

**A NEW FEATHER MITE GENUS OF THE SUBFAMILY ALLOPTINAE  
(ANALGOIDEA: ALLOPTIDAE) FROM THE IBISBILL (CHARADRIIFORMES:  
IBIDORHYNCHIDAE)**

**НОВЫЙ РОД ПЕРЬЕВЫХ КЛЕЩЕЙ ПОДСЕМЕЙСТВА ALLOPTINAE  
(ANALGOIDEA: ALLOPTIDAE) С СЕРПОКЛЮВА (CHARADRIIFORMES:  
IBIDORHYNCHIDAE)**

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Ключевые слова: Alloptidae, *Paradoxalloptes ibidorhynchae* gen.n., sp.n.

**ABSTRACT**

*Paradoxalloptes ibidorhynchae* gen.n., sp.n. is described from the ibisbill *Ibidorhyncha struthersi* (Charadriiformes: Ibidorhynchidae). Relationships of genera and subgenera within the generic group *Alloptes* (Alloptinae) are briefly discussed.

**РЕЗЮМЕ**

Описан перьевой клещ *Paradoxalloptes ibidorhynchae* gen.n., sp.n. с серпоклюва *Ibidorhyncha struthersi* (Charadriiformes: Ibidorhynchidae). Кратко обсуждаются отношения и основные диагностические признаки родов и подродов группы *Alloptes* (Alloptinae).

Feather mites of the subfamily Alloptinae (Alloptidae) are a vast group of permanent ectoparasites associated exclusively with aquatic birds. A new feather mite genus, *Paradoxalloptes* gen.n. described in the present paper belongs to the *Alloptes* generic group within this subfamily. This generic group is clearly characterized by a complex of characters as follows: ambulacral disc without an acute dent on distal margin, central sclerite of ambulacral disc is transversal with deeply concave anterior margin, setae *d* of tarsi II, III are absent, setae *sR* of trochanter III is setiform; in males the opisthosomal lobes are narrow and elongated, completely fused by medial margins into a single medial lobe, terminus of opisthosoma with a single terminal membrane usually separated into three pairs of festoons, lateral membranes are absent, hypertrophy and asymmetry of legs I, II absent.

The generic group *Alloptes* included up to present time three genera: *Alloptes* Canestrini, 1879, *Plicatalloptes* Dubinin, 1955 and *Laminalloptes* Dubinin, 1955. The genus *Alloptes* for a long time contained all alloptid mite species with the characters mentioned above for the generic group. Dubinin [1955] created two new genera related to this genus — *Laminalloptes* and *Plicatalloptes*. The genus *Laminalloptes* clearly differs from other members of

the generic group by a large idiosomal size (600–1200 micrometers) and large heavy sclerotized adanal shield in males. This genus was carefully revised by Atyeo and Peterson [1967]. The genus *Laminalloptes* is specific to the phaethontes (Pelecaniformes: Phaethontidae).

As for the genus *Plicatalloptes*, Gaud [1982] considered this taxon as a synonym of the genus *Alloptes*. At present the validity of the genus *Plicatalloptes* is restored [Mironov, 1996]. In general appearance this genus really looks more similar to *Alloptes* than to *Laminalloptes*. However it is well distinguished from the *Alloptes* by rounded crest in tarsi III, IV of females, and namely by these characters it is closely related to *Laminalloptes*. Mites of the genus *Plicatalloptes* occur on different groups of aquatic birds: on pelecans, fregates, cormorants (Pelecaniformes: Pelecanidae, Fregatidae, Phalacrocoracidae), ibises and hammerheads (Ciconiiformes: Threskiornithidae, Scopidae).

Gaud [1972] for the first time proposed a subdivision of the genus *Alloptes* into three subgenera: *Alloptes* s.str., *Apodalloptes* Gaud, 1972 and *Conuralloptes* Gaud, 1972. This subdivision was based on a structure of the setae *mG* II in both sexes and relative length of legs IV in males. Vasykova and Mironov [1991] proposed improved diagnoses for these subgenera and rearranged some species between them. Lately, the fourth subgenus *Sternalloptes* Mironov, 1992 was proposed [Kivganov, Mironov, 1992]. Probably, each subgenus recently recognized within this genus should be risen up to a generic rank, but it is a subject for a separate study. The mites of the genus *Alloptes* are associated with different groups of shorebirds (Charadriiformes) [Dubinin, 1951, 1952a, 1952b; Gaud, 1972].

