

**A NEW SUBGENUS AND TWO NEW SPECIES OF *MAGDALIS* GERMAR FROM
NORTHERN CHINA (COLEOPTERA: CURCULIONIDAE: MAGDALINAE)**

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Abstract

A **new subgenus**, *Amblyodontomagdalis* Lu and Legalov, and two **new species**, *Magdalis* (*Amblyodontomagdalis*) *flatus* Lu and Zhang and *Magdalis* (*Laemosaccidius*) *dorsalis* Lu and Zhang are described from northern China. A key to subgenera of *Magdalis* Germar of the world is provided. All type specimens are deposited in the Institute of Zoology, Chinese Academy of Sciences in Beijing, China

The genus *Magdalis* Germar belongs to the subfamily Magdalinae (Coleoptera, Curculionidae) (Morris 2002; O'Brien and Wibmer 1982; Wibmer and O'Brien 1986; Morimoto 1982; Barrios 1986; Egorov *et al.* 1996; Ter-Minassian 1972; Junk and Schenkling 1935). Although Alonso-Zarazaga and Lyal (1999) treated *Magdalis* as a genus in the tribe Magdalidini within the subfamily Mesoptiliinae, we retain it in the Magdalinae. Generally, adults of *Magdalis* species feed on tree leaves and their larvae damage host plant bark and/or branches. Some species are fruit tree pests, such as *Magdalis ruficornis* (L.), a serious pest of apple and *Aronia* in Siberia (Barrios 1986).

More than 100 species of this genus are known. Most of them are Palaearctic in distribution (Morris 2002; Egorov *et al.* 1996), with 27 species known in the Nearctic (Barrios 1986).

Magdalis contains ten subgenera at present. Hoffmann (1954) provided a key to six subgenera, including *Edo*, *Panopsis*, *Panus*, *Magdalinus*, *Magdalis* and *Neopanus*. Barrios (1986, 1995) provided a key to seven subgenera, including *Laemosaccidius*, *Edo*, *Panopsis*, *Panus*, *Odontomagdalis*, *Magdalis* and *Neopanus*. Kôno and Morimoto (1960) described the subgenus *Dagmalis*. Barrios (1984) described the subgenus *Aika*. Thus, Alonso-Zarazaga and Lyal (1999) included nine subgenera in their checklist: *Laemosaccidius*, *Edo*, *Panopsis*, *Panus*, *Odontomagdalis*, *Magdalis*, *Dagmalis*, *Aika*

and *Porrothus*. Here, we describe the new subgenus *Amblyodontomagdalis* and provide a key to the resulting ten subgenera. We also provide information about the distribution and species of these subgenera (Table 1).

Materials and Methods

All specimens are from collections of the entomology museum of the Institute of Zoology, Chinese Academy of Sciences. Observations and photomicrographs were taken through a Zeiss Stemi SV 11 stereo-microscope with a Canon G5 digital camera. Measurements were taken using an ocular micrometer and are defined as the following: body length, measured from the anterior margin of the eye to the apex of the elytra; body width, widest part of body; thorax length, dorsally from the anterior margin on the midline to the base; thorax width, widest part of thorax; rostrum length, straight line across the arc from the apex to the anterior margin of the eye.

