

## Two New Subterranean Staphylinids (Coleoptera) from East China

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**Abstract** Two new subterranean staphylinids are described and illustrated under the names *Lathrobium* (s. str.) *tianmushanense* and *Derops dingshanus*. The former was obtained from under dead leaves on Mt. Xi-tianmu Shan in Zhejiang Province, and the latter was found in Linggu Dong Cave at Dingshan of Yixing in Jiangsu Province, both in East China.

In the course of the investigations of the Sino-Japanese Cooperative Study on the Soil Fauna of Subtropical Forests in China made in 1989, two interesting species of subterranean staphylinids were obtained from the Tian-mu Mountains and a cave in Jiangsu. One of them belonging to the genus *Lathrobium* was obtained from under dead leaves on Mt. Xi-tianmu Shan in Zhejiang Province, while the other belonging to the genus *Derops* was found in Linggu Dong Cave at Dingshan of Yixing in Jiangsu Province.

After a careful examination, it has become apparent that the former belongs to the group of *L.* (s. str.) *pollens* SHARP (1889, p. 254) for the reason of having similar body size and conspicuous secondary sexual character of the abdomen in the male, while the latter seems to be placed near *D. okinawanus* (WATANABE, 1985, p. 447) because of having similar facies as well as secondary sexual character of the abdomen in the male. However, these species are different from the known members of the respective groups in the secondary sexual character and configuration of the genital organ in the male, and seem new to science. They will be described in the present paper. The holotypes of the two new species to be described are preserved at present in the collection of the National Science Museum (Nat. Hist.), Tokyo.

*Lathrobium* (s. str.) *tianmushanense* Y. WATANABE, sp. nov.

(Figs. 1–5)

Body length: 9.4 mm (from front margin of head to anal end); 4.3 mm (from front

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1) This study is supported by the Grant-in-aid No. 01041032 for Field Research of the Monbusho International Scientific Research Program, Japan.

margin of head to elytral apices).

Male. Body elongate, almost parallel-sided and somewhat depressed above; apterous. Colour reddish brown and moderately shining, with frontal area of head and antennae brownish red, palpi, legs and anal end brownish yellow.

Head subquadrate, slightly elevated medially and somewhat narrowed anteriorly, a little transverse (width/length=1.11); lateral sides weakly arcuate, frontal area between antennal tubercles transversely flattened and glabrous, provided with a remarkable setiferous puncture inside each antennal tubercle; disc very sparingly with coarse setiferous punctures, which are more or less closer and finer in latero-basal areas than in fronto-vertexal area; eyes minute and flat, the longitudinal diameter about one-fourth as long as the postocular part. Antennae elongate, extending to near the middle of

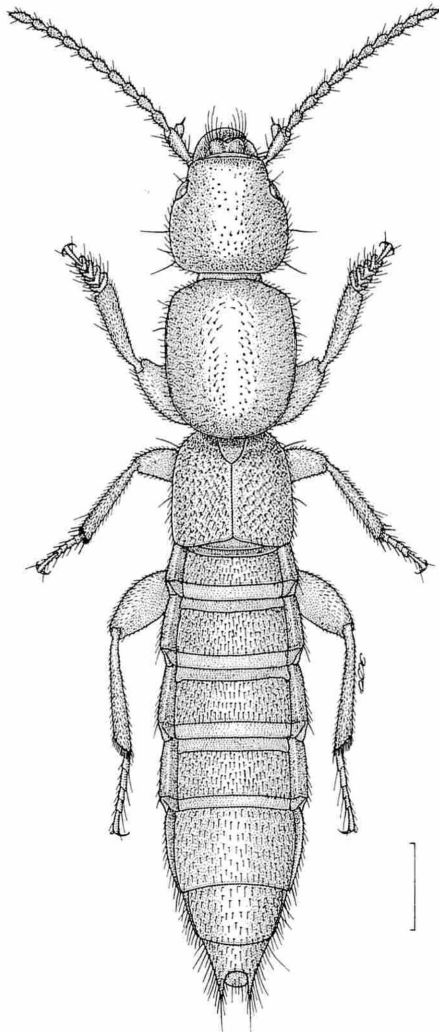


Fig. 1. *Lathrobium* (s. str.) *tianmushanense* Y. WATANABE, sp. nov., holotype, from Mt. Xi-tianmu Shan in Zhejiang Province. Scale: 1.0 mm.

