

Taxonomy of Altai pika *Ochotona alpina* (Pallas, 1773) (Lagomorpha, Ochotonidae) from West Altai

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ABSTRACT. The type material of *Ochotona alpina alpina* and *O. a. atra* and other museum specimens of Altai pika from West Altai are analyzed. The neotype and the type locality of *O. a. alpina* are fixed. The type locality and the type series of *O. a. atra* are defined more accurately. The both names should be referred to the single taxon of subspecific level (*O. a. alpina*).

KEY WORDS: *Ochotona alpina*, *O. a. atra*, taxonomy, West Altai.

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Систематика алтайских пищух *Ochotona alpina* (Pallas, 1773) (Lagomorpha, Ochotonidae) Западного Алтая

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РЕЗЮМЕ. Исследован типовой материал *Ochotona alpina alpina* и *O. a. atra* и другие музейные экземпляры алтайских пищух с Западного Алтая. Фиксированы неотип и типовое местонахождение *O. alpina*. Уточнены состав типовой серии и типовое местонахождение *O. a. atra*. Показана принадлежность обоих названий к одному таксону подвидового ранга (*O. a. alpina*).

КЛЮЧЕВЫЕ СЛОВА: *Ochotona alpina*, *O. a. atra*, систематика, Западный Алтай.

Introduction

During the preparing of the taxonomic revision of the pikas of *alpina-hyperborea* group I have met with a number of taxonomic difficulties, which need special investigation. One of the basic problems was lack of the clarity in the systematics of pikas from West Altai, the place where the Altai pika, *Ochotona alpina* (Pallas, 1773) was originally described from.

Two races of the Altai pika were described from West Altai: *O. alpina* Pallas, 1773 and *O. atra* Eversmann, 1842. The race *alpina* was described by P.S. Pallas (1773: 701) without fixation of the name-bearing type. It is indicated in the original publication that the Altai pika was described on the basis of specimens collected near Tigirek River (the left tributary of Inya River in the central part of Tigiretskii Range) and Sinyaya Sopka (Sinyukha Mountain): “Das merkwürdigste, welches mir vom Geburge gebracht wurde, war eine Art von Steinhaasen, die es langst dem Tigerak bis fast auf das höchste Geburge in grosser Menge giebt. Sie sollen auch um andre felsigte Bache des hohen Geburges wohnen und von der unten zu erwähnenden Sinaja Sopka hat man mir selbige in Menge gebracht, wie denn dieses Thier auch in allen ostlicher gelegnen, wilden Geburgen Sibiriens gemein ist” (Pallas, 1773: 569) (“The most interesting one brought to me from the mountains was a pika species which is present in a great number along Tigirek nearly up to the peak of the range. They should inhabit also the surroundings of another

rocky brooks of the high range, and from the lower, from the mentioned Sinyaya Sopka, the same ones were furnished to me in some number, as if because this animal is common in all wild mountains of Siberia situated eastward, as well”). Sinyaya Sopka is mentioned in connection with pikas also on the page 588.

Specimens, which are mentioned in the original publication, can be considered irretrievably lost: at least not any one of them was mentioned in the subsequent publications. At present, specimens of pikas from West Altai brought by Pallas are absent in the largest museums of Russia, Europe and USA.

According to opinion of S.I. Ognev (1940), there are two localities indicated in the Pallas’ publications, from which pikas were available to Pallas at the moment of *O. alpina* description: Sinyaya Sopka in Kolyvan’ and Tigiretskii Range. S.I. Ognev (1940: 23) points it out: “Pallas gives the description of exterior and biological peculiarities of Alpine pika by specimens, which were collected in surroundings of Tigiretskoe in Tigiretsk Mountains. ... [Sinyaya Sopka] is mentioned also, but only by the way”. This point of view became universally recognized and all other authors (Ellerman & Morrison-Scott, 1951; Gureev, 1964; Erbaeva, 1988; Yakhontov & Formozov, 1992; Hoffman, 1993; Sokolov *et al.*, 1994) cite Tigiretskii Range as the type locality of *O. alpina*.