Key to Subgenera of *Magdalis* of the World

1. Front coxae separated *Laemosaccidius* Smereczyński, 1972
- 1' Front coxae contiguous 2
2. Tarsi with single falciform claw *Dagdalis* Kôno and Morimoto, 1960
- 2' Tarsi with two normal claws 3
3. Rostrum short and straight, in male not longer than head 4
- 3' Rostrum longer, in male longer than head 5
4. Femora and claws without teeth. Eyes of male distinctly protruding
..... *Edo* Germar, 1819
- 4' Femora and claws with teeth, Eyes of male weakly protruding
..... *Aika* Barrios, 1984
5. Scutellum at same level as elytra, almost completely filling space between elytra and base of pronotum. Elytral intervals covered with deep coarse wrinkles, impunctate. Femora without or with small teeth 6
- 5' Scutellum strongly depressed or moderately declined anteriorly, not filling space between elytra and base of pronotum. Elytral intervals punctured. Femora with large teeth. If elytra covered with coarse transverse wrinkles or femoral tooth small, then antennal club as long as funicle 7
6. Antennal club oval, in both sexes shorter than funicle. Sides of pronotum strongly arcuate, strongly constricted anteriorly. Elytral intervals covered with very sparse but quite distinct hairs. Claws with teeth *Panopsis* Daniel, 1903
- 6' Antennal club of male markedly elongate, longer than funicle, densely covered with erect hairs. Sides of pronotum more weakly arcuate laterally and weakly constricted anteriorly. Elytral intervals inconspicuously pubescent. Claws simple or with teeth *Panus* Schönherr, 1823
7. Lateral margin of pronotum with carina, spine or projection 8
- 7' Lateral margin of pronotum without carina, spine or projection 9
8. Lateral margin of pronotum in apical part with carina, spine or projection. Femora and claws with teeth (in *M. fallax* Kirsch with simple claws)
..... *Odontomagdalis* Barrios 1984
- 8' Lateral margin of pronotum near middle with carina, spine or projection. Femora with teeth, claws without teeth
..... *Amblyodontomagdalis* Lu and Legalov, **new subgenus**
9. All femora with teeth, that of front femur large and pointed; if teeth relatively small, then color brownish red. Claws simple. Antennal club in both sexes shorter than funicle. Rostrum longer than head capsule. Body bare dorsally. Elytra not completely covering pygidium, intervals in most species very finely rugose,

Table 1. Distribution and species checklist of ten subgenera of *Magdalis*.

Subgenus	Distribution	Species
<i>Laemosaccidius</i> Smereczyński, 1972	Europe, Russia, China	<i>M. alni</i> Voss <i>M. dorsalis</i> Lu and Zhang, new species <i>M. exarata</i> Brisout <i>M. scutellaris</i> Daniel
<i>Dagmalis</i> Kôno and Morimoto, 1960	China, Mongolia	<i>M. kaszabi</i> Ter-Minassian <i>M. thoracicus</i> Kôno and Morimoto
<i>Edo</i> Germar, 1819	Europe, Russia, Japan, Mongolia, America	<i>M. angulicollis</i> Bohemann <i>M. cuneiformis</i> Horn <i>M. hispoides</i> LeConte <i>M. kerzhneri</i> Barrios <i>M. morio</i> Fall <i>M. myochroa</i> Reichardt <i>M. nigricornis</i> Petri. <i>M. nitidipennis</i> Bohemann <i>M. perforata</i> Horn <i>M. ruficornis</i> (L.) <i>M. serricollis</i> Reitter <i>M. margaritae</i> Barrios
<i>Aika</i> Barrios, 1984 <i>Panopsis</i> Daniel, 1903	Mongolia, China Europe, Japan, Russia	<i>M. flavicornis</i> (Gyllenhal) <i>M. quercicola</i> Weise <i>M. stricta</i> Desbrochers
<i>Panus</i> Schönherr, 1823	Europe, Russia, America	<i>M. barbicornis</i> (Latreille) <i>M. kiesenwetteri</i> Desbrochers <i>M. turcica</i> Desbrochers <i>M. villicrus</i> Desbrochers
<i>Odontomagdalis</i> Barrios, 1984	Europe, Russia, China, Mongolia, Japan, Korea, Vietnam, Afghanistan, America	<i>M. aeneus</i> Ter-Minasyan <i>M. alutacea</i> LeConte <i>M. armigera</i> (Geoffroy) <i>M. austrea</i> Fall <i>M. carbonaria</i> (L.) <i>M. caucasica</i> Tournier <i>M. convexicollis</i> Fall <i>M. dieckmanni</i> Barrios and Egorov <i>M. fallax</i> Kirsch <i>M. galloisi</i> Kono <i>M. gentilis</i> LeConte <i>M. gurjevae</i> Barrios <i>M. himalayanus</i> Mshl. <i>M. imbellis</i> (LeConte) <i>M. jezoensis</i> Kono <i>M. kabakovi</i> Barrios <i>M. koltzei</i> Heyden <i>M. lecontei</i> Horn <i>M. longicornis</i> Kiesenwetter <i>M. murzini</i> Korotyaev <i>M. proxima</i> Fall <i>M. stierlini</i> Daniel <i>M. striata</i> Fall <i>M. vitiosa</i> Fall

Table 1. Continued.

