

Revision of the genus *Paleosepharia* Laboissiere, 1936 (Coleoptera: Chrysomelidae) from Indochina

Ревизия рода *Paleosepharia* Laboissiere, 1936 (Coleoptera: Chrysomelidae) из Индокитая

Lev N. Medvedev
Л.Н. Медведев

Institute for Ecology and Evolution, Russian Academy of Sciences, Leninsky prospect 33, Moscow 119071 Russia.
Институт проблем экологии и эволюции РАН – ИПЭЭ, Ленинский проспект 33, Москва 119071, Россия.

KEY WORDS: Chrysomelidae, Galerucinae, *Paleosepharia*, keys, new species, Indochina.

КЛЮЧЕВЫЕ СЛОВА: Chrysomelidae, Galerucinae, *Paleosepharia*, ключ, новые виды, Индокитай.

ABSTRACT. A revision of the genus *Paleosepharia* from Indochina with a key to species is given. 4 species new for science are described: *P. buonloica*, *P. magna* (Vietnam), *P. thailandica*, *P. bifoveolata* **spp.n.** (Thailand).

РЕЗЮМЕ. Предлагается ревизия рода *Paleosepharia* из Индокитая с ключом для определения видов. Описываются 4 новых для науки вида: *P. buonloica*, *P. magna* (Вьетнам), *P. thailandica*, *P. bifoveolata* **spp.n.** (Таиланд).

Introduction

An Oriental genus *Paleosepharia* Laboissiere, 1936 dominates mostly in eastern continental part, especially in China and Indochina. A quarter of century ago 9 species were known for Indochina, among them 6 species for Vietnam [Kimoto, 1989]. A key of Vietnamese species [Medvedev, 2009] includes already 15 species.

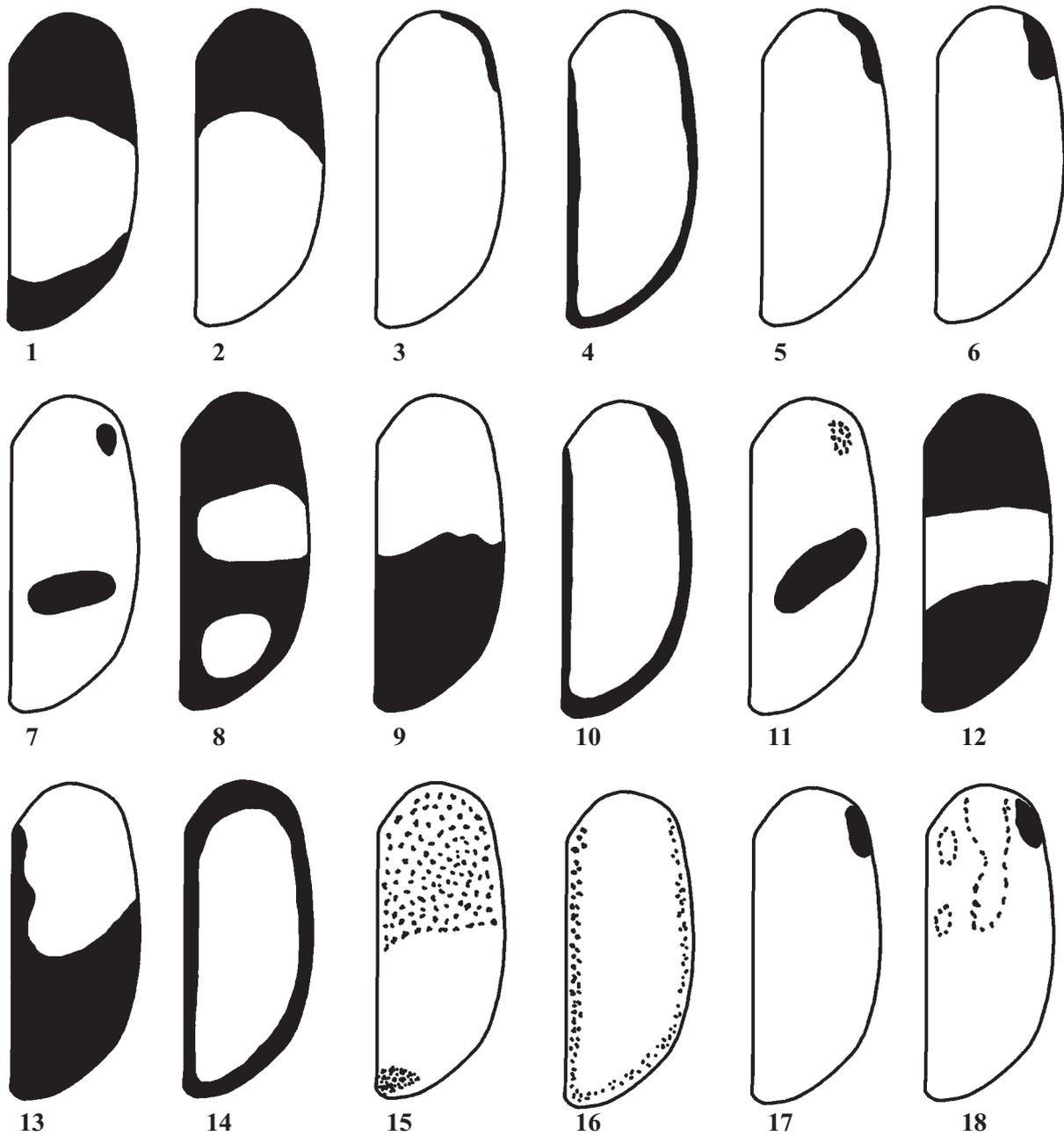
A key proposed below includes 25 species, among them 18 species for Vietnam, 11 for Thailand, 7 for Laos, 2 in Cambodia; it means that fauna of Laos and especially Cambodia is still very poorly studied. 4 species are described as new for science. Types of all new species are in the author's collection.

