

## Two new species of the genus *Agapanthia* Audinet-Serville, 1835 (Coleoptera: Cerambycidae) from Kazakhstan

### Два новых вида рода *Agapanthia* Audinet-Serville, 1835 (Coleoptera: Cerambycidae) из Казахстана

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КЛЮЧЕВЫЕ СЛОВА: Coleoptera, Cerambycidae, Lamiinae, Agapanthiini, новые виды, Казахстан.

**ABSTRACT.** *Agapanthia* (*Epopetes*) *plewai* **sp.n.** (from the north shore of Balkhash Lake) and *A. (E.) badenkoi* **sp.n.** (from Central Kazakhstan) are described. Both species are close to *A. (E.) parauliensis* Danilevsky, 2017 from south Kazakhstan. The distinguishing characters and color illustrations are proposed, as well as a key for six similar species.

**РЕЗЮМЕ.** Описаны *Agapanthia* (*Epopetes*) *plewai* **sp.n.** (северный берег озера Балхаш) и *A. (E.) badenkoi* **sp.n.** (Центральный Казахстан). Оба вида близки к *A. (E.) parauliensis* Danilevsky, 2017 из южного Казахстана. Указаны диагностические признаки, приведены цветные иллюстрации, определительная таблица шести близких видов и карта мест их находок.

### Introduction

*Agapanthia* Audinet-Serville, 1835 fauna of the territory of the former USSR can be regarded as well investigated. According to the Palaearctic Cerambycidae Catalogue [Danilevsky, 2020], it counted 33 species, or according to the list of Russia and adjacent countries [Danilevsky, 2023], it includes 38 species. Now after many taxonomical modifications by different authors, according to the regularly updated Catalogue of Palaearctic Chrysomeloidea (Vesperidae, Disteniidae, Cerambycidae) by Danilevsky [2024] it consists of 32 species. Still new taxa are often described up to now from year to year. Many new taxa were proposed recently: *A. (Smaragdula) chvalkovskiyi* Hodek, 2021 — Georgia, *A. (S.) mikhailei* Hodek, 2021 — Armenia, *A. (Epopetes) perovskiensis perovskiensis* Danilevsky, 2021 — Kazakhstan, *A. (E.) p. chulakurgana* Danilevsky, 2021 — Kazakhstan, *A. (E.) boeberi selengensis* Danilevsky, 2021 — Transbaikalia,

*A. (Agapanthiella) dahli efimovi* Danilevsky, 2021 — West Siberia, *A. (Synthapsia) kirbyi samai* Rapuzzi et Parisi, 2022 — Transcaucasia, Central Asia, Near East, *A. (Epopetes) villosoviridescens syunika* Lazarev, 2024. Many specimens of a new species were recently collected by Polish entomological expedition in 2024 near Balkhash Lake. Three persons took part in the collecting efforts: Radosław Plewa (Sękocin Stary) — who sent me specimens for study and several photos, Jacek Hilszczański (Sękocin Stary) and Krzysztof Łoś (Łomianki Dolne). So, *Agapanthia (Epopetes) plewai* **sp.n.** is described below. A single old male of another new species from Central Kazakhstan was discovered by me in the collection of Zoological Institute of Russian Academy of Sciences (Saint-Petersburg), and *A. (E.) badenkoi* **sp.n.** is also described.

### Material and methods

Acronyms of the collections: JH — collection of J. Hilszczański — Forest Research Institute, Sękocin Stary, Poland; KL — collection of K. Łoś — Łomianki Dolne, Poland; MD — collection of M.L. Danilevsky — Severtsov Institute of Ecology and Evolution, Moscow, Russia; RP — collection of R. Plewa — Forest Research Institute, Sękocin Stary, Poland; ZIN — Zoological Institute of the Russian Academy of Sciences, Saint-Petersburg, Russia.

#### MATERIAL USED FOR COMPARISON

*A. obyдови* Danilevsky, 2000: male, holotype, Kazakhstan, Kolshengel, 300 m, 13.5.1996, M. Danilevsky leg. — MD; 28 paratypes — MD: 13 males and 13 females with the same label, 2 males, Alma-Ata Region, Kolshengel, 4.5.1990, G. Dunay leg. [in Russian]; 3 males, 3 females, same locality, 7.5.2001, M. Danilevsky leg. — MD; 1 female, Kazakhstan, 2 km N Kanshengel, 44°20'25.6"N, 75°33'39.0"E, 418 m, sands, 24.5.2015, Ivanov A.V. leg. [in Russian] — MD.