The race *atra* was described by E. Eversmann (1842: 3) on the basis of a sample of melanistic specimens with exactly denoted locality where these specimens were collected (Uymon, Altai): “Habitat in mon-

tibus Altaicus eadem loca cum *L. alpino*; e. gr. circa pagum Uimon non raro occurrit" (Eversmann, 1842: 3). Although Eversmann did not fix explicitly the type series, the specimens studied by him are kept in the Zoological Institute of the Russian Academy of Science collection (ZIN 84398, 84399 and 48490).

The majority of investigators considered the name *atra* as a junior synonym of the nominotypical subspecies (Ognev, 1940; Ellerman & Morrison-Scott, 1951; Erbaeva, 1988). However, Yakhontov & Formozov (1992) concluded that this race is to be recognized as a separate subspecies because of its unusually large skulls. Unfortunately, specimens neither from Tigiretskii Range, nor from Kolyvanskii Range were analyzed in their study.

In re-description of *atra* by Yakhontov & Formozov (1992) the lectotype (ZIN 2935) and the paralectotype (ZIN 2936), were fixed from the Eversmann's original series, and the type locality was designated as "Uymon, Eastern Kazakhstan". The reasons induced these authors to give "Eastern Kazakhstan" instead of "Altai" as the type locality, are not mentioned in this publication. Probably because of the modified interpretation of the type locality, the re-description of *atra* contains considerable inaccuracy. Its distribution area is depicted in the following way: "Ivanovskii Range and Kholzun Range, ... upper Konsa River" (misprint in the text — it should be "Koksa"). Thus, Uymon (the foot of Katunskii Range) appeared to be situated outside the *atra* range. At the same time, they did not define subspecies allocation of pikas inhabiting the space between Kholzun Range and Uymon. The range of the nominotypical subspecies is described by Yakhontov & Formozov (1992: 29) in the following way: "West and Central Altai, except Ivanovskii Range and Kholzun Range, eastwards to Katun River, south to Narymskii Range and Kalbinskii Range". Obviously, in such a case the range of *alpina* consists of two isolated parts (Narymskii Range, Kalbinskii Range, Sarimsakti Range in the South and the mountains, situated to the North of the ranges Tigiretskii-Korgonskii-Terektinskii, in the North), separated by the range of the race *atra*.

It is known that Eversmann's collections from Altai were made by his preparator P. Romanov who, during expeditions of 1840–44 years "...has been in the Katun and Chuya Rivers basins..." (Heptner, 1940: 41). Thus he collected exactly near Uymon village situated on Katun River (Altai).

There was another mistake in the description of lectotype and paralectotype by Yakhontov & Formozov (1992): published specimen numbers are not numbers of the ZIN collection. There are the numbers of an old ZIN catalogue (o.c.), kept on the collection labels. Valid collection numbers are: lectotype (o.c. 2935) — ZIN 84398, paralectotype (o.c. 2936) — ZIN 84399. One more specimen from this series ZIN 48490 was not mentioned during the type fixation.

The following tasks are solving in the present paper on the basis of study both the previous publications and new collection materials: state of the types of *alpina* and *atra* are defined more accurately, including fixation of

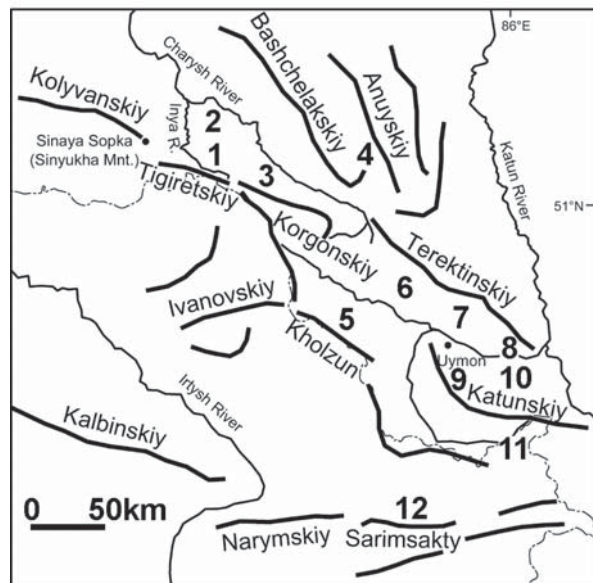


Figure 1. Map of West Altai. The border between Russia (North-East) and Kazakhstan (South-West) is designated by broken line. Numbers are the numbers of samples collected. These numbers correspond to those in Tab. 1.

neotype for *alpina*; their type localities are fixed more precisely; a question about taxonomic rank of the race *atra* is examined in brief.

