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Two new species of *Agapanthia* (*Smaragdula* Pesarini & Sabbadini, 2004) from Transcaucasia (Coleoptera: Cerambycidae: Laminae, Agapanthiini)

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Abstract: Two new species of the subgenus *Smaragdula* Pesarini & Sabbadini, 2004 (Agapanthiini Audinet-Serville, 1835) are presented in this paper. Both new species come from the Transcaucasia - Armenia and Georgia. *Agapanthia* (*Smaragdula*) *mikhaili* **sp. nov.** and *A.* (*S.*) *chvalkovskyi* **sp. nov.** fit habitually well into the homogeneous subgenus *Smaragdula*. *A.* (*S.*) *mikhaili* **sp. nov.** is compared with similar *A.* (*S.*) *amitina* Holzschuh, 1989 and *A.* (*S.*) *persicola* Reitter, 1894. *A. (S.*) *chvalkovskyi* **sp. nov.** is compared with *A.* (*S.*) *persicola* and *A.* (*S.*) *chalybea* Faldermann, 1837. The comparative analysis of this paper describes how to distinguish these new species well.

Introduction

There are 96 genera with 740 species currently known in the tribe Agapanthiini (Tavakilian & Chevillotte, 2018). This group includes 80 genera in the Palearctic region (Danilevsky, 2021), the genus *Agapanthia* Audinet-Serville, 1835 consisting of 10 subgenerais the largest one. There are 20 species in the subgenus of *Smaragdula* Pesarini & Sabbadini, 2004 currently known from Spain to Siberia and Kyrgyzstan. Turkey (the most species are known from) appears to be the central region of the subspecies area. *Smaragdula* is a more or less homogeneous group, which consists of more or less similar species whose connecting feature is a striking glossy metallic colour.

Materials and methods

The research used material from the following private collections:
DN - collection of David Navrátil, Litomyšl, Czech Republic
JCH - collection of Jiří Chvalkovský, Bořetín, Czech Republic
JK - collection of Josef Kadlec, Varnsdorf, Czech Republic

KH - collection of Karel Hodek, Brno, Czech Republic
LS - collection of Lukáš Skořepa, Dačice, Czech Republic
MD - collection of Mikhail Danilevsky, Moscow, Russia
PJ - collection of Pavel Jelínek, Brno, Czech Republic
PŠ - collection of Pavel Štěpánek, Kladno, Czech Republic
ŠH - collection of Štěpán Hofmeister, Praha, Czech Republic
TL - collection of Tomáš Lengál, Olomouc. Czech Republic
VS - collection of Vladimír Skoupý, Kamenné Žehrovice, Czech Republic
ZK - collection of Zdeněk Košťál, Pardubice, Czech Republic

All photographs were arranded by the author.

Taxonomy

Agapanthia (*Smaragdula*) *mikhaili* **sp. nov.**
Figs. 1♂ Holotype, 2♀ , 8, 13, 18, 20

Description. Body 6.4-9.1 mm long in males, 7.1-9.9 mm long in females; metallic, most often bright green, sometimes even blue-green; covered with noticeably long erect black setae.

Head with long erect black setae; from the frontal view rather rounded on the forehead with sparse punctures, seen from above only slightly wider than the front edge of the pronotum; eyes small, lower lobe usually as wide as long; forehead mostly smooth sometimes with white pubescence, cheeks from the edge of the lower eye lobe to the mandibles with more or less sparse white pubescence formed into two lines; a hint of white line of pubescence on the scalp sometimes present; last segment of palpus maxillare is elongated and pointed; antennae long, in males exceeding elytral apex with three to four antennomeres, in females exceeding with two to three antennomeres; scapus not too coarsely wrinkled, slightly strangled before the end; the second antennomere (Fig. 25) is noticeably elongated, in some cases short in females; third antennomere is sometimes conspicuously compressed before the end; first four antennomeres are metallically coloured, after fifth antennomere dark without a metallic shine; antennae distinctively covered with fine white tomentum after second antennomere, this tomentum does not

form rings on the antennomeres; antennomeres with sparse long erect black setae on the inner side.

Pronotum longitudinal or almost as wide as long with dense punctures formed into fine transverse wrinkles on the surface, entirely strewn with sparse, long erect black setae which are longer than the setae on the head; in the middle of the back edge of pronotum with usually more or less distinct tuft of white hairs.

Elytra parallel and elongated, slightly concave behind the shoulders, elytral apex rounded; width at humeri about 2,8-3,2 times less than elytral length. Elytral punctures at the base are very distinct, finer and denser towards the apex, punctures on the surface of the elytra do not form significant transverse wrinkles. Elytra with white pubescense in the back third, sparsely studded in the frontal part with long erected black setae which shorten from the last third towards the end. Scutellum longitudinal, with dense white pubescence.