*A. auliensis* Pic, 1907: 53 specimens — MD; 1 female with 2 labels: 1) "USSR, Kazakhstan / Akir-Tobe, 6.5.81 /

Mujun-Kum des. / Ing. J. Lotenz lgt.; 2) *Agapanthia / amabilis* Holsch. / det. Dr. P. Schurmann 1983; 1 female, with 2 labels: 1) Alma-Ata Region, Nikolaevka (now Zhetygen), 20.5.1949, Davydova; 2) *Agapanthia angelicae* det. Kostin; 1 female, Ily River, Kyzylchilik, 30.4.1974, Badenko leg.; 1 male, Turkestan bor., Mojun-Kum, Kizil-tjube, 25.5.1916; 2 males, 4 females, Alma-Ata, 2–11.7.1946, N. Filippov leg.; 1 male, 1 female, KazakhSSR (Jambul), Akir Tobe, 6.5.1981, Jelinek lgt.; 8 males, 14 females, Kazakhstan, Kapchagay, 400 m, 6–7.6.1989, M. Danilevsky leg.; 1 male, 1 female, Kazakhstan, Taraz, Akyrto-be, 600 m, 18.5.2000, M. Danilevsky leg.; 10 males, 6 females, same locality, 9.5.2001, M. Danilevsky leg.

*A. parauliensis* Danilevsky, 2017: male, holotype, borderline between Kyzyl-Kumy desert and Golodnaya Steppe near Syr-Darya River, 10.V.1903, G. Jakobson leg. [in Russian] — ZIN; 10 paratypes: 3 males and 7 females with about same label (the dates are 10–12.5.1903) — ZIN.

*A. shovkuni* Shapovalov, 2009: female, paratype, Kazakhstan, Mangustau reg., 5 km NE Senek, Tuyesu sands, 43°21'38.0"N, 53°27'17.7"E, 27.4.2008, A. Shapovalov leg. — MD; 2 males, 2 females, Kazakhstan, Aralsk, Kum-Sagyz, 23–25.4.2011, A. Shapovalov leg. — MD; 2 males, 2 females, Kazakhstan, 16 km NW Korkol, 45°51'N, 54°42'E, 2.5.2016, D. Shovkun leg. — MD.

## Results

### *Agapanthia (Epopetes) plewai* sp.n. Figs 1–2, 8–9.

**MATERIAL.** Holotype, male, South Kazakhstan, Gulshat environs northwards Balkhash Lake, 46°38'45"N, 74°19'55"E, 359 m, 5.5.2024, R. Plewa leg. — MD; 98 paratypes with the same date from the same locality; 2 males and 2 females with the same labels as holotype — MD; 30 males, 24 females, R. Plewa leg. — RP; 8 males, 12 females, J. Hiłszczański leg. — JH; 9 males, 9 females, K. Łoś leg. — KŁ.

**TYPE LOCALITY:** South Kazakhstan, Gulshat environs near Balkhash Lake, about 2 km northwards the village, 46°38'45"N 74°19'55"E.

**DESCRIPTION.** Body black with orange-yellow pubescence; head with dense recumbent setae and numerous long erect black setae; frons vertical with deep central furrow; genae about as wide as basal width of 1<sup>st</sup> antennal joint; eyes relatively small, a little narrower than wide; antennae in males about 2 times longer than elytra, surpassing elytral apices with 5 apical joints; female antennae about 1.2 times longer than body, surpassing elytral apices with 3 joints; with black 1<sup>st</sup> and 2<sup>nd</sup> joints; other joints bicolored with red basal parts (from two thirds to about a half) and black apical; red antennal parts with fine white pubescence; 3<sup>rd</sup> antennal joint without apical setae tuft, with several long setae also distributed along its whole length; prothorax in males about 1.2 times wider posteriorly than anteriorly, in females — about 1.3 times, slightly widened medially; pronotum with wide and bright central setae stripe, without recumbent pubescence along its sides; scutellum bright orange-yellow; elytra narrow, narrowly rounded apically, male elytra about 2.9 times longer than basal width, female elytra — about 2.8 times; covered with wide patches of orange-yellow pubescence (evenly pubescent elytra in *A. obydoivi*), more or less scattered; glabrous spaces between setae patches can be larger or smaller, but always distinct; grey humeral elytral stripe (typical for *A. auliensis*) absent; long erect elytral setae are distributed along anterior elytral third; abdomen with very dense light recumbent pubescence totally

