

***Phrynocephalus nasatus* (REPTILIA, AGAMIDAE),  
A NEW SPECIES OF TOAD AGAMA FROM WESTERN CHINA**

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Among the old not sorted out collection of the Herpetological Department of ZMMU five toad agamas have been found which were characterized by an unusual structure of the nasal region. They were described as a new species *Phr. nasatus* Golubev et Dunayev, sp. n.

**Diagnosis:** distinctly bulbous nasal shields form two kidney-shaped growths on the snout. The nostril opens in the lower nasal shield and is directed sideways from the longitudinal axis and down so that it can be seen only from below. The space between the nostrils is very wide and exceeds four to five times the space from the nostril to the edge of the supralabial fold. *L./L.cd.* of males is 0.70–0.72, of the female and juvenile specimens — 0.79–0.80. The front part of the snout is protuberant and breaks rather sharply at its end. A row of one to four enlarged shields (the shields of young specimens are less distinct) is situated along the center of the snout from the frontal curve to the edge of the upper lip fold near the rostral shield.

**Holotype** (ad. male, ZMMU R-7614) and paratypes (ad. male, 2 juv., ZMMU R-7615) are kept in the Moscow University Zoological Museum, one paratype (ad. female, ZIK Re-18) in the Zoological Museum of the Institute of Zoology of the Ukrainian Academy of Sciences, Kiev.

Lizards of these species resemble toad agamas of the *theobaldi*-group (especially the *forsythii*). From the poorly developed ribs on the subdigital lamellae and the fringe on the toes we can assume that *Phr. nasatus* do not live in sand. At the same time the presence of kidney-shaped growths, "peaks," covering the nostrils is evidence of active transference of substrate elements in the habitat of this toad agama. It is quite possible that the lizard lives in the zone of aeolian processing of loess particles.

A study of the literature and ornithological collections of ZMMU allows us to designate the type locality: "between the Topa-Davan pass (Topa-Bell, Karadavan Ridge; 41°34'N, 80°48'E) and the town of Aksu (41°11'N, 80°14'E), Kashgaria, West China" (the word "topa," "davan," "daban," "duvan" mean "pass," "mountain ridge," "high area," respectively). The collector of these reptiles A. I. Vilkins went through this pass to Aksu in (August ?) 1882 or 1883.

**Key words:** *Phrynocephalus nasatus*, new species, Western China, type specimens

Looking through the old collections of the Herpetological Department of the Zoological Museum, Moscow State University, we found some toad agamas. The structure of the nasal region of all five specimens was very unusual for this species (Figs. 1 and 2). The literature covering the Central Asian variety of toad agamas — their morphology, systematics, and habitat (Bedryaga 1909; Blanford 1875, 1878; Boulenger 1885; Tsarevsky 1927a and b, 1929, 1964; Peters 1984; Pope 1935; Tien and Jiang 1986; Wermuth 1967; Zhao Ermi and Jiang 1986; Zugmayer 1909; et al.) holds nothing to show that such peculiarities are shared by any species known to inhabit that region. This fact gives us sufficient grounds

to believe that here we are dealing with a separate species.

***Phrynocephalus nasatus* Golubev  
et Dunayev, sp. n.**

**Material.** Holotype with an original handwritten label "Topa-Duvan on the road to the town of Aksu, collected by Vilkins" (ad. male, ZMMU R-7614). Paratype: 2 juv., 1 ad. male (ZMMU R-7615); and 1 ad. female (ZIK Re-18) are labeled in the same way.

**Type locality:** between the mountain pass of Topa-Duvan (Topa-Bell, Karaduvan Ridge; 41°34'N, 80°48'E), and the town of Aksu (41°11'N, 80°14'E), Kashgaria, West China.

**Diagnosis.** Distinctly bulbous nasal shields form two kidney-shaped growths on the snout. The nostril opens in the lower nasal shield and is directed side-