A KEY TO SPECIES

- 1 (6) Prothorax black, with transverse depression in middle. Head black.
- 2 (3) Elytra fulvous. Generally fulvous. 5th abdominal segment black. Prothorax with shallow transverse impression. Length 4.2–5.0 mm. Male unknown or has not modified elytra. Thailand..... *P. nigricollis* Kimoto, 1989
- 3 (2) Elytra bicolor: red and fulvous. Elytra of male unmodified.
- 4 (5) Apex of elytron with membranacea transparent stripe. Red, head, prothorax and last sternite black, elytra with broad pale flavous band, only basal third and extreme apex

- red, without any modifications (Fig. 1). Aedeagus — Fig. 35. Length 4.7–5.5 mm. North Vietnam (Tamdao).
- *P. membranacea* L. Medvedev, 2001
- 5 (4) Apex of elytron without membranaceous stripe. Body red, head, antennae, scutellum and legs black, elytra pale flavous in apical half (Fig. 2), without any modifications. Aedeagus — Fig. 36. Length 5.7 mm. Vietnam (Fanxi-pan).
- *P. tricolor* L. Medvedev, 2009
- 6 (1) Prothorax fulvous or red, sometimes blackish on sides.
- 7 (10) Male without modified area on elytra, mostly slightly depressed along suture. Prothorax with shallow depressions laterally.
- 8 (9) Elytra fulvous, prothorax dark fulvous and differs well from color of elytra, head piceous to dark fulvous, antennae dark with fulvous base. Antennal segment 3 twice as long as 2. Aedeagus — Fig. 37. Length 5.3–5.8 mm. South Vietnam (Buon Loi).
- *P. buonloica* **sp.n.**
- 9 (8) Fulvous, apex of 11th antennal segment and scutellum black, elytra entirely fulvous or with basal margin and inner margin of epipleurae, sometimes also with anterior part of lateral margin black (Fig. 3), metathorax black or reddish brown. 3rd antennal segment more than twice as long as 2nd. Length 4.2–6.6 mm. South Vietnam, Laos, Cambodia, Thailand..... *P. scutellaris* Kimoto, 1989
- 10 (7) Other combination of characters. Males with distinctly modified scutellar area.
- 11 (42) Metasternum black or dark pitchy.
- 12 (19) Apex of abdomen black. Labrum, antennae except bases, scutellum, tibiae and tarsi black. Elytra fulvous, more or less marked with black on sides.
- 13 (14) All margins of elytra narrowly margined with black. Fulvous, vertex and epipleurae black. Elytra of male with deep and straight cuneiform grooves behind scutellum, reaching middle of elytra (Fig. 4). Length 5.0 mm. Thailand (Khao Sok).
- *P. marginata* L. Medvedev, 2001
- 14 (13) Elytra with black stripe on anterior third of lateral margin (Figs 5–6). Vertex not black. Epipleurae black only in anterior half.
- 15 (16) Elytra without thickened sutural stripe, with impressed groove behind scutellum and parallel to suture, than curved obliquely outwards (Fig. 20). Fulvous, head, basal antennal segment and pygidium except apex red.