hiding cuticula; last abdominal tergite rounded or shallowly emarginated; last abdominal sternites shallowly triangularly emarginated or truncated; median lobe of aedeagus (Fig. 8) relatively wide, obtuse; parameres (Fig. 9) moderately elongated, rounded apically; body length in males: 9.0–14.8 mm, width: 2.1–4.0 mm, body length in females: 10.0–17.0 mm, width: 2.5–4.6 mm.

**DISTRIBUTION.** Only one locality known, South Kazakhstan, Gulshat environs northwards Balkhash Lake, 46°38'45"N, 74°19'55"E, 359 m.

**BIONOMY.** All specimens of *A. (E.) plewai* sp.n. were observed in sandy desert in the beginning of May feeding and copulating on *Eremurus inderiensis* (M. Bieb.) Regel (Figs 6–7), where must develop its larvae.

**ETYMOLOGY.** The new species is dedicated to Radosław Plewa, who collected the most part of the type series.

### *Agapanthia (Epopetes) badenkoi* sp.n. Figs 3, 10–11.

**MATERIAL.** Holotype, male, Kazakhstan, Ulytau Region, Zhanaarka District, Karaagash environs, Karaagash forest farm, 48°53'N, 70°47'E, 490 m., 18.7.1963, A.S. Badenko — ZIN.

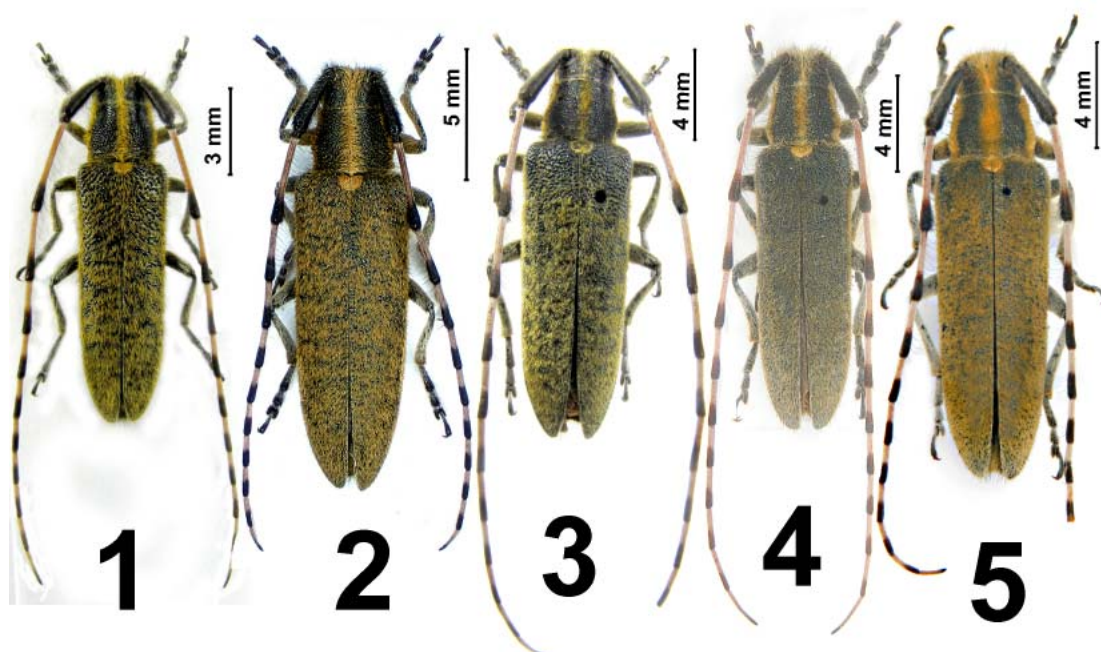
**TYPE LOCALITY.** Kazakhstan, Ulytau Region, Zhanaarka District, Karaagash environs, Karaagash forest farm, 48°53'N, 70°47'E, 490 m.