Ventral side of the body sparsely covered with short whitish pubescence, in some cases epimerone and metepisternum covered with very dense white pubescence; legs covered with white tomentum with sparse long erect black setae; tibia usually with dense white pubescence.

Genitals: parameres mostly rather straight (Fig. 20), rounded at the end, aedeagus with a short tip rounded apically (Fig. 8).

Variability. Species is not very colour-variable, body usually bright green metallic glossy or with bluish gloss, in some cases various combinations of green and blue-green; in females the second antennomere not noticeably elongated in some cases.

Differential diagnosis. *A.* (*S.*) *mikhaili* **sp. nov.** occurs in Armenia sympatrically with *A.* (*S.*) *persicola* (Figs. 6, 11,15, 23) from which it can be well distinguished by the elongated second antennomere and by the distinct transverse wrinkles formed with the punctures on the pronotum. Specimens of *A.* (*S.*) *persicola* do not have the elongated second antennomere either transverse wrinkles on the surface of the shield. Specimens of *A.* (*S.*) *mikhaili* sp. nov. also have elytra without distinct-looking transverse wrinkles along the seam. The long protruding black setae extend significantly more into the back part of the elytra than in *A.* (*S.*) *persicola*. *A.* (*S.*) *mikhaili* **sp. nov**. is very similar to *A.* (*S.*) *amitna* (Figs. 5, 10, 14, 21) from which it can be distinguished by the metallic shine of the antennae. There is a

distinct metallic coloration in *A.* (*S.*) *mikhaili* **sp. nov.** usually noticeable to the middle of the 4th antennomere, in *A.* (*S.*) *amitina* the metallic shine is visible about until the first third of the 3rd antennomere, from this part onwards the antennomeres are only black glossy, in some cases, the 3rd antennomeres is completely black glossy too. *A.* (*S.*) *amitna* has shorter tarsi, the 2nd and 3rd tarsomeres together are longer than the 4th tarsomers, in *A.* (*S.*) *mikhaili* **sp. nov**. the tarsi are longer, the 2nd and 3rd tarsomeres together are about the same size as the 4th tarsomere.

Another difference between these two species is in the shape of male genitalia - the shape of telomeres on tegmen; in *A.* (*S.*) *mikhaili* **sp. nov**. telomeres in front of the apex are clearly wider (Fig. 18) than the telomeres in *A.* (*S.*) *amitna* (Fig. 19), in *A.* (*S.*) *amitna* tegmen generally slightly narrower than in *A.* (*S.*) *mikhaili* **sp. nov.,** the shape of parameres is variable in both species (Figs 20 and 21).

Type material. Holotype ♂, Armenia, Kotayk prov., Dzhrvezh, 1613 m, 40°10′38“N, 44°37′47“E, 2.6.2018 (KH); Paratypes 52 ex. (20 ♂♂, 31 ♀♀): 13 ex., Armenia, Khosrov Forest, 23.-24.5.1990 (MD); 3 ex., Armenia, Dzhrvezh, 1.6.1983 (MD); 1 ex., Armenia-Ararat marz, Mt. Kotutsar, 1300-2046 m, 7 km NE Urtsadzor, 39°58′32.32“N, 44°50′33.46“E, 5.6.2013 (DN); 1 ex., ArmeniaVayots Dzor marz, Noravank Monastery 1500 m, 6 km SE Areni, 39°41′01.02“N, 45°14′06.19“E, 30.5.2013 (DN); 1 ex., C Armenia, NE Urtsadzor, Khosrov Forest SR, 39°58′32.N, 44°50′33“E, 5.6.2013 (TL); 1 ex., S Armenia, Ararat distr., Khosrov reservat., 3.-18.6.2003 (ZK); 1 ex., S Armenia, Ararat distr., Khosrov reservat., 3.-18.6.2003 (PJ); 1 ex., AM-Armenia, SE Goght, Geghard Monastery Road, 40°08′20“N, 44°48′27“E, 25.5.2016 (JK); 1 ex., AM-Armenia, Ktutsar mt., Urtsadzor 7 km NE, 39°58′32“N, 44°50′33“E, 5.6.2014 (JK); 1 ex., AM-Armenia, 2,8 km N, 2.6.2016 (JK); 4 ex., AM-Armenia, Zaritap 2,8 km N, 39°39′48“N, 45°30′41“E, 28.5.2016 (JK); 2 ex., Armenia, NE Urtsadzor, Khosrov Forest SR, 39°58′32.N, 44°50′33“E, 5.6.2013 (KH); 2 ex., AM-Armenia, Ktutsar mt., Urtsadzor 7 km NE, 39°58′32“N, 44°50′33“E, 5.6.2014 (KH); 1 ex., Armenia, Kotayk prov., Dzhrvezh, 1613 m, 40°10′38“N, 44°37′47“E, 2.6.2018 (KH); 3 ex., Armenia, Khosrov Forest, 3.6.2015 (VK); 6 ex., Armenia, 2,8 km N Zaritap, 1395 m n.m., 39°39'48"N, 45°30'41"E, 2.6.2016