Material and methods

Adult specimens of Altai pika from the collections of the Zoological Museum of Moscow State University (ZMMU), Zoological Institute of the Russian Academy of Science (ZIN), Institute of Systematics and Ecology of Animals of the Siberian Branch of the Russian Academy of Science (ISEA), Krasnoyarsk Territory Regional Studies Museum (KTRSM), and private collection of Dr. A.K. Agadjanian were studied. 79 skulls and more than 100 skins were examined (Fig. 1). Eleven measurements were taken from each skull (Lissovsky, 2003).

During the expedition to Tigiretskii Range in August 2001, the series of seven specimens was collected, three of them adult and four subadult (ZMMU S-171510–171516). The exact locality is tali on the east lakeside, three km NEE Shumishka Mountain, upper Inya River, Tigiretskii Range, Charych District, Altai Territory.

The skull measurements were analyzed by the method of the principal components. Two principal components (PC) were extracted, explaining 65.4% and 12.5% of the total variance. Other PC revealed eigenvalues less than 0.82 and had no considerable correlations with the initial variables. The first PC was correlated with the skull condylobasal length (95%), the structure of the first and the second PC was completely analogous with the same in our previous investigation (Lissovsky, 2003).

Taxonomy

Ochotona alpina alpina (Pallas, 1773)

According to the Articles 72.1.1 and 76.1 of the International Code of Zoological Nomenclature (ICZN,

Table 1. Localities, sample size (n), and condylobasal length (CL, in mm) of the skulls examined. Sample numbers correspond to those in Figs. 1 and 2.

Sample number	Locality	n	CL
1	Tigiretskii Range	3	49.6–53.1
2	Tulata River	1	47.4
3	Korgonskii Range	20	43.4–49.1
4	Upper Anuy River	7	43.9–48.2
5	Kholzun Range	9	47.8–52.5
6	Tyuguryuk outskirts	5	44.2–47.8
7	Terekta outskirts	12	43.9–47.8
8	Tyungur outskirts	4	41.1–43.8
9	Uymon	2	51.4–52.3
10	Belukha Mountain	2	46.5–47.1
11	Rakhmanovskie Klyuchi	1	49.2
12	Katon-Karagay	13	44.8–49.3

1999), in the absence of the name-bearing type designation, the type locality encompasses the locality of all of specimens on which the author established a nominal taxon. Thus the original type locality of *O. alpina* should include both Tigirek River environments on Tigiretskii Range and Sinyaya Sopka on Kolyvanskii Range.

From my point of view, expanded interpretation of the type locality in the absence of any name-bearing type can future complicate the intricate systematics of Altai pika on the whole, and pikas from West Altai in particular. To avoid any further misinterpretations, we believe that fixation of the neotype for *alpina* is required. This step would not only simplify the problem of the species revision, but allows to determine the type locality unambiguously, as, according to the Articles 76.3 of the ICZN, the place of origin of the neotype becomes the type locality of the nominal taxon, despite any previously published statements of the type locality. On this ground it is proposed here to fix the neotype of the nominal taxon *Lepus alpinus* Pallas, 1773 and, accordingly, to designate its type locality. The collecting site of the specimens, from which we are selecting the neotype (on the Tigiretskii Range in 30 km from Tigirek River) does not change the *terra typica* of *alpina*, but defines it more precisely.

The neotype is fixed here as: the specimen ZMMU S-171510 (skull, skeleton, skin), adult male. The type locality is fixed here as: upper Inya River, Tigiretskii Range, Charych District, Altai Territory, Russia. Coll. by A.A. Lissovsky on 2 August 2001 (field number 126).