The new genus *Paradoxalloptes* obtains a combination of certain characters observed in the genus *Plicatalloptes* and different subgenera of the *Alloptes* and has one unique character within the Alloptidae — in males the pretarsus and all setae of tarsus III are completely reduced. Main diagnostic characters

of genera and subgenera of the *Alloptes* generic group are proposed in the Table.

In the descriptions of the new genus and species the idiosomal chaetotaxy follows Griffiths et al. [1990], legs chaetotaxy is that of Atyeo & Gaud [1966]. All measurements are given in micrometers.

*Paradoxalloptes* Mironov **gen.n.**

Type species: *Paradoxalloptes ibidorhinchae* sp.n.

Vertical setae *vi*, *ve* absent. Epimerites I fused Y-like. Setae *d* of tarsi I–III absent. Leg chaetotaxy: I: 1–1–2(1)–5(2); II: 1–1–2(1)–5(1); III: 1–0–(1)–(1)–3; IV: 0–0–0–(1)–5 (leg III is applicable for females only). Seta *mG* of genu II lanceolate with bluntly rounded apex, this setae of genu I as thin acute spur.

**Male.** Idiosoma rhomb-like as in *Alloptes*, opisthosomal lobes narrow and elongated, completely fused by medial margins into a single medial lobe. Terminal projection of this medial opisthosomal lobe with terminal membrane separated into three pairs of festoons and with one pair of setae (*ps*<sub>1</sub>). Lateral projections of medial opisthosomal lobe with 2 pairs of setae (*f*<sub>2</sub>, *ps*<sub>2</sub>). Setae *h*<sub>2</sub> represented by macrochaetae. Genital organ small, aedeagus shorter than genital arch. Genital organ surrounded from anterior and lateral sides by genital apodems fused into long apodemal arch. Apodemal arch apex connected with medial tips of epimerites IIIa by Y-shaped pregenital sclerite. Legs IV longer and thicker than legs III; tarsus III with acute claw like apex, pretarsus and all tarsal setae absent; tarsus IV with claw-like apex, without ventral spines (Figs. 1, 2).

**Female.** Idiosoma typical for subfamily Alloptinae, opisthosoma with two opisthosomal lobes separated by terminal cleft. Setae *e*<sub>1</sub>, *f*<sub>2</sub>, *ps*<sub>1</sub> present, *ps*<sub>2</sub> absent. Genital setae *g* present. Epigynium semicircular, separated from epimereites IV. Tarsus IV with rounded lateral crest, tarsus III cylindric, without crest (Fig. 3).

**DIFFERENTIAL DIAGNOSIS**

The new genus obtains a mosaic combination of characters of subgenera of the *Alloptes* and the genus *Plicatalloptes*. The form and chaetom of idiosoma in females of the *Paradoxalloptes* coincide to that in subgenera *Conuralloptes* and *Apodalloptes*. All these taxa have well developed opisthosomal lobes and setae *f*<sub>2</sub>, *ps*<sub>1</sub>. At the same time the opisthosomal chaetom in males coincides to that in some species of the subgenus *Sternalloptes*. In the majority of species in the *Sternalloptes* setae *h*<sub>3</sub> are absent.

The Table gives a set of main discriminant characters for the *Paradoxalloptes*, *Plicatalloptes*, *Laminalloptes* and four subgenera of *Alloptes*. The main diagnostic character of the genus *Paradoxalloptes*, that differs it from the listed taxa is a reduction of chaetom and pretarsus in tarsus III in male and lateral crest on tarsus IV in female. It is necessary to add, that this structure of tarsus IV in female is similar to that in the genera *Plicatalloptes* and *Laminalloptes*. However this similarity is probably a convergence, because in two latter genera the lateral crests are present on tarsi III, IV and equal in structure.