(ŠH); 2 ex., ARMENIA, 1395 m n.m., 2,8 km N Zaritap, 39°39'48"N, 45°30'41"E, 28.5.2016 (ŠH); 2 ex., Armenia, NW Martiros, 1800 m, 6.6.2014 (VS); 2 ex., Armenia, E of Vayk env., 27.5.2014 (VS); 2 ex., Armenia, H41 road N of Zarintap, 27.5.2014 (PŠ); 2 ex., Armenia, N of Zaritap, 1400 m, 18.6.2019 (PŠ).

Distribution and biology. The host plant is unknown. All specimens of *A.* (*S.*) *mikhaili* **sp. nov.** type series come only from the territory of Armenia.

Etymology. This taxon is named after Mikhail L. Danilevsky for his advice and help, which he provided to the author of this description over the years.

Agapanthia (*Smaragdula*) *chvalkovskyi* **sp. nov.**
Figs. 3 ♀, 4 ♂ Holotype, 9, 16, 22

Description. Body in males 8,6-10,5 mm long, in females 9,2-11 mm long; green, blue-green, rarely only metallically blue colored.

Head slightly oval from the frontal view, slightly wider than pronotum anteriorly; lower eye lobe only slightly longer than wide; head with dense white pubescence on the forehead and on each cheek with two more or less distinct white stripes extending from the lower eye lobe to mandibles, studded with long erected black setae; the last segment of palpus maxillare elongated and pointed; antennae long, in males elytral apex exceeded with 4 antennomeres, in females exceeded with 3-4 antennomeres; Sscapus slightly wrinkled, the first 4 antennomeres with metallic colour, the others dark without metallic shine: antennae with dense white tomentum, which can form white rings on the base of the antenomeres; after 2nd antennomeres with long black erected setae on the inner side.

Pronotum (Fig. 16) rather elongated, in the anterior half slightly constricted with punctures evenly dispersed over the entire area; pronotum with sparse, long erected black setae; pronotal surface,especially from about the center to the posterior edge on each side with a thin more or less distinct stripe of white hairs. There is also a hint of a central stripe of white pubescence at the posterior pronotal edge.

Elytra long, slightly converging backwards, with sparse long erected setae shortened posteriorly behind the half; elytral apex

rounded; elytral width at humeri about 2.5-3 times less than elytral length; the punctures at the elytral base are distinct, towards the apex finer and denser; elytral punctures form only indistinct or even no transverse wrinkles; elytra appear to be less shiny due to the strong microsculpture; back third of elytra with a distinct white pubescenceScutellum longitudinal, with dense white pubescence.

Ventral side of the body covered with sparse white pubescence; legs covered with more or less dense white tomentum, which is denser on the tibia and sometimes slightly yellowish.

Genitals: parameres slightly curved, rounded at the apex (Fig. 22); aedeagus with a short tip rounded apically (Fig. 9).

Variability. Only a minimal colour deviation was found in the type series, all specimens are almost equally slightly dull metallic green. The white stripes on the pronotum are only very faint, sometimes almost barely visible.

Differential diagnosis. *A.* (*S.*) *chvalkovskyi* **sp. nov.** occurs in Georgia concurrently with *A.* (*S.*) *persicola*, from which it can be well distinguished by the following characters: by pronotal stripes of white pubescencem, it is less shiny due to the strong microsculpture, the punctures on the elytra do not form as significant transverse wrinkles along the seam as in *A.* (*S.*) *persicola*. The length of the tarsi is different too - *A.* (*S.*) *chvalkovskyi* **sp. nov.** has markedly shorter tarsi, especially the posterior ones, than *A.* (*S.*) *persicola*. The shape of male copulatory organs is also different. *A.* (*S.*) *persicola* has longer and very slender parameres (Fig. 23), the tip of the aedeagus in *A.* (*S.*) *persicola* is clearly more elongated (Fig. 11) than in *A.* (*S.*) *chvalkovskyi* **sp. nov.** *A.* (*S.*) *chvalkovskyi* **sp. nov.** is also similar to *A.* (*S.*) *chalybea* , which can be distinguished by transverse pronotum (Fig. 17) with very well pronounced yellowish white stripes. Body structure is more bulky in *A.* (*S.*) *chalybea*, elytral punctures are finer than in *A.* (*S.*) *chvalkovskyi* **sp. nov.** Paramers in *A.* (*S.*) *chalybea* (Figs 12, 24) are distinctly thin and long.