Ochotona alpina atra (Eversmann, 1842)

The type locality of *atra* (see above) is undoubtedly situated in the area of Uymon village on Katun River. There is no any evidence in favor of existence of any other Uymon in Eastern Kazakhstan (as it was sup-

posed by Yakhontov & Formozov, 1992) where the type specimens of *atra* could be collected. The name “Uymon” sometimes was used in the meaning “upper Katun River” (Anonymous, 1902), however it is clearly designated in the text of the original publication: “pagum Uimon” — settlement Uymon. There are two settlements with similar names on Katun River: Verkhonii Uymon and Nizhnii Uymon. The name “Uymon” has been applied to Verkhonii Uymon (Belyavsky & Semenov-Tyan-Shansky, 1907). In this way, the modern spelling of the type locality of the nominal taxon *Lagomys ater* Eversmann, 1842 is: Verkhonii Uymon village surroundings, Ust'-Koksa District, Gornyi Altai Republic, Russia.

In the redescription of *atra* by Yakhontov & Formozov (1992), the only one paralectotype was designated. However, there are three specimens collected by Eversmann's expedition until 1842 year which are present in the ZIN collection. All of them have constituted the type series of *atra* and have been the syntypes till the lectotype fixation (Articles 72.1.1 and 73.2 of the ICZN). At the same time, according to the Articles 73.2.2 and 74.1.3 of the ICZN, the valid designation of a lectotype permanently deprives all other specimens that were formerly syntypes of that nominal taxon of the status of syntype; those specimens then become paralectotypes. Thus, not the only specimen ZIN 84399 (2936 o.c.), designated by Yakhontov & Formozov (1992), should be recognized as paralectotype, but another specimen (ZIN 48490), collected by Eversmann's expedition in Uymon is the paralectotype, too.

Thus, the entire type series of *Ochotona alpina atra* (Eversmann, 1842) is to be defined now as the following. Lectotype (fixed in Yakhontov & Formozov, 1992): ZIN 84398 (skull, skin), o.c. 2935, adult male. Verkhonii Uymon village surroundings, Ust'-Koksa District, Gornyi Altai Republic, 22 December 1841. Coll. P. Romanov. Paralectotypes: ZIN 84399 (skull, skin), o.c. 2936, adult male. 22 December 1841. ZIN 48490 (defective skull, skin), adult male. 8 December 1841. The provenance and collector are the same.

Comparison

The pelage coloration of all the specimens examined from West Altai is of the same type: the back is ochraceous fulvous with more dark hairs on the middle part of the back, the belly and the sides are tan. There was not explicit indication about existence of the differences between *atra* and *alpina* in the pelage coloration (Yakhontov & Formozov, 1992; Sokolov *et al.*, 1994). However, Yakhontov & Formozov (1992) in the description of *atra* noticed: “the back and the sides are darken with black aristae”, while in description of the *alpina* such a character was not noticed. From my point of view, the presence of the black tips of the hair is common to the majority of the pikas from West Altai.

Comparison of the skulls (Fig. 2) shows that pikas from Uymon (9 in the Fig. 2) Kholzun Range (5 in the Fig. 2), and Tigiretskii Range (1 in the Fig. 2) are

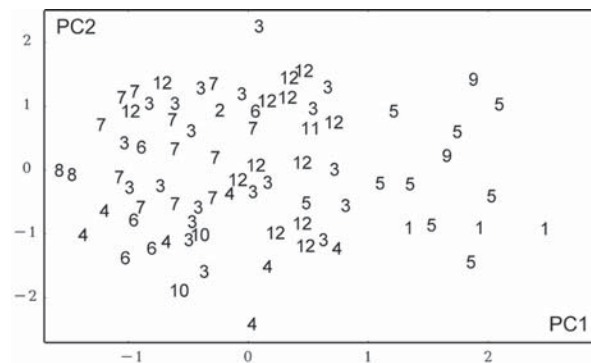


Figure 2. Distribution of pikas specimens from West Altai based on the principal component analysis of skull measurements. Sample numbers are the same as in Tab. 1 and Fig. 1.

slightly separated from other pikas from West Altai with a minimal overlap. The nature of such separation is not clear enough. It is unlikely to suppose that it is a geographical race, because both pikas inhabiting south and north from the line Uymon-Kholzun-Tigiretskii are similar and close to each other. The same pelage coloration pattern in all West Altai pikas indicates the absence of the different races too. More suitable version is a non-taxonomical substance of such variation. All three specimens from Tigiretskii Range are old males (senile). Both specimens from Uymon are adult males also. The sex of specimens from Kholzun Range is unknown. It is quite probable that here we met with the sexual dimorphism. However, it is only assumption. I can maintain only that pikas from the central part of West Altai are the biggest and variation of pikas living to the south and to the north from it occurs in the decreasing of size.