Subgenus	Distribution	Species
<i>Magdalis s. str.</i> , 1817	Holarctic	<i>M. aenescens</i> LeConte <i>M. altaiensis</i> Reitter <i>M. angustata</i> Stierl. <i>M. armicollis</i> (Say) <i>M. austriaca</i> Daniel <i>M. barbata</i> (Say) <i>M. cyanea</i> Seidl. <i>M. cyanella</i> Desbrochers <i>M. distinguenda</i> Desbrochers <i>M. duplicate</i> (Germar) <i>M. formaneki</i> Reitter <i>M. frontalis</i> (Gyllenhal) <i>M. funebris</i> Reitter <i>M. gracillis</i> (LeConte) <i>M. inconspicua</i> Horn <i>M. leucopleura</i> Fairmaire <i>M. linearis</i> (Gyllenhal) <i>M. lodosi</i> Barrios <i>M. memnonia</i> Gyllenhal <i>M. nitida</i> (Gyllenhal) <i>M. nohirai</i> Morimoto <i>M. olyra</i> (Herbst) <i>M. opaca</i> Reitter <i>M. pandura</i> (Say) <i>M. phlegmatica</i> (Herbst) <i>M. plicatula</i> Desbrochers <i>M. poncyi</i> Desbrochers <i>M. punctirostris</i> Gyllenhal <i>M. punctulata</i> Rey <i>M. rufa</i> (Germer) <i>M. rugipennis</i> Reitter <i>M. salicis</i> Horn <i>M. semicyanea</i> Desbrochers <i>M. subtinctoria</i> LeConte <i>M. syriaca</i> Desbrochers <i>M. takizawai</i> Kono <i>M. violacea</i> (L.) <i>M. weisei</i> Schreiner <i>M. cerasi</i> (L.) <i>M. delagrangei</i> Desbrochers <i>M. flatus</i> Lu and Zhang, new species
<i>Porrothous</i> Dejean, 1821	Europe, Russia, China	
<i>Amblyodontomagdalis</i> Lu and Legalov, new subgenus	China	

distinctly punctured, often with metallic or greenish blue shining, rarely brownish red *Magdalis s. str.*, 1817

9' Femora without or with inconspicuous teeth; claws usually each with a basal tooth. Antennal club in male as long as funicle. Rostrum in male nearly as long as head capsule. Elytra completely covering pygidium, intervals densely coarsely



Fig. 1. *M. flatus*, ♂, holotype. Habitus lateral view.

transversely rugose or with very fine, dull granulation, without distinct puncture
 *Porrothus* Dejean 1821

Amblyodontomagdalis Lu and Legalov, new subgenus

Type species. *Magdalis (Amblyodontomagdalis) flatus* Lu and Zhang, **new species.**

Diagnosis. Black. Rostrum longer than head but shorter than prothorax. Antennae inserted slightly in front of middle of rostrum; funicle 7-segmented, longer than antennal club; 1st flagellar segment longer than others. Head with punctures dorsally. Prothorax broader than long, with obtuse teeth near middle of the sides. Scutellum not completely filling space between elytral bases and pronotum. Elytra intervals flat. Femur with a large tooth; inner margins of tibia bisinuate and with a row of minute serration. Claws simple, without basal teeth.

Remarks. This new subgenus is intermediate in form between the subgenera *Odontomagdalis* Barrios and *Magdalis* s. str., but differs from them by its obtuse teeth on the sides of pronotum.

Etymology. The subgenus name is derived from the character of pronotum, specifically the presence of obtuse teeth near the middle of the lateral margins—*Amblyodontus* signifying “obtuse teeth.”

Magdalis (Amblyodontomagdalis) flatus Lu and Zhang, new species

(Figs. 1,2)

Holotype. China. Urumqi: Male. [Urumqi (43.8N, 87.6E), Xinjiang Antonomous Region, China, 1995. IX. 10, Leg. Ma Shijun, Xia Kailing and Chen Yonglin.]