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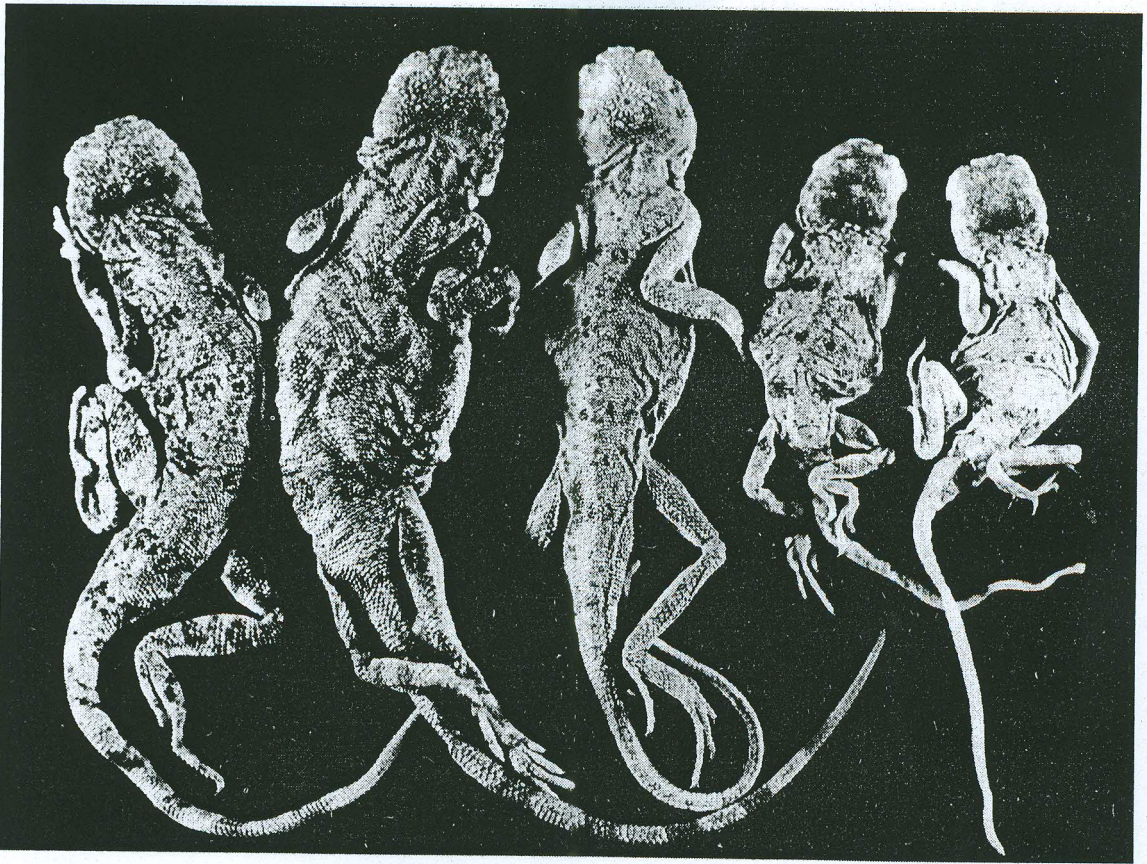


Fig. 1. The type specimens of *Phr. nasatus* (left to right): holotype ZMMU R-7614; paratypes: ZIK Re-18; the rest — ZMMU R-7615.

ways from the longitudinal axis of the body and downwards so that it can be seen only from below. The space between the nostrils is very wide and exceeds four to five times the space from the nostril to the edge of the supralabial fold. *L./L.cd.* of males is 0.70 – 0.72, that of the females and juvenile specimens — 0.79 – 0.80. The front part of the snout is protuberant and it breaks rather sharply at its end. A row of one to four enlarged shields (young specimens have less distinct shields) is situated along the center of the snout from the frontal curve to the edge of the upperlip fold near the rostral shield.

**Holotype description.** Medium-sized toad agama with a relatively long tail, which gets thinner rather sharply towards the end. Except for the scales of the upper parts of the thighs and the distal third of the tail, which have some traces of ridges, the rest of the scales are smooth.

The cap is round in shape, its back is not raised. It is covered by scales which are only slightly protu-

berant and larger in the front. The sinciput eye is surrounded by one or two rows of small scales, behind which in the back part of the cap are several large scales, odd in shape.

The regular scales on the back of the animal get smaller in size toward the sides of the body, and the darker patches of the pattern have thicker thorn-shaped scales. The lighter scales scattered on the back are also thick, but they are not thorn-shaped.

The chin shield is joined from the right and from the left by a row of three to six lower jaw shields that gradually get smaller in size and which (the first pair excepted) do not touch the shields of the lower lip. The rest of the throat scales are slightly protuberant and more or less uniform. The scales on the bottom part of the body are flat, tile-like in appearance, with faintly recognizable thorns in the breast area. On the right and left sides at the beginning of the tail there are a number of polygonal thick scales forming small but well visible thorns.