**DESCRIPTION.** Only one male available; body black, elytra without bronze luster; moderately wide; head with dense yellow pubescence, whitish setae are condensed in front of eyes; genae a little shorter than lower eye lobes, covered with yellow and white pubescence; eyes about as long as wide, a little convex, about flat, with deep emargination; the distance between upper eye lobes less than the width of 1<sup>st</sup> antennal joint; frons a little longer than as wide; antennae rather thin, protruding beyond elytral apices with 5 joints; 1<sup>st</sup> and 2<sup>nd</sup> joints black, other joints red basally and black distally; 3<sup>rd</sup> joint black for about one fourth of its length, with about 10 apical setae; others antennal joints with a few long apical setae; prothorax about 1.1 times shorter than basal width; pronotum with wide, dense and bright yellow central stripe; scutellum semi-circular, covered with dense yellow pubescence; elytra about 2.8 times longer than wide, densely pubescent, with scattered setae patches; grey humeral elytral stripe absent; elytral apices angulated, black oblique elytral setae very short poorly visible along basal third; ventral body side with very dense yellow pubescence; median lobe of aedeagus (Fig. 10) relatively narrow, strongly sharpened; parameres (Fig. 11) moderately elongated, rounded apically; body length: 17.0 mm; body width: 4.6 mm.

**DISTRIBUTION.** Only one locality known in Central Kazakhstan: Ulytau Region, Zhanaarka District, Karaagash environs, Karaagash forest farm, 48°53'N, 70°47'E, 490 m.

**ETYMOLOGY.** The new taxon is dedicated to Askold Sergeevich Badenko, who collected the holotype. He was a long-term employee of the Kazakh Institute of Zoology, a co-worker of many entomological expeditions, a collector of a huge number of rare insects, a talented illustrator of I.A. Kostin's publications, a participant in military operations against the Japanese army in Manchuria.

**DIFFERENTIAL DIAGNOSIS.** Both new species belong to a very compact desert group of small Central Asian taxa connected with *Eremurus inderiensis* (M. Bieb.) Regel. The group includes fore more unrelated, but similar species: *A. (E.) shovkuni* Shapovalov, 2009 from south-west Kazakhstan, *A. (E.) auliensis* Pic, 1907 (= *amabilis* Holzschuh, 1981) distributed from Muiunkum desert to Ily River valley and



6



7

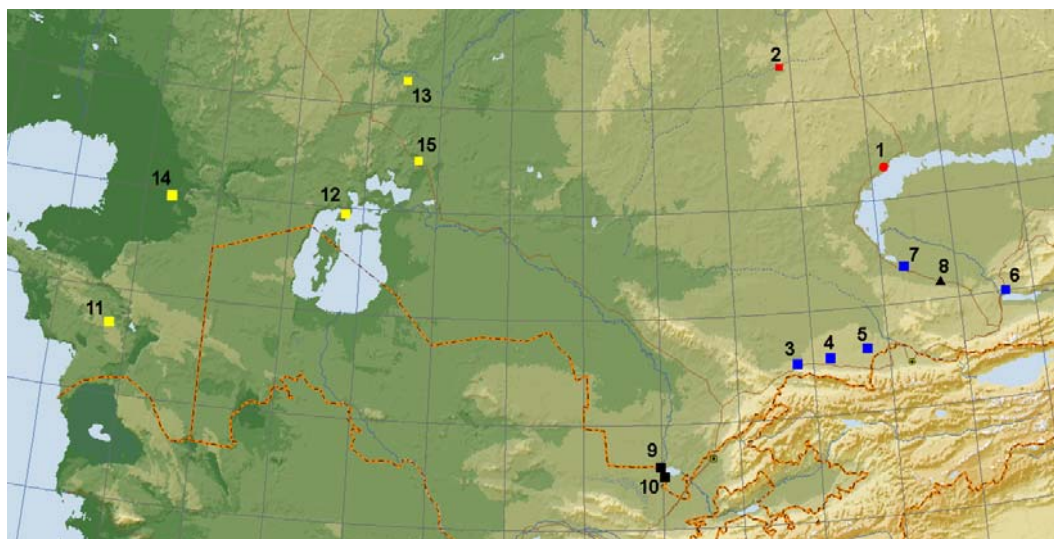
**Figs 1–7.** *Agapanthia* spp.: 1 — *Agapanthia plewai* **sp.n.**, male, holotype (MD); 2 — *A. plewai* **sp.n.**, female, paratype (KH, photo by K. Hodek); 3 — *A. badenkoi*, **sp.n.**, male, holotype (ZIN); 4–5 — *A. parauliensis* Danilevsky, 2017 (4 — male, holotype; 5 — female, paratype), border-line between Kyzyl-Kumy desert and Golodnaya Steppe near Syr-Darya River, 10.V.1903, G. Jakobson leg. (ZIN); 6 — *Eremurus inderiensis* (M. Bieb.) Regel food plant of *A. plewai* **sp.n.** at the north shore of Balkhash Lake (photo by K. Hodek); 7 — landscape at the north shore of Balkhash Lake — the type locality of *A. plewai* **sp.n.** (photo by K. Hodek).