Diagnosis. Body black. Rostrum longer than head but shorter than prothorax. Antennae inserted slightly in front of middle of the rostrum, funicle 7-segmented, longer than club, its 1st flagellar segment longer and broader than others, nearly as long as the next two segments combined. Prothorax with obtuse teeth near middle of the lateral margins, median carina distinct. Scutellum flat, not completely filling space

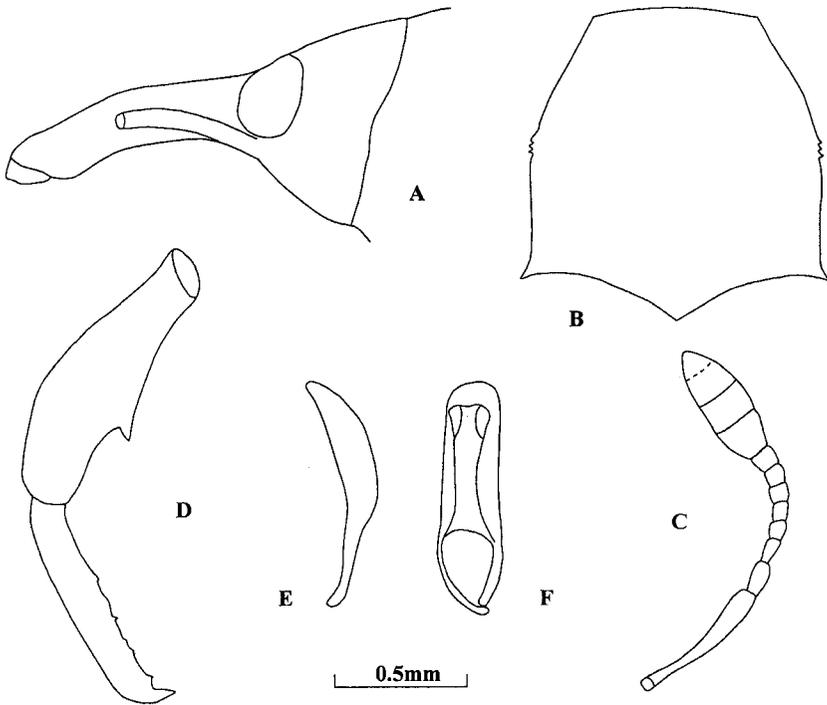


Fig. 2. *M. flatus*, ♂, holotype. **A)** Head and rostrum, lateral view; **B)** prothorax, dorsal view; **C)** antennae; **D)** femora and tibiae; **E)** aedeagus, lateral view; **F)** aedeagus, dorsal view.

between elytral bases and pronotum. Elytral striae narrower, with regular punctures; intervals flat, rugose, 2–3 times broader than striae. All femora stout and with teeth, that of profemur larger. Inner margin of tibiae minutely serrulated. Claws simple, without basal teeth.

Description. Male (Fig. 1) Elongate-oblong. Length 3.9 mm. Body black; apex of femora and tibiae dark brown, antennae and tarsi yellow. **Head** (Fig. 2A) length 0.4 mm moderately convex and dorsal surface densely punctate; venter area finely rugose. Eyes transverse, yellow, large and weakly convex, interocular space 1/2 width of base of rostrum; frons without distinct median fovea. **Rostrum** (Fig. 2A) length 0.7 mm, longer than head but shorter than prothorax, cylindrical, with moderately dense and deep punctures, punctures on dorsal basal part more dense and deep than apical part. Viewed in profile, moderately curved; viewed dorsally, almost parallel from base to antennal insertion, slightly dilated from antennal insertion to the apex. **Antennae** (Fig. 2C) inserted slightly in front of middle of the rostrum. Antennal scrobe obliquely directed toward upper ocular margin. Scape length 0.5 mm, weakly bent, slim, apex broadened, nearly as long as funicle together; funicle 7-segmented, sparsely pubescent, longer than antennal club; 1st flagellar segment longer and broader than others, nearly as long as the next two segments combined; 2nd segment shorter than 1st, but longer than others; 3rd–6th segments nearly equal in length; 7th segment slightly dilated, distinctly separated from antennal club; funicle with proportion in length from base as 10:6:4:4:4:4:5. Club length 0.4 mm, elongate oval, 3-segmented, with proportion in length from base as 14:11:19. **Prothorax** (Fig. 2B) 1.1 times as broad as long, slightly convex, apical constricted, with three obtuse teeth near middle of the sides; with distinct median carina; its apical 2/5 with a depression; disc with sparse white pubescence, covered with dense, deep, close and large punctures; base of prothorax bisinuate; hind angle expanded, acutely angled. **Scutellum**