pronotum, and not thickened towards the apical segment, with two proximal segments polished, 3rd subopaque and the remainings opaque, 1st segment robust and dilated apicad, more than twice as long as broad, 2nd constricted at the base, distinctly longer than broad (length/width=1.80) but remarkably shorter (2nd/1st=0.53) and a little narrower (2nd/1st=0.71) than 1st, 3rd elongate, gently dilated apicad, about twice as long as broad, slightly longer than (3rd/2nd=1.11) and as broad as 2nd, 4th about 1.5 times as long as broad but a little shorter than (4th/3rd=0.80) though as broad as 3rd, 5th to 10th more or less moniliform and equal in both length and width to one another, each distinctly longer than broad (length/width=1.40), 11th fusiform, more than twice as long as broad, considerably longer than (11th/10th=1.57) though as broad as 10th, subacuminate towards the apex.

Pronotum convex, widest at the anterior seventh and more strongly narrowed posteriad than anterior, much longer than broad (length/width=1.17), distinctly longer (pronotum/head=1.40) and slightly broader (pronotum/head=1.08) than head; lateral sides feebly arcuate in whole length as seen from above, anterior margin weakly rounded, posterior margin gently rounded but subtruncated at the middle, anterior angles obtuse and not visible from above, posterior ones narrowly rounded; surface sparsely scattered with coarse setiferous punctures except for a narrow longitudinal smooth area along the median line. Scutellum subtriangular, provided with a few minute setiferous punctures on the surface. Elytra subtrapezoidal, dilated posteriad, somewhat transverse (width/length=1.16), distinctly shorter (elytra/pronotum=0.71) and slightly narrower (elytra/pronotum=0.97) than pronotum; lateral sides feebly arcuate, posterior margin broadly emarginate through its width, posterior angles broadly rounded; surface closely punctured all over, the punctures larger and much coarser than those on pronotum. Legs relatively short; profemur markedly thickened though abruptly constricted near the apex and excavated on the inner face in apical half, so that the apical part of the excavation forms a blunt subtriangular tooth; protibia dilated

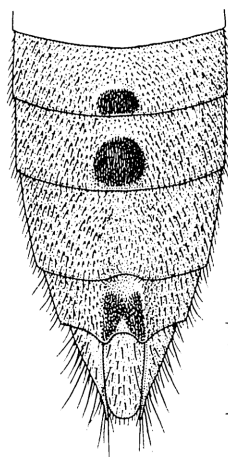


Fig. 2. Last five abdominal sternites in male of *Lathrobium* (s. str.) *tianmushanense* Y. WATANABE, sp. nov. Scale: 1.0 mm.