- Aedeagus — Fig. 38. Length 5.0–5.3 mm. NW Vietnam (Fanxipan). *P. fanxipana* L. Medvedev, 2009
- 16 (15) Elytra with thickened basal part of suture in form of sharply delimited, convex and nitid stripe.
- 17 (18) Sutural stripe short (0.8 mm), light colored; ovate common impression with dense microsculpture placed at the end of stripe, delimited externally with elevated area bearing pore (Fig. 21). Aedeagus — Fig. 39. Length 5.0 mm. NW Vietnam (Fanxipan).
..... *P. subsuturalis* L. Medvedev, 2009
- 18 (17) Sutural stripe long (1.4 mm), dark colored, acute on both ends; neighboring area distinctly elevated, but without pore and with same punctures as at main surface (Fig. 22). Aedeagus — Fig. 40. Length 4.9–5.4 mm. NW Vietnam (Fanxipan). *P. suturalis* L. Medvedev, 2009
- 19 (12) Apex of abdomen fulvous or red.
- 20 (31) Legs black, mostly with red femora.
- 21 (22) Prothorax fulvous with black lateral margins. Antennae black with fulvous basal segments, scutellum fulvous. Elytra fulvous with humeral and usually postmedian trans-



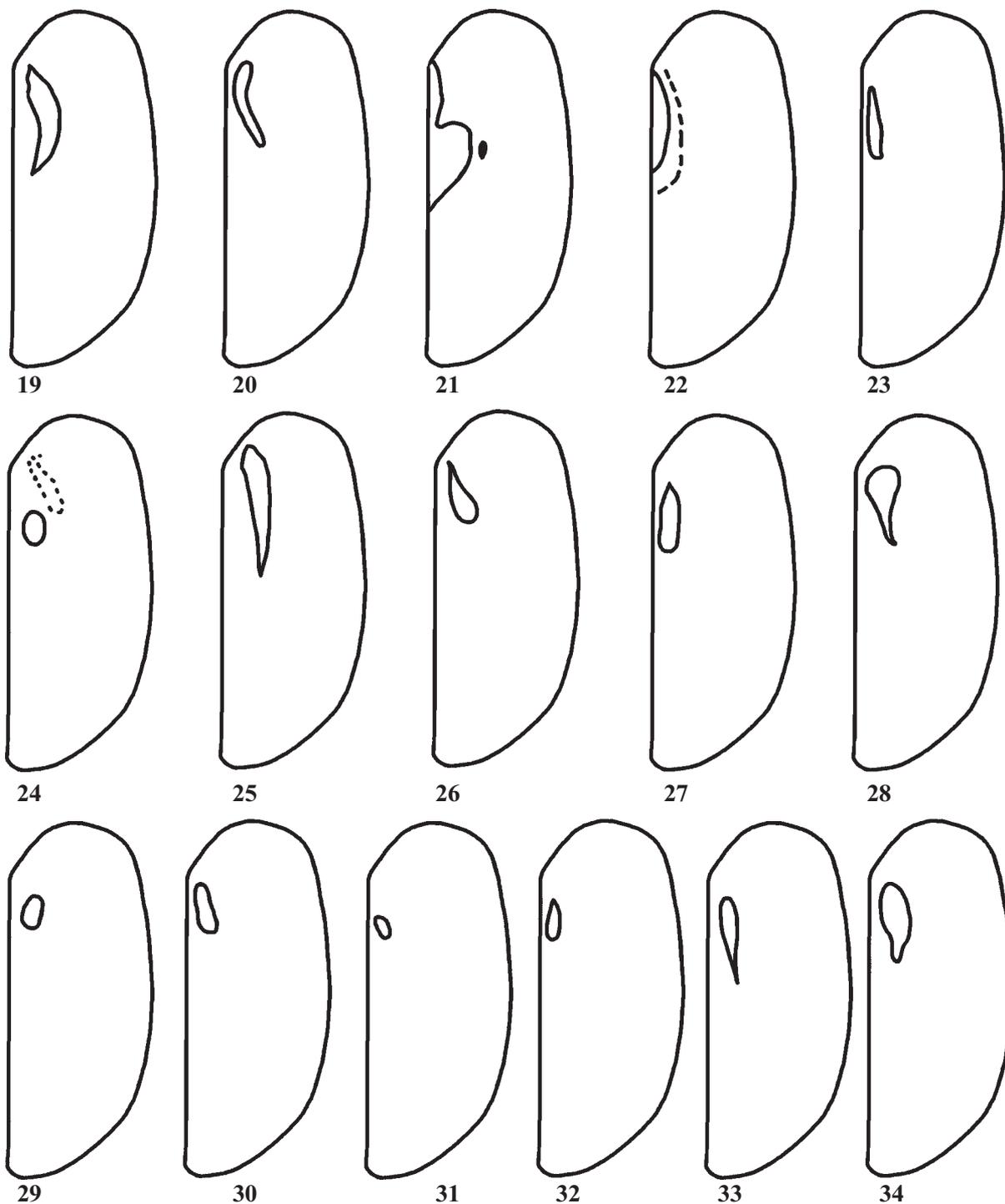
Figs 1–18. Elytral pattern of *Paleosepharia* spp.: 1 — *P. membranacea*; 2 — *P. tricolor*; 3 — *P. scutellaris*; 4 — *P. marginata*; 5 — *P. subsuturalis*; 6 — *P. suturalis*; 7 — *P. tenasserimensis*; 8 — *P. vietnamica*; 9 — *P. thailandica*; 10 — *P. dongnaica*; 11 — *bifoveolata*; 12 — *P. rubricollis*; 13 — *P. reducta*; 14 — *P. sp. A*; 15 — *P. sp. B*; 16 — *P. rubromarginata*; 17; 18 — *P. haemorrhoidalis*.