Type material. Holotype ♂, Gruzie, Gori env. Sever, 22.-25.5.2007 (KH); Paratypes 25 ex. (18♂♂, 7♀♀): 3 ex., Gruzie, Gori env. Sever, 22.-25. 5. 2007; 3 ex., Gruzie, Dedoplistskalo env., JV, 19.-21. 5. 2010 (JCH, KH); 2 ex., Gruzie centr., Bochomara env., 22.5.2017, 41°54´12.8“N, 45°08´14.5“E (LS); 1 ex., Gruzie east, NP Vaschlovani, 14.5.2017, 41°15´02.7“N, 46°25´35.5“E (LS); 1 ex.,

Georgia, Gori, 13.5.2017, 42°00´32.2“N, 44°09´05.3“E (LS); 2 ex., Georgia or., Dedoplistskaro, Vashlovani NP, 16.5.2016 (VS); 3 ex., Georgia, E of Dedoplistskaro, Vashlovani NP, 700 m, 1.-2.5.2017 (VS); 1 ex., Georgia, E of Dedoplistskaro, Vashlovani NP, 700 m, 1.-2.5.2017 (PŠ); 9 ex., Georgia, NP Vashlovani, 11.-15.5.2016, 41°15´N, 46°25´E, 200 m (PJ).

Distribution and biology. The host plant is unknown. All specimens of the type series were caught in Georgia.

Etymology. This taxon was named after its discoverer Jiří Chvalkovský.

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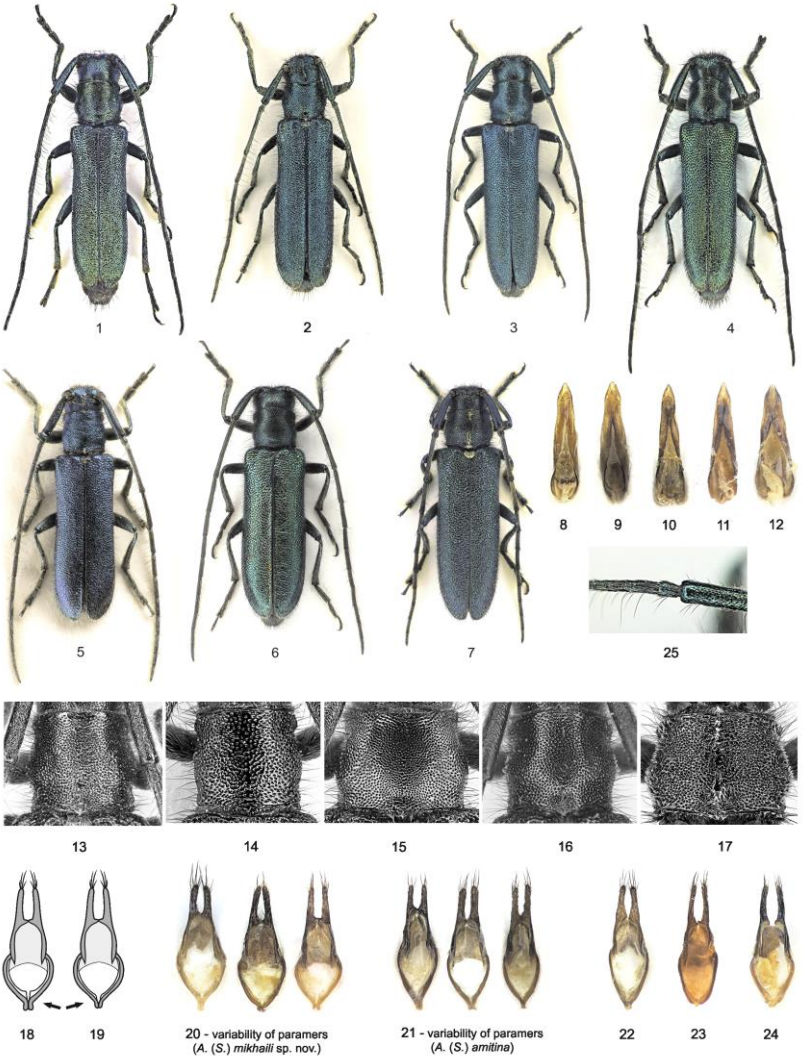

A. (*S.*) *mikhaili* sp. nov. - 1 ♂ HOLOTYPE, 2 ♀, 8,13, 18, 20, 25; *A.* (*S.*) *chvalkovskyi* sp. nov. - 3 ♀,4 ♂ HOLOTYPE, 9,16, 22; *A.* (*S.*) *amitina* - 5 ♂, 10,14, 19, 21; *A.* (*S.*) *persicola* - 6 ♂, 11,15, 23; *A.* (*S.*) *chalybaea* - 7 ♂, 12,17, 24

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