± 1.98	97-98	97.50 ± 0.50	78-97	87.5 ± 9.50			
3 ♂♂	0.48-0.60	0.55 ± 0.01	0.48-0.60	0.52 ± 0.01	0.53-0.39	0.56 ± 0.017			
3 ♀♀	0.52-0.58	0.54 ± 0.01	0.54-0.58	0.56 ± 0.02	0.58-0.63	0.60 ± 0.02			
4	40-47	43.07 ± 0.33	39-48	42.85 ± 0.46	41-48	43.88 ± 0.39			
5	19-23	20.33 ± 0.22	20-25	22.25 ± 0.25	20-25	21.64 ± 0.25			
6	13-17	15.27 ± 0.16	14-19	15.90 ± 0.25	13-19	15.46 ± 0.23			
7	5-12	10.15 ± 0.25	3-12	8.48 ± 0.58	3-12	9.46 ± 0.50			
7a	23.7	—	50	—	48	—			
9 ♂♂	21-25	23.65 ± 0.26	23-25	24.15 ± 0.15	21-24	22.67 ± 0.26			
9 ♀♀	24-26	25.38 ± 0.18	26-28	27.14 ± 0.34	24-26	24.80 ± 0.20			
10	2-3	2.13 ± 0.06	2-3	2.55 ± 0.11	2-3	2.48 ± 0.10			
11	1-3	1.95 ± 0.12	0-3	1.30 ± 0.13	1-3	1.91 ± 0.13			
11a	0	—	0	—	8	—			
12	2-5	3.10 ± 0.12	2-5	3.37 ± 0.13	2-5	2.78 ± 0.12			
13 ♂♂	2-3	2.68 ± 0.11	2-3	2.38 ± 0.13	2-3	2.77 ± 0.11			
13 ♀♀	2-3	2.46 ± 0.14	2-3	2.14 ± 0.14	2-3	2.85 ± 0.11			
14	16-19	17.13 ± 0.17	14-18	16.35 ± 0.27	15-17	15.64 ± 0.11			
15	3-5	3.73 ± 0.09	3-4	3.90 ± 0.09	3-5	4.00 ± 0.06			

Southern slope of the Bolshoy Kavkaz range						
Characters	Rokski pass (southern Ossetia) N = 25 (12 ♂♂, 13 ♀♀)		Gorge of Mulkhra River (Verkhyaya Swanetiya), N = 15 (9 ♂♂, 6 ♀♀)		Subspecies as a whole, N = 205 (110 ♂♂, 95 ♀♀)	
	Range of variation	M ± m	Range of variation	M ± m	Range of variation	M ± m
1 ♂♂	50-57	53.58 ± 0.58	47-55	50.78 ± 1.14	45-61	51.72 ± 0.33
1 ♀♀	50-62	54.38 ± 0.79	48-60	54.17 ± 1.86	43-64	54.07 ± 0.46
2 ♂♂	82-108	92.78 ± 3.28	86-113	100.00 ± 4.74	78-113	93.83 ± 0.77
2 ♀♀	78-105	86.36 ± 2.20	80-93	86.50 ± 6.52	78-122	92.68 ± 1.08
3 ♂♂	0.49-0.66	0.57 ± 0.02	0.48-0.62	0.51 ± 0.02	0.48-0.70	0.55 ± 0.02
3 ♀♀	0.54-0.70	0.63 ± 0.01	0.60-0.60	0.60 ± 0.00	0.51-0.70	0.58 ± 0.01
4	39-47	43.32 ± 0.40	44-49	46.53 ± 0.32	37-53	43.50 ± 0.17
5	19-26	22.04 ± 0.32	18-25	22.53 ± 0.52	14-26	20.38 ± 0.14
6	13-17	15.44 ± 0.18	12-18	15.30 ± 0.33	9-19	15.08 ± 0.09
7	5-12	8.60 ± 0.45	0-13	7.57 ± 0.80	0-14	8.10 ± 0.24
7a	64	—	73.3	—	—	—
9 ♂♂	22-24	23.08 ± 0.23	21-26	22.89 ± 0.48	21-26	23.48 ± 0.105
9 ♀♀	22-26	24.92 ± 0.31	25-26	25.67 ± 0.20	22-28	25.79 ± 0.11
10	2-3	2.10 ± 0.07	2-3	2.07 ± 0.06	1-3	2.31 ± 0.034
11	1-3	1.60 ± 0.12	1-3	1.90 ± 0.14	1-3	1.94 ± 0.055
11a	0	—	0	—	—	—
12	1-4	2.80 ± 0.14	1-4	2.23 ± 0.25	1-5	2.94 ± 0.055
13 ♂♂	2-3	2.96 ± 0.06	2-3	2.72 ± 0.15	2-3	2.66 ± 0.045
13 ♀♀	2-3	2.62 ± 0.14	2-3	2.75 ± 0.18	2-3	2.53 ± 0.051
14	14-16	15.36 ± 0.14	16-20	17.73 ± 0.29	13-20	16.13 ± 0.083
15	3-5	3.96 ± 0.07	4-5	4.43 ± 0.09	3-5	3.94 ± 0.03
						3.50
						4.50
						8.14
						10.65
						0.22
						0.12
						2.46
						2.09
						1.40
						3.56
						—
						1.12
						1.42
						0.49
						0.80
						—
						0.80
						0.473
						0.50
						1.20
						0.45