Рис. 1–18 Рисунок надкрылий видов *Paleosepharia*.

verse markings together with basal, sutural and lateral margins narrowly black (Fig. 7). Male with wedge-shaped area near suture behind scutellum. Length 4.8 mm. Thailand, Myanmar. *P. tenasserimensis* (Maulik, 1936)
22 (21) Prothorax entirely fulvous.

23 (26) Antennae and legs entirely black. Elytra black with median and preapical spots fulvous (Fig. 8). Head, prothorax and abdomen red. See also item 44.

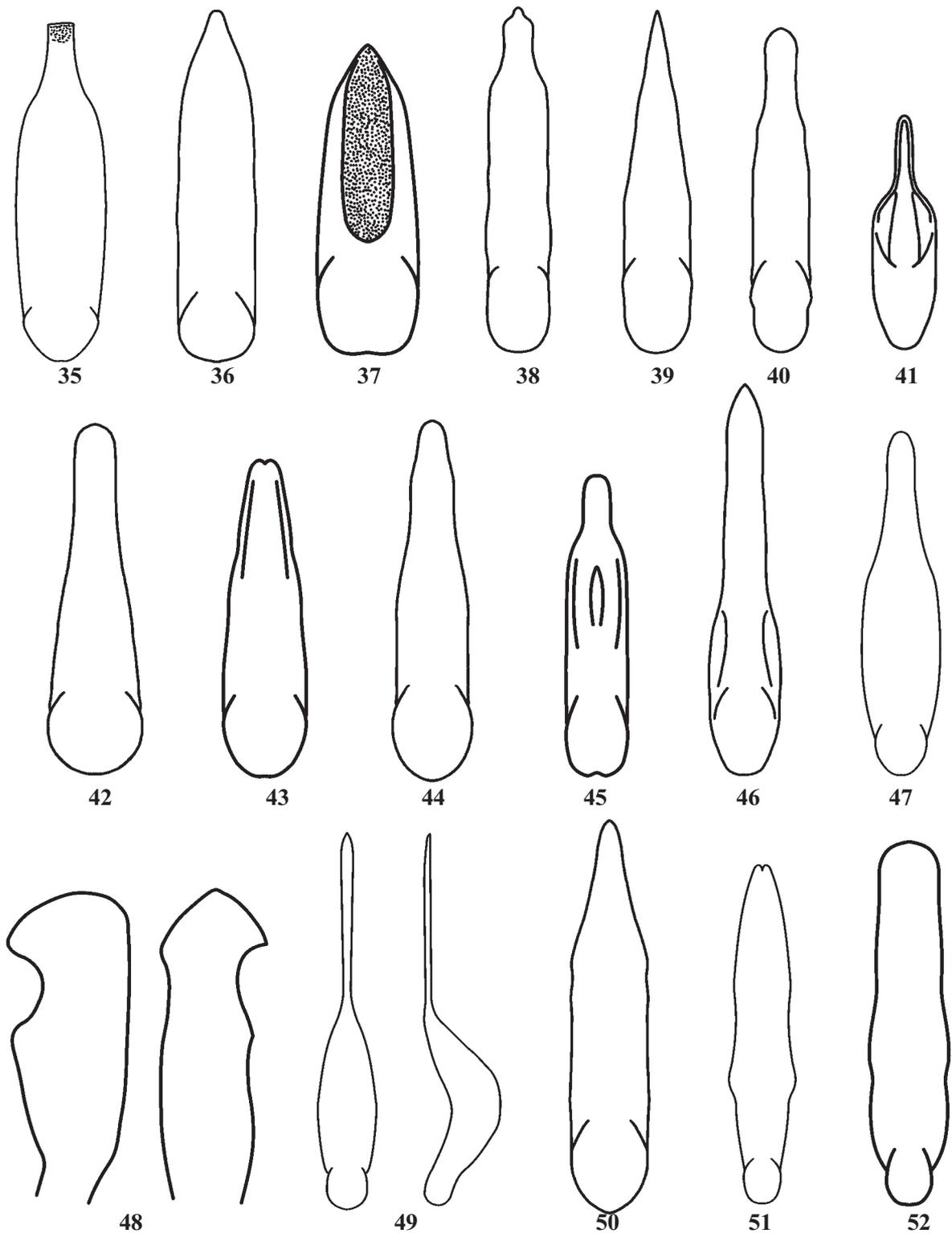
24 (25) Male with deep and narrow groove parallel to suture in anterior third. Aedeagus broad with narrow and long