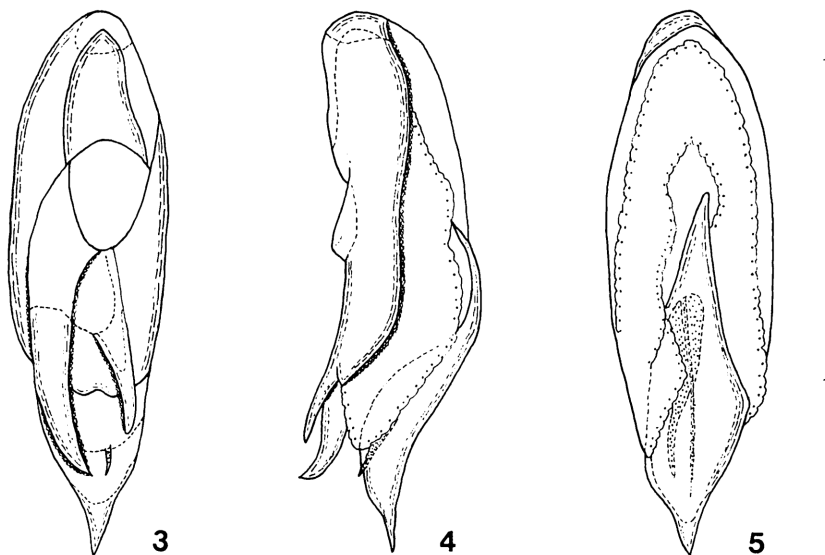


Fig. 3-5. Male genital organ of *Lathrobium* (s. str.) *tianmushanense* Y. WATANABE, sp. nov.; dorsal view (3), lateral view (4), and ventral view (5). Scale: 1.0 mm.

apicad, hollowed on the inner face in basal half and provided with five or so comb-like transverse rows of yellowish setae within the hollow; meso- and metatibiae normal; 1st to 4th protarsal segments strongly widened.

Abdomen elongate, nearly parallel-sided though abruptly narrowed from the 8th to anal end; 3rd to 6th tergites each transversely depressed along the base and rather sparingly covered with somewhat superficial setiferous punctures, 7th and 8th tergites each more sparsely and more finely punctured than on the preceding tergites; 8th sternite semicircularly excised at the middle of posterior margin, each side of the excision somewhat produced backwards and angulate, bearing a longitudinal depression along the median line in front of the excision, surface of the depression asperate except for a smooth subtriangular glabrous area at the middle just before the posterior margin; 7th sternite shallowly emarginate at the middle of posterior margin and long-elliptically depressed along the median line before the emargination, surface of the depression glabrous in posterior half, 6th sternite provided with a round spot of black pubescence at the middle of posterior margin, 5th sternite also with a semicircular spot of black pubescence at the middle just before posterior margin.

Genital organ nearly spindle-shaped. Median lobe distinctly longer than parameres, widest at the middle and more strongly narrowed apicad than basad, constricted before the pointed apical part. Parameres asymmetrical, right paramere much longer and broader than left paramere, gradually narrowed to the pointed apex and somewhat curved to the inner side, left paramere also narrowed towards the pointed apex and curved to the inner side in apical half.

Female. Unknown.

*Type specimen.* Holotype: ♂, Mt. Xi-tianmu Shan, Xian-ren-ding, Taishun County, Zhejiang Province, East China, 3-IX-1989, S. UENO leg.

*Distribution.* East China.

*Remarks.* This species is somewhat similar in general appearance to *L.* (s. str.) *imadatei* Y. WATANABE et LUO (1992, p. 48) from Mt. Wuyan-lin in Zhejiang Province and *L.* (s. str.) *yunnanum* Y. WATANABE et XIAO (1994, p. 256) from Mt. Laohu Shan in Yunnan Province, but can be readily distinguished from them by the more robust body, much stronger punctures on the elytra and markedly different configuration of the secondary sexual character of abdomen and of the genital organ in the male.

*Bionomics.* The type specimen was obtained by sifting dead leaves accumulated on the floor of a deciduous broadleaved forest, consisting of *Sorbus alnifolia*, *Pyrus handoensis*, *Viburnum sargentii*, etc., at the top of Mt. Xi-tianmu Shan at an altitude of 1,506 m.

*Etymology.* The name of the present new species is derived from that of the type locality.

***Derops dingshanus* Y. WATANABE, sp. nov.**

(Figs. 6–10)

Body length: 4.5 mm (from front margin of head to anal end); 2.9 mm (from front margin of head to elytral apices).

Male. Body subcylindrical and somewhat parallel-sided. Colour black and moderately shining, with mouth parts, two proximal antennal segments and tarsi brownish yellow, apical nine antennal segments and legs except for tarsi reddish brown.