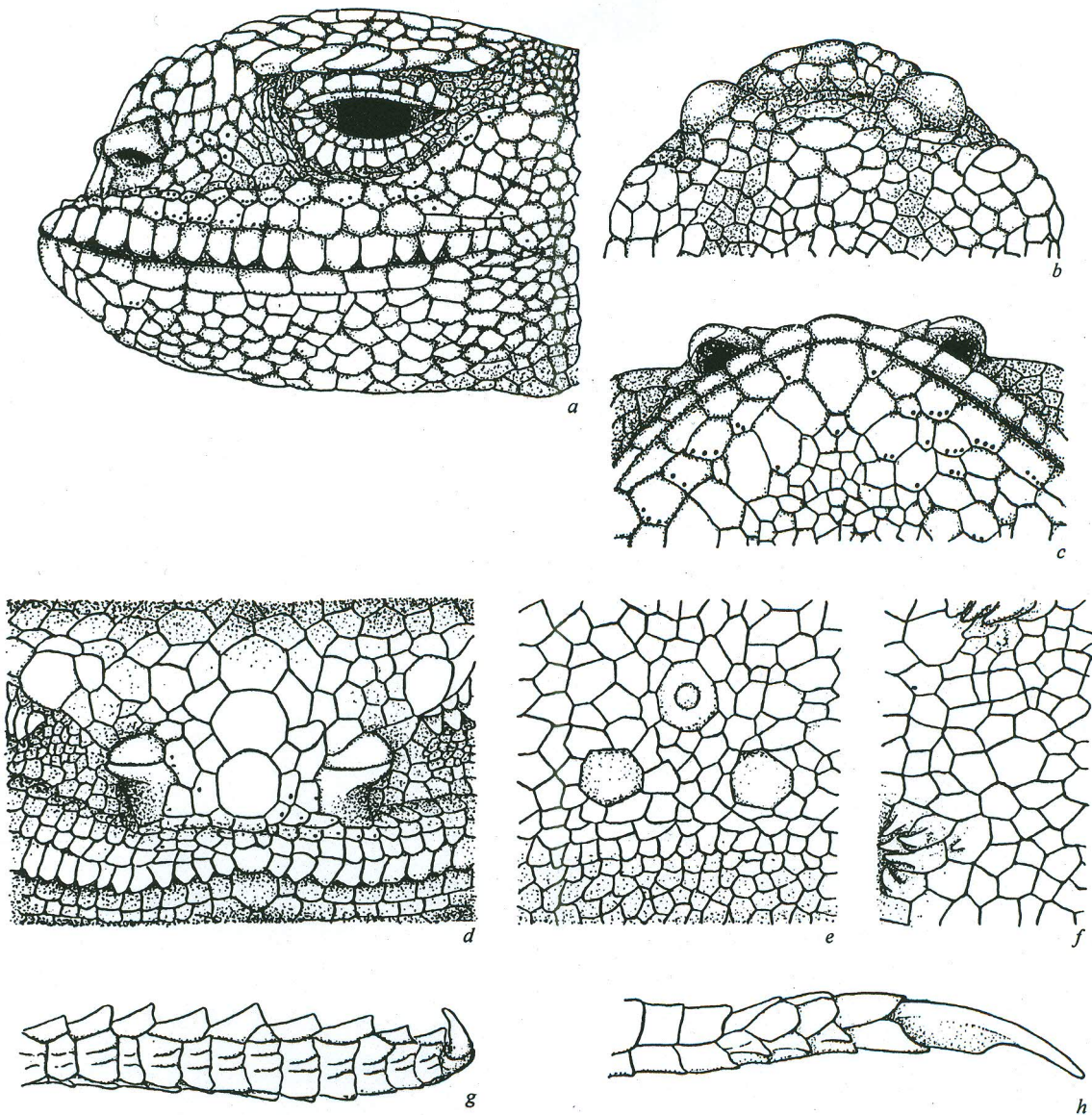


Fig. 2. Fragments of pholidosis *Phr. nasatus*: a) the head (view from the side); b) the snout (view from above); c) the snout (view from below); d) front view; e) region of parietal eye; f) back region; g, h) fourth toe (a, b, c, g, h — the holotype; d, e, f — the paratype ZIK Re-18). Drawings made by E. Dunayev.

The subdigital lamellae of the fourth toes of the hind limbs have two (or more rarely three) quite low ribs of the same size, each ending as a little thorn. The side of that toe that touches the fifth toe has a row of small sharpened fringes. The opposite side of the toe is devoid of them.

**Coloring and pattern** (in alcohol). White dots and spots are scattered on the gray background of the back; they have no dark edging. Some fragments of

dark transverse lines can be seen on the back edge of the cap, in the front part of the big shoulder fold, in the area of the shoulder blades, in the middle of the back, and on the waist. All these lines (except for the one on the back of the head) are interrupted in the middle of the back and form a symmetrical pattern. The line in the middle of the back is reduced to a roundish dark spot with an edging lighter in color. In addition to that, several black dots are scattered on the



TABLE 1. Some Measurements (mm) and Features of Pholidosis of Types *Phr. nasatus*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
ZMMU R-7614 ad. male	39.0	54.5	0.72	2.4/0.5	25	3	123	23/22	13/15	15/14	10/13	4	5	16
ZMMU R-7615 ad. male	38.0	54.5	0.70	2.0/0.5	19	3	116	20/20	14/13	14/16	9/10	1	5	15
IZANU Re-18 ad. female	46.0	58.5	0.79	2.5/0.4	21	3	120	19/21	16/14	12/14	10/9	3	5	13
ZMMU R-7615 juv.	25.5	32.1	0.80	2.0/0.4	20	3	113	20/20	11/13	12/11	11/11	3	6	15
ZMMU R-7615 juv.	27.5	34.8	0.79	2.0/0.5	22	4	125	19/20	13/13	12/13	10/10	4	5	13

Notes: ZMMU — Zoological Museum of the Moscow State University, Moscow, Russia; IZANU (ZIK) — Institute of Zoology of Ukrainian Academy of Sciences, Kiev, Ukraine.