Figs 19–34. Elytral sculpture of male *Paleosepharia*: 19 — *P. marginata*; 20 — *P. fanxipana*; 21 — *P. subsuturalis*; 22 — *P. suturalis*; 23 — *P. vietnamica*; 24 — *P. kubani*; 25 — *P. thailandica*; 26 — *P. dongnaicus*; 27 — *P. lingulata*; 29 — *P. truncata*; 29 — *P. bifoveolata*; 30 — *P. rubricollis*; 31 — *P. reducta*; 32 — *P. sp.C*; 33 — *P. fedorenkoi*; 34 — *P. haemorrhoidalis*.

Рис. 19–34. Скульптура надкрылий самцов *Paleosepharia*.

- apical process (Fig. 41). Metasternum usually black or red. Length 4.2–5.4 mm. South Vietnam (Buon Loi), Laos. *P. vietnamica* L. Medvedev, 2004
- 25 (24) Male with ovate groove in anterior third near suture (Fig. 24). Aedeagus gradually narrowed to apex (Fig. 42). Metasternum usually red, sometimes black. Length 5.6–6.2 mm. Laos. *P. kubani* L. Medvedev, 2004
- 26 (23) Antennae black with fulvous basal segments or fulvous. Legs black with fulvous or red femora. Scutellum black.
- 27 (28) Antennae fulvous, with segments 2 and 3 short and equal. Apical half of elytra black (Fig. 9). Modified area of elytra — Fig. 25. Aedeagus — Fig. 43. Length 4.9 mm. Thailand. *P. thailandica* **sp.n.**
- 28 (27) Antennae black with fulvous basal segments and sometimes with fulvous bases of the most segments. Antennal segment 3 distinctly longer than 2.
- 29 (30) Elytra fulvous with all margins and suture black (Fig. 10). Apex of abdomen red. Modified area on elytra of male in form of returned Y (Fig. 26). Aedeagus — Fig. 44. Length 3.9–5.4 mm. Epipleurae entirely black. South Vietnam. *P. dongnaica* L. Medvedev, 2012
- 30 (29) Elytra fulvous including suture, but with black apical slope, occupying from 0.1 to 0.35 elytral length and more or less black anterolateral area. Epipleurae fulvous or with black basal quarter. Apex of abdomen red. 1–2 unclear species from North Vietnam and Laos. *P. spp. cf dongnaica* L. Medvedev, 2012
- 31 (20) Legs fulvous.
- 32 (39) Elytra entirely fulvous. Antennae and scutellum fulvous.
- 33 (38) Body length shorter than 6.5 mm.
- 34 (85) Base of prothorax with tongue-like protuberance in middle, covering scutellum (possibly only in male). A modified elytral area in form of furrow almost parallel to suture. Length 5.0–6.0 mm. North Thailand, China (Yunnan). *P. lingulata* Chen et Jiang, 1984
- 35 (34) Base of prothorax without protuberance.
- 36 (37) Species from South China. Elytra of male with large and ovate impression at anterior quarter behind scutellum, with its interior margin elevated. Length 4.2–5.0 mm. *P. fulvicornis* Chen, 1942
- 37 (36) Species from South Vietnam (Dalat, Fyan). Elytra of male with postbasal depression subparallel to suture and closely situated. Median lobe of apical abdominal sternite feebly depressed apically. *P. fulvicornis* Chen, 1942 (sensu Kimoto, 1989)
- 38 (33) Body much larger, 6.8–8.1 mm. In male postbasal impression of elytron curving obliquely outward posteriorly (Fig. 28). Median lobe of apical abdominal sternite with a deep longitudinal sulcus at middle. Metasternum sometimes reddish brown. South Vietnam, Laos, Thailand. *P. truncata* Laboissiere, 1936
- 39 (32) Elytra bicolor. Scutellum dark.
- 40 (41) Elytra dark brown with humeral and postbasal areas somewhat paler. Male with deep postbasal impression, curving obliquely outward posteriorly. Length 4.5 mm. Laos. *P. piceipennis* Kimoto, 1989
- 41 (40) Elytra fulvous with piceous or black spot behind middle and dark humeral tubercle (Fig. 11). Male with feebly convex postscutellar area and small ovate groove on each side of suture. Aedeagus with finger-like apical process (Fig. 45). Length 3.9–4.1 mm. Thailand. *P. bifoveolata* **sp.n.**
- 42 (11) Metasternum fulvous, red or partly black.
- 43 (54) Elytra bicolor
- 44 (47) Antennae and legs entirely black. Elytra black with fulvous median and preapical fulvous spots (Fig. 8). Head, prothorax and abdomen red. See also item 23.