Head subquadrate and depressed above, considerably broader across eyes than long (width/length=2.25); postocular part arcuate and gently contracted at neck; eyes relatively large and somewhat prominent, the longitudinal diameter about 1.7 times as long as postocular part; surface shallowly and obliquely depressed on each side of the middle, and densely, rather coarsely punctured all over. Antennae elongate, extending a little beyond the middle of elytra and slightly thickened in apical two segments, two proximal segments polished and the remainings opaque, all the segments distinctly longer than broad and slightly dilated apicad, 1st segment robust and more than twice as long as broad, 2nd the shortest, apparently shorter (2nd/1st=0.78) and somewhat narrower (2nd/1st=0.75) than 1st, 3rd to 6th equal in both length and width to one another, each more than 1.5 times as long as 2nd, 7th slightly shorter than (7th/6th=0.91) though as broad as 6th, 8th equal in both length and width to 7th, 10th a little shorter (10th/9th=0.90) but somewhat broader (10th/9th=1.13) than 9th, 11th distinctly longer (11th/10th=1.25) and slightly broader (11th/10th=1.11) than 10th, excavated at the apex.

Pronotum cordate and convex, slightly transverse (width/length=1.03), distinctly

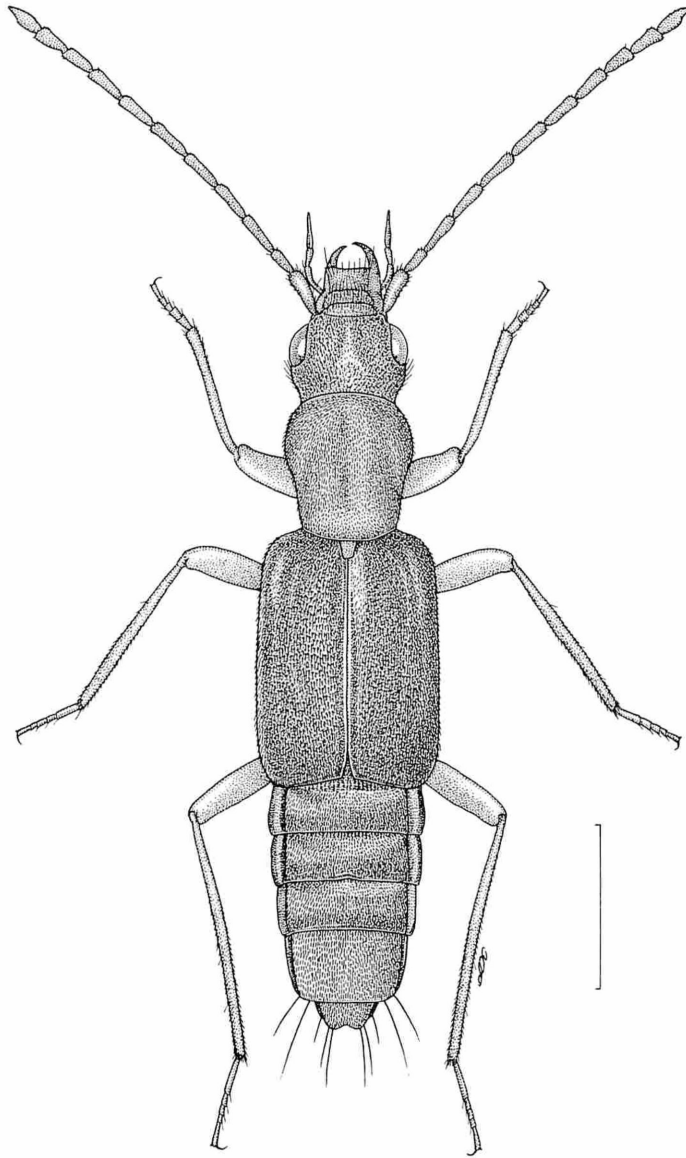


Fig. 6. *Derops dingshanus* Y. WATANABE, sp. nov., holotype, from Linggu Dong Cave on Dingshan of Yixing in Jiangsu Province. Scale: 1.0 mm.