Whatever nature of some separation of pikas from "Uymon-Kholzun-Tigiretskii" takes place, the holotypes of races *alpina* and *atra* belong to the same group of specimens in Fig. 2. So we can not consider that one "group" of West Altai pikas should be named as *alpina* and the other one as *atra*. Both names belong to the quite big and similar specimens. Thus all West Altai pikas should be named as *O. a. alpina* as a senior synonym (Article 23 of the ICZN) and the name *O. a. atra* should be recognized as a junior synonym to this name. If the future investigations will show the taxonomical nature of differences between pikas from central and other parts of West Altai, the second race must receive an another name, different from *alpina* and *atra*.

Concluding, I would like to caution authors against hasty decisions in questions of zoological nomenclature, particularly of pikas from the *alpina-hyperborea* group. A conclusion making without the complex analysis of specimens and the type material can provide to the instability of the existing nomenclature.

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References

- Anonymous. 1902. Uymon // Arsen'ev K.K. & Petrushevskii F.F. (eds.). [Encyclopaedia]. T.24a. Sankt Peterburg: Izdatel'stvo Brockhaus-Efron. P.625 [in Russian].
- Belyavsky F.N. & Semenov-Tyan-Shansky V.P. 1907. [Russian Altai] // Semenov-Tyan-Shansky V.P. (ed.). [Russia. The Complete Geographical Description of Our Motherland. Table and Traveling Book for the Russian People]. T.16 [West Siberia]. Sankt Peterburg: Izdatel'stvo A.F. Devrien. 591 p. [in Russian].
- Gureev A.A. 1964. [Lagomorphs (Lagomorpha). Fauna of the USSR. Mammals]. T.3. Vyp.10. Moskva-Leningrad: Nauka. 276 p. [in Russian].
- Ellerman J.R. & Morrison-Scott T.S.S. 1951. Checklist of Palearctic and Indian Mammals, 1758 to 1946. London: British Museum (Natural History). 810 p.
- Erbaeva M. A. 1988. [Pikas of Cenozoic]. Moskva: Nauka. 222 p. [in Russian].
- Eversmann E. 1842. Addenda ad Celeberrimi Pallasii Zoographiam Rosso-Asiaticam. Fasciculus 3. Kazan': Izdatel'stvo Kazanskogo Universiteta. 19 p.
- Heptner V.G. 1940. [E.A. Eversmann. Zoologist and Traveler (1794–1860)]. Moskva: Moskovskoe Obshchestvo Ispytateley Prirody. 79 p. [in Russian].
- Hoffmann R.S. 1993. Order Lagomorpha // Wilson D.E. & Reeder D.M. (eds.). Mammal Species of the World: A taxonomic and Geographic. Washington, London: Smithsonian Institution Press. P.807–827.
- International Code of Zoological Nomenclature (Fourth Edition). 1999. London: International Trust for Zoological Nomenclature. 306 p.
- Lissovsky A.A. 2003. Geographical variation of skull characters in pikas (*Ochotona*, Lagomorpha) of the *alpina* – *hyperborea* group // Acta Theriologica. Vol.48. Pt.1. P.11–24.
- Ognev S.I. 1940. [Mammals of the USSR and Adjacent Countries.] T.4. Moskva-Leningrad: Izdatel'stvo AN SSSR. 616 p. [in Russian].
- Pallas P.S. 1773. Reise durch verschiedene Provinzen des Russischen Reichs. Bd.2. Saint Petersburg. 744 S.
- Sokolov V.E., Ivanitskaya E.Yu., Gruzdev V.V. & Heptner V.G. 1994. [Mammals of Russia and Adjacent Regions. Lagomorphs]. Moskva: Nauka. 272 p. [in Russian].
- Yakhontov E.L. & Formozov N.A. 1992. [Systematic revision of the pika's species complex *Ochotona alpina* – *Ochotona hyperborea*. 1. Geographic variation in *Ochotona alpina*] // Vestnik Moskovskogo Universiteta, Seriya Biologicheskaya. T.16. No.1. P.27–33 [in Russian with English summary].