1) *L.*; 2) *L. cd.*; 3) *L./L. cd.*; 4) distance between nostrils/distance between nostril and supralabial fold; 5) number of scales between centers of eyes (except superciliary scales); 6) number of scales between lower border of eye and row of supralabial shields; 7) number of scales along lower surface of body between chin shield and vent; 8) number of subdigital lamellae under fourth toe (left/right); 9) number of supralabial shields (left/right); 10) number of infralabial shields (left/right); 11) number of superciliary scales (left/right); 12) number of enlarged internasal shields; 13) number of scales between left and right nasal shields; 14) number of scales between parietal and nasal shields.

back, these are separate scales. There is a dim pattern on the sides of the body. Dark lines can also be seen on the limbs (three or four), more distinctly on the hind paws. The tail, from beginning to end, is covered with eight to nine dark transverse lines.

Some of the throat scales are so pigmented that they resemble a marble pattern. Similar pigmented scales are found on the breast and belly, those on the belly forming an oval-shaped longitudinal line. Along the tail are some indistinct dark lines, like the ones at the beginning of the tail. The end of the tail is dark. The rest of the lower surfaces are white.

**Paratype distinctions.** The adult male (ZMMU R-7615) has a smaller row of side growths on the fourth digit. The scales in the central part of the female's (ZIK Re-18) head are larger and more flat. The small thorns on the back and the small ribs on the lower part of the tail and the subdigital lamellae are more apparent, but are not found on the belly. In both juvenile specimens (ZMMU R-7615) the pattern on the upper part of the body has more contrasting colors, particularly on the head. The scales on the head are flat. The rest of the new species's characteristics are given in the diagnosis and in Table 1.

These lizards are close to the lizards of the *Phr. theobaldi* group, particularly to *Phr. forsythii* which resemble them very closely.

The poorly developed small ribs on the subdigital lamellae and the small toe fringes suggest that *Phr. nasatus* do not live in sand. At the same time, the presence of the kidney-shaped growths, "peaks," covering the nostrils witnesses that in the habitat of this agama toad active transference of substrate elements occurs. It is quite possible that the lizard lives in the zone of aeolian processing of loess particles.

To specify the type locality of the new species, we must make some comments. On the handwritten label the name "Topa-Duvan" can also read as "Shoni-Duvan." That is why, to give a more precise definition of the location and time of the collection, we had to conduct an extra investigation. We found out that A. I. Vilkins visited the area of the town of Aksu twice: in October, 1876 to April, 1877, as a member of a delegation to Yakub-Bek headed by A. P. Kuropatkin (Kuropatkin 1879; Bogdanov 1889), and also later, in 1882 – 1883, as an aide to the Emperor's Authorized Commissar to draw a borderline between the Semirechensk and Fergana regions, on the one side, and the Chinese state, on the other (Bogdanov 1889; Mushketov 1915). During his first trip, A. I. Vilkins approached Aksu from the South and then proceeded to the East from that town, repeating that route on his way back. During his second trip he entered Aksu from the North, passing through the ices of the Muzartsky pass. The mountain ridge Topa-Duvan is marked on the travelling map of V. I. Roberovsky (1900).

In that expedition A. I. Vilkins collected Kashgar birds and donated the collection to the Moscow University. The ornithological materials kept in the Zoological Museum of the Moscow State University do not have the year of the collection marked. However, some of them bear the label: "Muzart, Muzart pass, 16.VIII." This allows us not only to make a precise and undoubtable estimation of the date when the toad agamas were collected as 1882 and 1883 (it should be brought to mind that the first expedition had taken place in October – April, 1876 – 1877 and did not cover the area between the mountain ridge Topa-Duvan and the town of Aksu), but also to be sure about the type location of the *nasatus* toad agama (see



above). It is evident that the area "between mountain ridge Topa-Duvan and the town of Aksu" includes the place where this species was captured even if there is a place or populated area here called "Shoni-Duvan" in its own right.<sup>3</sup>

<sup>3</sup> "Topa" is translated as "pass," "davan" and "daban" mean "ridge," and "duvan" means "high area."

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