broader than head (pronotum/head=1.23), expanded laterally in anterior halves and abruptly narrowed in posterior third; lateral sides arcuate in anterior two-thirds and almost straight in posterior third; anterior and posterior margins each feebly rounded, anterior angles bluntly angulate and invisible from above, posterior ones nearly rectangular though blunt at the corners; surface minutely and superficially punctured and cov-

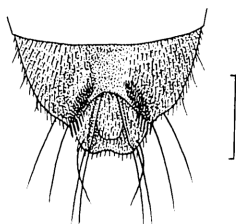


Fig. 7. Last three abdominal sternites in the male of *Derops dingshanus* Y. WATANABE, sp. nov. Sclae: 0.1 mm.

ered with fine brownish pubescence all over, bearing a shallow and subtriangular depression at the middle behind anterior margin and a vague depression at the middle before posterior margin. Scutellum small and cingulate, surface closely covered with fine superficial punctures. Elytra oblong, distinctly longer than broad (length/width=1.27), obviously longer (elytra/pronotum=1.72) and clearly broader (elytra/pronotum=1.32) than pronotum; lateral sides nearly straight, posterior margin slightly emarginate at the middle, posterior angles broadly rounded; surface densely, coarsely punctured and covered with pubescence which are longer and closer than those on pronotum, provided with two shallow and longitudinal depressions, one on each side of suture and the other on each lateral side; epipleura each provided with a fine longitudinal keel, which is abbreviated behind shoulder. Legs relatively slender, protarsus thin, basal segment of metatarsus nearly equal in length to the following three segments together.

Abdomen subcylindrical, gradually narrowed towards anal end; 4th to 7th tergites each transversely depressed along the base, surface of the depression uneven; each tergite microscopically, superficially punctured and covered with fine pubescence similar to those on pronotum; 8th tergite emarginate at the middle of posterior margin, surface similar to those of the preceding tergites; 8th sternite deeply and subtriangularly notched at the middle of posterior margin; 7th sternite broadly and semicircularly excised at the middle of posterior margin and subtrapezoidally depressed in front of the excision, surface of the depression glabrous at the medio-posterior area but closely and coarsely asperate on each side of the glabrous area, the projecting part on each side of the excision being provided with six or so blackish rigid cilia.

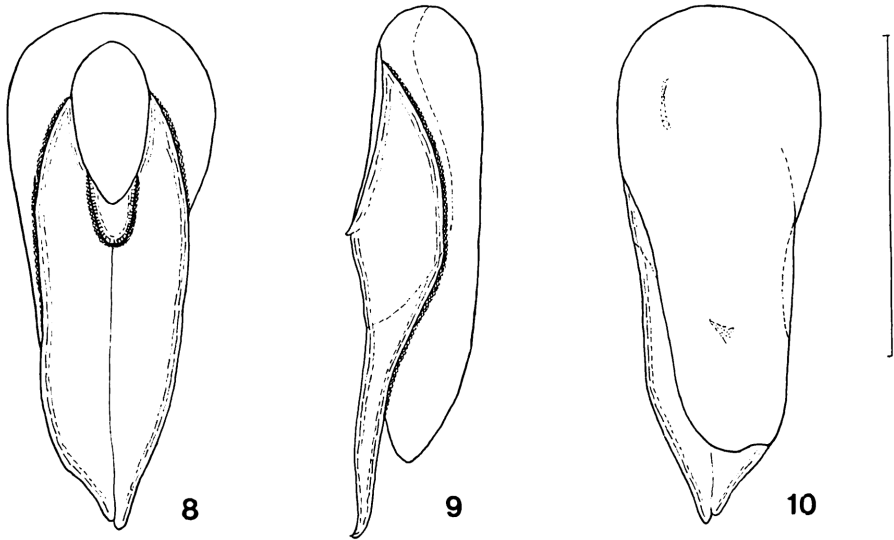
Genital organ spindle-shaped and moderately sclerotized except for ventral side of median lobe. Median lobe shorter than fused paramere, narrowed apicad and somewhat curved to left side in apical two-thirds, and broadly rounded at the apex except for a small emargination near the middle as seen from ventral side. Fused paramere somewhat asymmetrical and relatively broad, slightly curved to left side in apical part, constricted near the middle and then gradually narrowed basad and abruptly so in apical part, the tip of which is slightly divided into two minute lobes.