- 45 (46) Male with deep and narrow groove parallel to suture in anterior third (Fig. 23). Aedeagus broad with narrow and long apical process (Fig. 41). Metasternum usually black or red. Length 4.2–5.4 mm. South Vietnam (Buon Loi), Laos. *P. vietnamica* L. Medvedev, 2004
- 46 (45) Male with ovate groove in anterior third near suture (Fig. 24). Aedeagus gradually narrowed to apex (Fig. 42). Metasternum usually red, sometimes black. Length 5.6–6.2 mm. Laos. *P. kubani* L. Medvedev, 2004
- 47 (44) Femora red or fulvous, tibiae and tarsi black.
- 48 (49) Elytra black with fulvous band in middle (Fig. 12). Head (with black clypeus) and prothorax red, antennae black with more or less red basal segment, legs black with fulvous femora. Elytra of male with drop-like impression near suture behind scutellum (Fig. 30). Aedeagus thin and long, narrowed to apex (Fig. 46). Length 5.8–5.9 mm. North Vietnam. *P. rubricollis* L. Medvedev, 2009
- 49 (48) Elytra fulvous with black pattern.
- 50 (51) Elytra with apical 2/5th and sutural stripe black (Fig. 13), head and prothorax entirely fulvous, antennae fulvous with 3 or 4 apical segments darkened, legs black with fulvous tibiae. Aedeagus — Fig. 47. Length 4.5–5.2 mm. Thailand. *P. reducta* L. Medvedev, 2001
- 51 (50) Elytra fulvous with dark margins. Body large.
- 52 (53) Elytra fulvous with all margins piceous, not sharply delimited (Fig. 14). Fulvous, labrum black, antennae black with fulvous basal segment, tarsi and upperside of tibiae black. Length 6.8 mm. North Vietnam (Fansipan), 1 ♀. *P. sp. A*
- 53 (52) Elytra pale flavous with all margins narrowly black. Head and prothorax red, labrum and antennae except basal segment piceous, underside and femora red fulvous, tibiae and tarsi black. Aedeagus — Fig. 48. Length 8.8 mm. Central Vietnam. *P. magna* **sp.n.**
- 54 (43) Elytra fulvous or with combination of fulvous and red.
- 55 (56) Elytra with anterior half reddish (Fig. 15), posterior half fulvous. Head including labrum and prothorax reddish, antennae piceous with fulvous basal segments, underside and femora reddish fulvous, tibiae and tarsi black. Length 6.5 mm. North Vietnam (Fansipan), 1 ♀. *P. sp. B*
- 56 (55) Elytra otherwise marked or entirely fulvous.
- 57 (58) Antennae piceous except fulvous basal segment. Elytra pale fulvous with red margins, rather broad on suture but nowhere sharply delimited (Fig. 16). Fulvous to reddish fulvous, last abdominal segment, tibiae and tarsi black. Prothorax with feeble impression in middle. Elytra of male without distinct modification, only flattened on suture behind scutellum. Aedeagus moderately thick with very long and thin apical process (Fig. 49). Length 4.8–5.7 mm. North Vietnam. .. *P. rubromarginata* L. Medvedev, 2001
- 58 (57) Antennae fulvous, sometimes with darkened apical segments.
- 59 (62) Elytra fulvous, usually with more light spots and areas in anterior half and reddish humeral area (Figs 16–17). Metasternum and apex of pygidium red, tibiae and tarsi piceous, scutellum fulvous.
- 60 (61) Modified area on elytra of males in form of returned Y (Fig. 33). Aedeagus parallel-sided in basal 2/3 with cuneiform apical part (Fig. 50). Length 5.3–5.5 mm. North Vietnam, Laos. *P. fedorenkoi* L. Medvedev, 2009
- 61 (60) Modified area on elytra of male with deep and broad bracket-like groove on each side of suture widened anteriorly; the area outwards of this groove distinctly elevated (Fig. 34). Aedeagus broadest in basal third and narrowed to both ends (Fig. 51). Length 4.5–5.4 mm. NW Thailand. *P. haemorrhoidalis* L. Medvedev, 2001



Figs 35–52. Aedeagus *Paleosepharia* spp.: 35 — *P. membranacea*; 36 — *P. tricolor*; 37 — *P. buonloica*; 38 — *P. fanxipana*; 39 — *P. subsuturalis*; 40 — *P. suturalis*; 41 — *P. vietnamica*; 42 — *P. kubani*; 43 — *P. thailandica*; 44 — *P. dongnaica*; 45 — *P. bifoveolata*; 46 — *P. rubricollis*; 47 — *P. reducta*; 48 — *P. magna*; 49 — *P. rubromarginata*; 50 — *P. fedorenkoi*; 51 — *P. haemorrhoidalis*; 52 — *P. sp.* C. 35–52 — ventral (48–49 also lateral) view.