Fig. 3. *M. dorsalis*, ♂, holotype. Habitus lateral view.

flat, on the same plane as elytra, not completely filling space between elytral bases and pronotum. **Elytra** length 2.3 mm, width 2.1 mm, 1.1 times longer than broad; elytra covered with dense white pubescence; base of elytra slightly broader than posterior of prothorax, slightly covered over prothorax; suture and margin around scutellum elevated strongly; striae narrow, with regular punctures, interspace between punctures on the same plane as elytral intervals; intervals flat, rugose, 2–3 times broader than striae. **Legs** (Fig. 2D) femora and tibiae with white pubescence. Femora stout and with teeth, that of front femur larger; tibiae strongly uncinuate at tip with several short setae behind, inner margin of tibiae bisinuate, minutely serrulate and with a bunch of sparse long setae; tarsi spongy beneath, 3rd segment broader, bilobed, 1st segment of tarsi longer than others; claws simple, without basal teeth. **Venter** covered with dense white pubescence; abdominal sternum 1 and 2 wider, flat in middle. Front coxae contiguous, the middle coxae and the hind coxae separated. **Genitalia** (Fig. 2E–F) aedeagus cylindrical, surface smooth. *Female* unknown.

Host Plant. Unknown.

Etymology. The specific epithet is derived from the flat elytral interval.

Magdalis (Laemosaccidius) dorsalis Lu and Zhang, new species
(Figs. 3, 4)

Holotype. China. Yuquan: Male. [Yuquan (near Harbin City, formerly called Ercengdianzi,) (45.4N, 127.1E), Heilongjiang Province, China, 1941.VI.15–22, collector unknown.]

Paratype. China. Huairou: Male. [Mt. Labagoumen (40.5N, 116.4E), 850–900 m, Huairou, Beijing, China, 2002. VI.20, Leg. Ren Li]

Diagnosis. Body black, dull. Front coxae separated. Rostrum short and stout, longer than head but shorter than prothorax. Antennae inserted near middle of the rostrum. Funicle 7-segmented, shorter than club, 1st segment broader than others, about as long

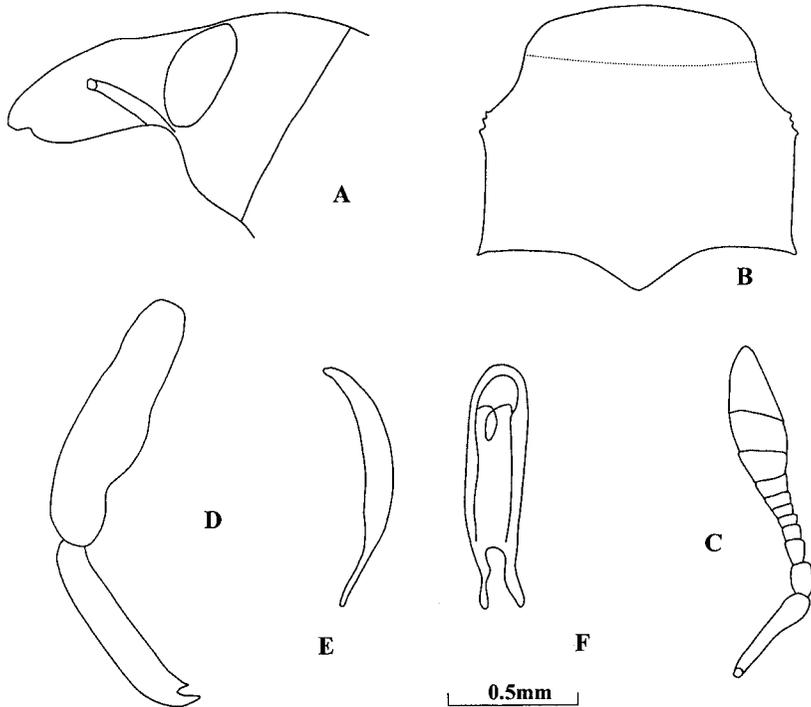


Fig. 4. *M. dorsalis*, ♂, holotype. **A)** Head and rostrum, lateral view; **B)** prothorax, dorsal view; **C)** antennae; **D)** femora and tibiae; **E)** aedeagus, lateral view; **F)** aedeagus, dorsal view.