Table

Main discriminant characters for genera and subgenera of the generic group *Alloptes*

Таблица

Основные определительные признаки родов и подродов группы *Alloptes*

Genera	<i>Alloptes</i>				<i>Plicatalloptes</i>	<i>Paradoxalloptes</i>	<i>Laminalloptes</i>
Subgenera	<i>Alloptes</i> s.str.	<i>Conuralloptes</i>	<i>Sternalloptes</i>	<i>Apodalloptes</i>			
Characters							
1. Setae mG II in both sexes	acute	blunt	blunt	acute	blunt	blunt	blunt
2. Setae <i>h</i> <sub>3</sub> in male	present	absent	present or absent	absent	present	absent	present
3. Setae <i>ps</i> <sub>2</sub> in male	present	absent	present	present	present	present	present
4. Opisthosoma in male	enlarged at apex	triangular	triangular	triangular	triangular	triangular	enlarged at apex
5. Pretarsus III in male	present	present	present	present	present	absent	present
6. Setae <i>f</i> <sub>2</sub> in female	present	present	absent	present	present	present	absent
7. Setae <i>ps</i> <sub>1</sub> in female	present	present	absent	present	present or absent	present	absent
8. Lateral crest in tarsus III in female	absent	absent	absent	absent	present	absent	present
9. Lateral crest in tarsus IV in female	absent	absent	absent	absent	present	present	present
10. Opisthosoma in female	rounded	bilobate	bilobate	bilobate	bilobate	bilobate	bilobate

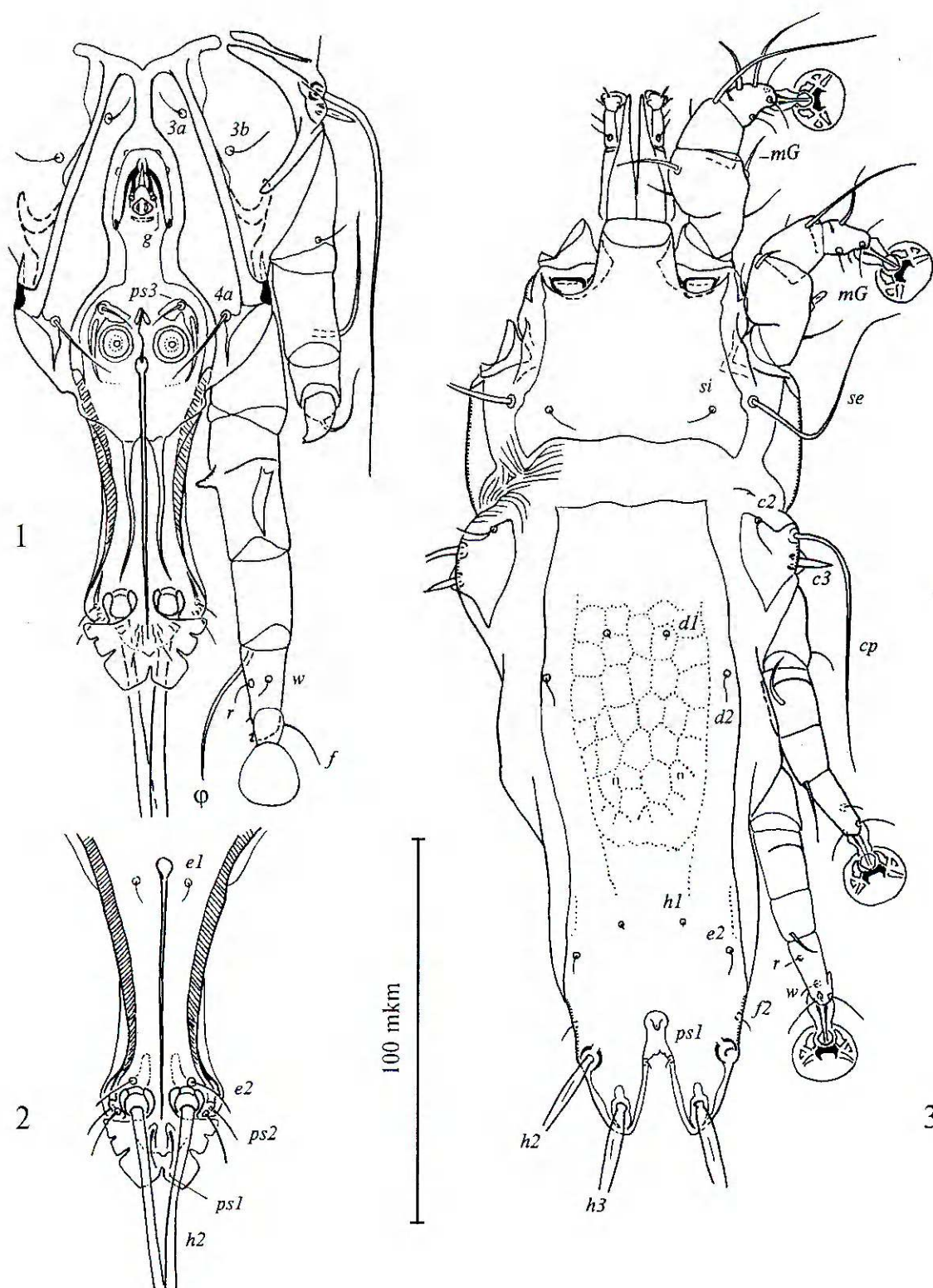


Fig. *Paradoxaloptes ibidorhynchae*. 1 — hysterosoma of male, ventral view; 2 — opisthosoma of male, dorsal view; 3 — female, dorsal view.