Figure. 49 shows the nature of variations in the samples from the northern slope. It must be pointed out that the true picture of variation of the subspecies is considerably blurred as a result of the intense effect of their interaction with sympatric forms. Thus, the increase in the number of tiny scales between the midtemporal and also the positive deviation of characters 4 and 7 in the Rutul populations on the northern slope results from hybridization with *L.s. daghestanica*, whereas the maximum deviation of characters 7, 12 and 14 in the Chegem River gorge populations is associated with the presence of *L.s. saxicola*. In exactly a similar manner, the population of *L.c. caucasica* from the Mulkhra River gorge in Verkhnyaya Svanetiya considerably deflects characters 4, 5 and 14 towards the sympatric *L.s. brauneri*,

Ignoring for this reason the samples from mixed populations, it may be seen that, on the northern slope, several scale characters reveal a distinct clinal variation increasing from east to west. Judging from the samples investigated, a similar pattern is either absent or is only slightly manifest on the southern slope. The significant negative deviation of some characters in the isolated populations of Andii range (around Venedo) is also striking. As a result of this, these lizards, as a whole, differ considerably from specimens of the remaining samples. Further, such differences, specially the nearly total absence of granules (characters 7 and 7a), hardly amount to a nonsubspecific rank.

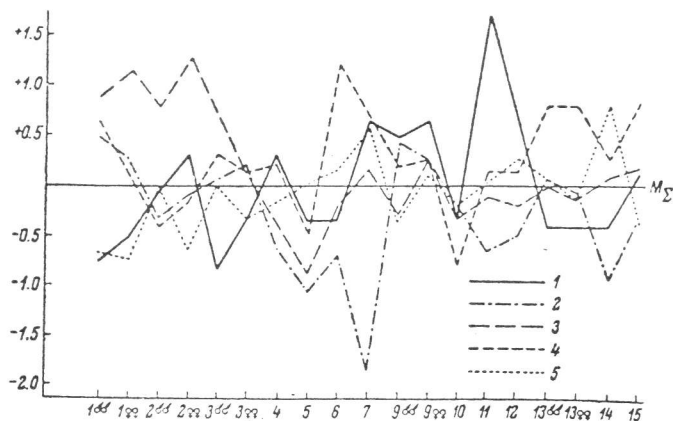


Fig. 49. Summary graph of variation of *L.c. caucasica*. (population of northern slope of the Bloshey Kavkaz range).

1 - Rutul; 2 - Venedo; 3 - Darial gorge; 4 - Golubye lakes; 5 - Chegem gorge.



Comparative notes. According to Lantz and Cyren (1936, Lacerta caucasica, described first by M hely as an excellent species, does not deserve the rank of a species and should be regarded only as one of the subspecies of L. saxicola. In confirmation of their view, the above investigators referred to the habitual similarity of L. caucasica with the Transcaucasian forms armeniaca and mixta and to the fact that some type material used in the description of L.s. gracilis differs little from the typical L. caucasica. It has already been shown that the specific independence of this species was based not only on distinct morphological characters but also on the fact that in the existing zone of sympatry of L. caucasica with L.s. branneri and L.r. rudis, hybrids are conspicuous by their absence. As would be demonstrated later on, the observed similarity of L. caucasica with some specimens of L.s. daghestanica (= L.s. gracilis) is explained by the actual genetic similarity of these 2 forms.

Specimens examined. Georgia: ZIL 14412 (2), Verkhnee Bagini, Dusheti region; 17102 (6), Dusheti; 17431 (14), Darial gorge; 17443 (40), between Mleti and Gudauri; 17786 (31), Kazbegi; 17819 (31), Lagodekhi, upper cordon; 17883 (18), Verkhnyaya Svanetia, upper reaches of Mulkhury River; SMG (3), Pasanauri; (4) Lebarde, Geogechkor region; (5) Lentekhi; (4) Gornaya Tushetia. Southern Osetia; ZIL 17742 (40), between Vaneli and Zemo-Rok, road on Rok pass; GMG (4) at lake Ertso. Azerbaijan: ZIL 9575 (5), Nukhin region; 17813 (5), Zakataly, lower cordon; 17842 (16), Zakataly reserve forest area; 17924 (4), Tfan mountain. Daghestan: ZIL 17732 (52), Rutul, road in Borch; 17925 (4), Kulin region. Checheno-Ingush; ZIL 17744 (43), Vedeno, upper elevation in Andii range.

Northern Ossetia: ZIL 16657 (12), Alagir; 16658 (2), Nakh gorge; 17790 (18), around Balta, lowland of Darial gorge. Kabardi-no-Balkariya: ZIL 16343 (4), Golubye lakes; 17792 (6), Tegenekli, Baksan gorge; 17884 (38), Chegem River gorge at waterfalls; 15587 (13), Golubye lakes.

Lacerta caucasica alpina ssp. n  
(Fig. 50; Photo. 25)

L. caucasica, M hely (part.), 1909:560; Nikolskii (part.), 1913:84.-- saxicola caucasica, Nikolskii (part.) 1915:380.-- saxicola var. caucasica, Bertenev and Reznikova, 1935:20.

Holotype, ZIL, Academy of Sciences, USSR, 17942, 6, around village Terskol in Kabardino-Balkariya, 2200, m above sea level. August 15, 1965, collected by I.S. Darevsky (Fig. 25B).