**Рис. 1–7.** *Agapanthia* spp.: 1. — *Agapanthia plewai* **sp.n.**, самец, голотип (MD); 2 — *A. plewai* **sp.n.**, самка, паратип (KH, фотография К. Hodek); 3 — *A. badenkoi*, **sp.n.**, самец, голотип (ZIN); 4–5 — *A. parauliensis* Danilevsky, 2017 (4 — самец, голотип, 5 — самка, паратип) граница пустыни Кызыл-Кум с Голодной Степью у реки Сыр-Дарья 10.V.1903, Г. Якобсон (ZIN); 6 — *Eremurus inderiensis* (M. Bieb.) Regel кормовое растение *A. plewai* **sp.n.** на северном берегу озера Балхаш (фотография К. Hodek); 7 — пейзаж на северном берегу озера Балхаш — типовое местонахождение *A. plewai* **sp.n.** (фотография К. Hodek).



**Figs. 8–15.** Median lobes of aedeagus (8, 10, 12, 14) and parameres (9, 11, 13, 15): 8–9 — *Agapanthia plewai* sp.n. (MD, paratype); 10–11 — *A. badenkoi*, sp.n. (ZIN, holotype); 12–13 — *A. parauliensis* Danilevsky, 2017 (ZIN, holotype); 14–15 — *A. shovkuni* Shapovalov, 2009 (Korkol, MD).

**Фото 8–15.** Срединная доля эдеагуса (8, 10, 12, 14) и параметры (9, 11, 13, 15): 8–9 — *Agapanthia plewai* sp.n. (MD, паратип); 10–11 — *A. badenkoi*, sp.n. (ZIN, голотип); 12–13 — *A. parauliensis* Danilevsky, 2017 (ZIN, голотип); 14–15 — *A. shovkuni* Shapovalov, 2009 (Корколь, MD).



**Map.** Localities of species similar to new taxa in Kazakhstan: 1 — *Agapanthia plewai* sp.n., Kazakhstan, shore of Balkhash Lake, Gulshat environs; 2 — *A. badenkoi*, sp.n., Kazakhstan, Zhana-Arka district, Kara-Agach; 3–7 — *A. auliensis* Pic, 1907: 3— Kazakhstan, Taraz (Aulie-Ata) environs; 4 — Kazakhstan, Akyr-Tobe environs; 5 — Kazakhstan, Tatty environs; 6 — Kazakhstan, Kapchagai environs; 7 — Kazakhstan, Aksuiyok environs; 8 — *A. obyдови* Danilevsky, 2000, Kazakhstan, Kolshengel environs; 9–10 — *A. parauliensis* Danilevsky, 2017: 9 — Kazakhstan, north shore of Chardara water-reserve; 10 — Uzbekistan south shore of Chardara water-reserve; 11–15 — *A. shovkuni* Shapovalov, 2009: 11 — Kazakhstan, Mangyshlak peninsula, Senek environs; 12 — Kazakhstan, Aral Sea, Kulandy Peninsula; 13 — Kazakhstan, Irgiz environs; 14 — Kazakhstan, Korkol environs; 15 — Kazakhstan, Kumsagyz.