Рис. *Paradoxaloptes ibidorhynchae*. 1 — гистеросома самца вентрально; 2 — опистосома самца дорсально; 3 — самка дорсально.

The genus includes one species.

*Paradoxaloptes ibidorhynchae* Mironov sp. n.

Figs. 1–3.

**Male** (holotype). Idiosomal length 308, width 127. Prodorsal shield with almost straight posterior margin, total length of shield 79, length along medial line 74, width 70. External scapular setae *se* situated off prodorsal shield, separated by 74.

Hysteronotal shield with concave anterior margin and with little lateral incisions at level of trochanters III; bases of setae  $d_2$  situated at bottom of this incisions; length of hysteronotal shield 204, width at level of anterior margin 60. Distance between prodorsal and hysteronotal shield along medial line 17. Subhumeral setae  $c_3$  lanceolate, acute at apex, 12 in length. Opisthosoma (single medial lobe)



elongated and slightly enlarged in terminal part, width at level of setae  $h_2-h_2$  36, length of interlobar stitch 94. Terminal membrane with 3 pairs of well developed festoons. Incision between medial pair of festoons as inverted Y. Macrochaetae  $h_2$  flattened in medial part and slightly enlarged, width about 12. Bases of trochanters I, II surrounded by narrow sclerotized band connecting bases of respective epimerites. Coxal fields III opened. Length of genito-anal field (from apodemal arch apex to bases of setae  $ps_1$ ) 160. Pregenital sclerites fused Y-like, width of fused part approximately equal to width of free branches (Fig.1). Coxal setae  $3a$  situated anterior to  $3b$ , pseudanal setae  $ps_3$  disposed slightly anterior to  $4a$ . Posterior tips of genital arch connected with internal margins of genital apodemes. Adanal shields thin, virgule-like. Distance between setae:  $3a-g$  26,  $g-ps_3$  38,  $ps_3-ps_1$  110,  $4a-4a$  60. Femur IV with 2 processes: ventral knife-like process and medial spur-like one. Length of legs IV without pretarsus 148, tarsus IV 33 in length. Solenidion  $\phi$  of tarsus IV is two times longer than this segment. Setae  $w, r$  of tarsus IV situated in basal part of segment.

**Female** (paratype). Length of idiosoma 310, width 120 (idiosomal size in two other paratypes 308–313×108–110). Prodorsal shield with concave posterior margin (Fig.3), total length 74, length along medial line 62, width 77, distance between setae  $se$  84. Hysteronotal shield with shallow curved anterior margin, surface of its medial part with cell-like pattern, length from anterior margin to opisthosomal lobe apices 208, width at anterior margin 50. Distance between prodorsal and hysteronotal shields along medial line 24. Setae  $c_3$  narrow lanceolate, acute at apex, 10 in length. Opisthosomal lobes separated by U-shaped terminal cleft, length of cleft 26, width at level of setae  $h_3$  7.5. Supranal concave opened, fused with terminal cleft. Setae  $h_1$  situated slightly anterior to setae  $e_2$ . Distance between setae:  $d_2-e_2$  94,  $h_1-e_2$  10.5,  $e_2-h_3$  38,  $e_2-e_2$  50;  $h_3-h_3$  26;  $h_2-h_3$  26. Coxal fields I, II as in male. Epigynum semicircular, 21 in length, 48 in width. Legs IV slightly extending beyond bases of setae  $h_2$ .

**Material.** Holotype male (NU 9179, USNM 192 464), paratypes 3 females from the Ibisbill *Ibidorhincha struthersi* Vogors, 1832 (Charadriiformes: Ibidorhynchidae), China, W. Hopeh prov., 20.01.1904, E.Backwilder coll.

Holotype and one paratype are deposited in American Museum of Natural History (New York,

USA), two paratypes — in Zoological institute (Saint-Petersburg, Russia).

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