as the 2nd segment. Prothorax constricted and depressed at apex, broadest at middle, median carina distinct; middle of the lateral margin with three denticles of the same size; basal half of the disk near median carina with distinct protuberance. Mesopisternum, mesepimeron, metepisternum, metepimeron covered with dense pubescence. Scutellum on the same plane as elytra, not completely filling space between elytral bases and pronotum. Elytral striae and intervals each with one row of brown pubescence, pubescence on intervals more distinct; striae narrower, straight, punctures deeply; intervals moderately convex, rugose, without punctures, broader than striae. Femora and tibiae with moderately dense, white, long pubescence. Front femur with one small tooth. Claws each with a basal tooth.

Description. Male (Fig. 3). Elongate-oblong. Length 3.0 mm. Body black, dull; antennae and tarsi dark brown, apical of tibiae brown. **Head** (Fig. 4A) length 0.3 mm. Dorsal part shagreened, with sparse punctures; eyes transverse, yellow, large and flat; interocular space 1/4 width of base of rostrum, moderately convex; frons without median fovea. **Rostrum** (Fig. 4A) length 0.5 mm, short and stout, with brown pubescence, longer than head but shorter than prothorax, cylindrical; parallel-sided from dorsal aspect and very slightly tapered anteriorly from lateral aspect, shagreened behind antennal insertion, remaining part sparsely punctate, apically and ventrally with long setae. **Antenna** (Fig. 4C) inserted near middle of rostrum. Antennal scrobe obliquely directed ventral, not reaching lower ocular margin. Antennal scape weakly bent, apex broadened, length 0.3 mm; funicle length 0.4 mm, longer than scape but shorter than antennal club, 7-segmented, covered with long white pubescence; 1st flagellar segment wider than others, nearly as wide as apex of scape, about as long as the 2nd segment, 2nd segment narrowest; 3rd segment as long as

7th segment; 4th–6th segment nearly equal in length, from 3rd to 7th segment gradually slightly dilated, 7th segment indistinctly separated from antennal club; funicle with proportion in length from base as 8:8:4:3:3:3:4; club length 0.5 mm, elongate oval, 3 segments, longer than funicle combined, clothed with erect white pubescence, club with proportion in length from base as 4:6:10. **Prothorax** (Fig. 4B) 1.4 times as wide as long, apex constricted and depressed, broadest at middle, median carina distinct; three equally large denticles near middle of the sides; basal half of disc near median carina with distinct protuberance; disk with dense, close and large punctures; base of prothorax bisinuate; hind angles expanded, acute. Mesoepisternum, mesepimeron, metepisternum, metepimeron covered with dense pubescence. **Scutellum** liguliform, on the same plane as elytra, covered with punctures, not completely filling space between elytral bases and pronotum. **Elytra** length 1.9 mm, width 1.7 mm, 1.1 times longer than width. Disc covered with brown pubescence; sides nearly parallel from base to declivity; base of elytra slightly wider than posterior of prothorax; basal margins around scutellum and suture elevated weakly; striae and intervals each with one row of brown pubescence, pubescence on intervals more distinct; striae narrower, straight, with deep punctures; intervals moderately convex, rugose, without punctures, wider than striae. **Legs** (Fig. 4D) femora and tibiae with moderately dense white and long pubescence. Front femur with one small tooth; tip of tibiae with strongly uncinata, inner margins of tibiae slightly bisinuate, with dense and long setae; tarsi spongy beneath, 3rd segment broader, bilobed, 1st segment longer than others, claws each with a basal tooth. **Venter** covered with dense white pubescence and punctures; abdominal sternum 1 and 2 wider, slightly depressed at middle. Coxae separated. **Genitalia** (Fig. 4E–F) aedeagus cylindrical, surface smooth. **Female** unknown.

Host Plant. Unknown.

Remarks. This new species is similar to *M. (Laemosaccidius) alni* Voss, but differs by the following characters: sides of pronotum near middle each with three denticles, elytra intervals rugose, without punctures. This new species is also similar to *M. dieckmanni* Barrios and Egorov. The main differences are: front coxae separated; scutellum on the same plane as elytra; and 1st segment of funicle as long as the 2nd.

Etymology. The specific epithet is derived from the dorsal characters of pronotum and elytra specifically the protuberance on the pronotum and pubescence on the elytra.

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