Рис. 35–52. Эдеагус *Paleosepharia* spp. 35–52 — снизу (48–49 также сбоку).

- 62 (59) Elytra entirely fulvous or with narrow basal margin infuscate. Apex of abdomen fulvous (except *P. sp. C*).
- 63 (66) Underside entirely fulvous. Elytra of males not modified.
- 64 (65) Prothorax 2.5 times as wide as long and anterior margin distinctly rounded posteriorly, not impressed in middle. Length 4.5–6.6 mm. South Vietnam, Laos.
..... *P. unicolor* Kimoto, 1989
- 65 (64) Prothorax nearly 1.5 times as wide as long, with anterior margin nearly straight and surface slightly impressed in middle. Length 4.8 mm. South Vietnam.
..... *P. fulva* Kimoto, 1989
- 66 (63) Underside fulvous with red metasternum. Elytra of males modified. Basal margin of elytron and interior margin of epipleuron infuscate.
- 67 (68) Apex of abdomen fulvous. Postbasal depression of male curved obliquely outwards. Median lobe of 5th abdominal segment of male with a pair of short longitudinal costae basally and their interstices distinctly depressed. Length 5.3–6.0 mm. South Vietnam, Laos, Thailand.
..... *P. persimilis* Kimoto, 1989
- 68 (67) Apex of abdomen red. Elytral modified area of male anchor-like (Fig. 32). Median lobe of 5th abdominal segment of male without longitudinal costae. Aedeagus — Fig. 52. Length 4.0 mm.
..... *P. sp. C*

Paleosepharia buonloica Medvedev, **sp.n.**

Fig. 37

MATERIAL. Holotype, ♂: Vietnam, prov. Gialai-Contum, Buon-Loi, 40 km N Ankhe, 600 m, tropical forest, 29.IV.1981, leg. L. Medvedev (LM). Paratypes: same locality and date (LM, NHMB); — same locality, 1–4.III.1978, 1 ex. (LM); — same locality, 30.V.1983, 1 ex. (LM); — same locality, 6–10.I.1990, 1 ex. (LM).

DESCRIPTION. Fulvous, head piceous to dark fulvous with fulvous labrum, antennae piceous to black with more or less fulvous basal segments, prothorax dark fulvous, distinctly darker than elytra, breast fulvous with more or less piceous middle of metasternum, abdomen fulvous with black or piceous apical segment, legs fulvous.

Head impunctate except a few fine punctures on vertex, finely microsculptured, interantennal space moderately broad and convex, frontal tubercles triangular, feebly convex, microsculptured. Antennae reach anterior third of elytra, proportions of segments are as 10-3-6-10-8-9-9-10-10-11, preapical segments about 5 times as long as wide. Prothorax twice as wide as long, broadest in middle, side margins feebly rounded, basal margin distinctly arcuate, surface finely and sparsely punctate, densely microsculptured, with feeble impression on each side of middle. Scutellum triangular, microsculptured, with a few fine punctures. Elytra 1.35 times as long as wide, broadest in apical quarter, surface microsculptured, finely and densely punctate, in male without modified area. 5th abdominal sternite with feebly concave median lobe. Segment 1 of anterior tarsus not widened in male. Aedeagus short, with triangular apex and unsclerotised area in middle part of underside (Fig. 37). Length of body 5.3–5.8 mm.

DIAGNOSIS. See a key.

Paleosepharia thailandica Medvedev, **sp.n.**

Figs 9, 25, 44

MATERIAL. Holotype, ♂: N Thailand, Chiang Mai, Chiang Dao Hill Resort, 19°33' N, 99°5'E, 540 m, 16–22.VIII.2010, leg. O. Gorbunov (LM).

DESCRIPTION. Head, antennae and prothorax fulvous, scutellum black, elytra in anterior half fulvous with narrow black margins and darkened elevated area near suture, in

posterior half black with dirty fulvous apical slope (Fig. 9), pygidium red, underside fulvous with black metasternum and fulvous abdomen with red apical sternite, legs black with fulvous femora.