Female. Unknown.

*Type specimen.* Holotype: ♂, Linggu Dong Cave, Dingshan, Yixing, Jiangsu Province, East China, 17-IX-1989, S. UENO & K. ISHIKAWA leg.

*Distribution.* East China.

*Remarks.* The present new species seems to come near *D. okinawanus* in having



Figs. 8–10. Male genital organ of *Derops dingshanus* Y. WATANABE, sp. nov.; dorsal view (8), lateral view (9), and ventral view (10). Scale: 0.5 mm.

similar secondary sexual character of the abdomen in the male, but can be distinguished from it by the following points: pronotum much more finely punctured, elytra more coarsely punctured, the 8th abdominal tergite in the male more distinctly emarginate at the middle of posterior margin, each projecting part of the 8th abdominal sternite in the male more coarsely asperate, and the different configuration of the male genital organ.

*Bionomics.* The unique type specimen of this new species was found in a muddy side passage of the type cave several metres above the water of an underground stream, which flowed out from below the entrance to the cave. Therefore, it may have entered the underground domain along the stream, though the surface did not seem favourable for harbouring *Derops*.

*Etymology.* The specific epithet of the present new species is derived from “Dingshan” in which lies the type locality (Linggu Dong Cave).

#### Acknowledgement

I wish to express my hearty thanks to Professor Emeritus Gentaro IMADATÉ, Tokyo Medical and Dental University, and Professor YIN Wen-ying, Shanghai Institute of Entomology, Academia Sinica, for their kind help through the Sino-Japanese cooperative study, and to Dr. Shun-Ichi UÉNO, National Science Museum (Nat. Hist.), Tokyo, for his kindness in giving me the opportunity to study the interesting specimens and much valuable advice on the present study. Deep gratitude is also due to Dr. Kiyoshi ISHII, Dokkyo University School of Medicine, Mibu, Tochigi, for giving me



useful information about the collecting data.

## 要 約

渡辺泰明：中国東部から採集されたハネカクシ科の2新種。—— 1989年に実施された中日共同学術研究「中国の亜熱帯森林における土壌動物相の研究」の調査を通じて、浙江省の天目山およびその近隣地域から採集されたハネカクシ類を検討した結果、2新種が見出されたので下記のとおり命名・記載した。

### 1. *Lathrobium* (s. str.) *tianmushanense* Y. WATANABE

西天目山の山頂1,506 m付近に堆積した落葉を篩って得られた本種は、体長および雄の腹部に表れる第二次性徴の形状から *L.* (s. str.) *pollens* グループに含まれるが、腹部第5および第6腹板の後縁直前の中央域にそれぞれ黒色の毛斑を有することで、このグループの他の種から容易に区別される。

### 2. *Derops dingshanus* Y. WATANABE

天目山の約100 km北東の丁山の霊谷洞内から採集された本種は、雄の腹部第二次性徴を含めた外部形態が、沖縄本島から報告された *D. okinawanus* に類似している。しかし前胸背板の点刻がはるかに細かく、翅鞘の点刻は逆により粗く、雄の腹部第8節の腹板後縁の中央がより強くえぐられ、その両側突出部のいぼ状隆起構造がより粗いこと、そして雄交尾器の形状が違うことによって区別される。

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