**Карта.** Места находок новых и близких к ним видов: 1 — *Agapanthia plewai* sp.n., Казахстан, берег озера Балхаш, окрестности поселка Гульшат; 2 — *A. badenkoi*, sp.n., Казахстан, Жанааркинский район, окрестности поселка Кара-Агач; 3–7 — *A. auliensis* Pic, 1907: 3— Казахстан, окрестности города Тараз (Аулие-Ата); 4 — Казахстан, окрестности поселка Акыр-Тобе; 5 — Казахстан, окрестности поселка Татты; 6 — Казахстан, окрестности города Капчагай; 7 — Казахстан, окрестности поселка Аксуек; 8 — *A. obyдови* Danilevsky, 2000, Казахстан, окрестности поселка Кольшенгель; 9–10 — *A. parauliensis* Danilevsky, 2017: 9 — Казахстан, северный берег Чардаринского водохранилища — Узбекистан, южный берег Чардаринского водохранилища; 11–15 — *A. shovkuni* Shapovalov, 2009: 11 — Казахстан, полуостров Мангышлак, окрестности поселка Сенек; 12 — Казахстан, Аральское море, полуостров Куланды; 13 — Казахстан, окрестности города Иргиз; 14 — Казахстан, окрестности поселка Корколь; 15 — Казахстан, окрестности поселка Кумсагыз.

also discovered far northwards Balkhash near Akchatau and *A. (E.) parauliensis* Danilevsky, 2017 described from “Golodnaya Stepp” at the border-line between Kazakhstan and Uzbekistan. *A. (E.) obyдови* Danilevsky, 2000 is also connected with *Eremurus nderiensis*, but rather far from others and nearly identical to *A. (E.) detrita* Kraatz, 1882 with its regular even elytral pubescence, but much smaller. It is known from near Konshengel only (between Almaty and Balkhash).

*A. plewai* sp.n. and *A. badenkoi* sp.n. are very similar to the geographically quite distant *A. parauliensis* (Figs 4–5), but differ by narrower body, a little narrower prothorax, elytral setae patches larger, usually conjugated, glabrous elytral interspaces indistinct.

The group of 6 species mentioned above can be characterized inside the genus with the absence of metallic luster, red basal parts of 3<sup>rd</sup>–12<sup>th</sup> antennal joints, absence of setae tufts of 3<sup>rd</sup> antennal joints.

THE KEY FOR SIX SPECIES SIMILAR TO *AGAPANTHIA PLEWAI* SP.N. AND *A. BADENKOI* SP.N.

- 1(2) Elytra evenly pubescent, setae patches indistinct; body length 10.7–15.0 mm. .... *A. obyдови* Danilevsky, 2000 [South Kazakhstan, sandy desert between Almaty and Balkhash Lake].  
 2(1) Elytra spotted, with distinct setae patches.  
 3(4) Elytra with distinct grey humeral stripe; body length 9.2–18.0 mm. .... *A. auliensis*

Pic, 1907 [South Kazakhstan, sandy deserts from Muiunkum to Ily River Valley].

- 4(3) Grey humeral elytral stripe indistinct.  
 5(6) Elytral setae patches large, conjugated, usually without glabrous cuticula in between; body length 14.9–19.6 mm. .... *A. parauliensis* Danilevsky, 2017 [South Kazakhstan at border line with Uzbekistan].  
 6(5) Elytral setae patches small, scattered, with distinct glabrous interspaces in between.  
 7(8) 3<sup>rd</sup> antennal joint with small number of apical setae, up to 8; body length 11.6–16.0 mm ..... *A. shovkuni* Shapovalov, 2009 [Western Kazakhstan from Mangyshlak Peninsula to Aktobe Region].  
 8(7) Apical setae of 3<sup>rd</sup> antennal joint rather numerous, from 15 to 20.  
 9(10) Median lobe of aedeagus obtuse; parameres moderately elongated; body length 9–20 mm ..... *A. plewai* sp.n. [South Kazakhstan, sandy desert at northern shore of Balkhash Lake].  
 10(9) Median lobe of aedeagus strongly sharpened; parameres elongated; body length 17 mm ..... *A. badenkoi* sp.n. [Central Kazakhstan: Ulytau Region, Zhanaarka District, Karaagash environs].

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