Head impunctate, finely microsculptured, clypeus triangular, interantennal space moderately broad and feebly convex, frontal tubercles transverse, poorly delimited. Antennae longer than body, proportions of segments are as 11-2-2-11-15-13-13-13-13-11-12, preapical segments about 5–6 times as long as wide. Prothorax 1.5 times as wide as long, broadest in middle, sides feebly rounded, surface practically impunctate, with very thin microsculpture, without impressions. Scutellum triangular, microsculptured. Elytra 1.6 times as long as wide, with rounded-truncate apices, finely and densely punctate, with elevated stripe along suture just behind scutellum and longitudinal ridge in anterior third, divided from sutural elevation with deep furrow (Fig. 25). 5th abdominal sternite without impression, with quadrangular median lobe. Segment 1 of anterior tarsus feebly widened. Aedeagus (Fig. 44) with longitudinal impression in apical half of underside. Length of body 4.9 mm.

DIAGNOSIS. Differs from practically all continental species with very short and equal antennal segments 2 and 3, as well as elytral pattern and modified elytral area of male.

Paleosepharia lingulata Chen & Jiang, 1984

MATERIAL EXAMINED. N Thailand, Chiang Mai, Chiang Dao Hill Resort, 19°33'N, 99°5'E, 540 m, 16–22.VIII.2010, leg. O. Gorbunov (LM).

REMARK. Firstly found in Thailand, was known only from China.

Paleosepharia bifoveolata Medvedev, **sp.n.**

Figs 11, 29, 46

MATERIAL. Holotype, ♂: N Thailand, Chiang Mai, Chiang Dao Hill Resort, 19°33'N, 99°5'E, 540 m, 16–22.VIII.2010, leg. O. Gorbunov (LM).

DESCRIPTION. Fulvous, labrum, antennal segments 8–11, scutellum, metasternum, tibiae and tarsi black, elytra with dark humeral tubercle and oblique spot just behind middle black (Fig. 11).

Head impunctate, finely microsculptured, clypeus triangular and convex, interantennal space moderately broad and convex, frontal tubercles transverse, well delimited. Antennae reach middle of elytra, proportions of segments are as 12-6-8-11-11-11-11-10-9-9-10, preapical segments about 3–4 times as long as wide. Prothorax 1.35 times as wide as long, broadest in middle, side margins very feebly rounded, surface finely punctate, with extremely thin microsculpture, without impressions. Scutellum triangular, finely microsculptured. Elytra 1.7 times as long as wide, with broadly rounded apices, surface finely punctate and microsculptured, post-scutellar area of male feebly convex, with small ovate groove on each side of suture (Fig. 29). 5th abdominal sternite with trapeziform and feebly concave median lobe. Segment 1 of anterior tarsus not widened. Aedeagus elongate and parallel-sided with long finger-like apical process (Fig. 46), straight in lateral view. Length of body 3.9–4.1 mm.

DIAGNOSIS. See a key.

Paleosepharia magna **sp.n.**

Fig. 49

MATERIAL. Holotype, ♂: Vietnam, 30 km N Vinh, V.1980, leg. L. Medvedev (LM).

DESCRIPTION. Reddish, antennal segments 4–11 dark reddish, elytra pale flavous with all margins narrowly black,

inner margins of epipleurae, tibiae and tarsi black. Body elongate ovate. Head impunctate, frontal tubercles triangular, interocular space 2.75 times as wide as transverse diameter of eye. Antennae reach apical slope of elytra, proportions of segments are as 17-5-10-15-18-17-17-16-16-16-16, preapical segments about 8 times as long as wide. Prothorax 2.2 times as wide as long, broadest near middle, with side margins feebly rounded, anterior angles obtuse, posterior angles obtusely angulate, surface without impressions, impunctate. Scutellum triangular, impunctate. Elytra 1.4 times as long as wide, with sides distinctly rounded and apices rounded truncate, surface finely and densely, but almost indistinctly punctate. Epipleurae moderately broad basally, then widened to anterior quarter and then gradually narrowed to apex. Segment 1 of anterior tarsus not widened in male. Aedeagus unusual, strongly asymmetrical, possibly teratoid (Fig. 49). Length of body 8.8 mm.

P. kubani L. Medvedev, 2004

REMARK. I found a mistake in a figure of elytron given in original description: an anterior fulvous spot was not shown.

Paleosepharia fulvicornis Chen, 1942

REMARK. I have not seen this species, but it was described from China and indications for South Vietnam [Kimoto, 1989] seem to me a little doubtful. Besides, descriptions of male elytral structure differ in publications of Chen [1942] and Gressitt & Kimoto [1963]. Possibly we have here two species.

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