

中国正鳃金龟属暨四新种记述*

(鞘翅目: 鳃金龟科)

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摘要 本文记述中国新纪录正鳃金龟属 *Malaisius* Arrow (1941) 及4个新种——云南松正鳃金龟 *Malaisius piniae*, 介正鳃金龟 *M. intermedius*, 背黑正鳃金龟 *M. melanodiscus* 及闽正鳃金龟 *M. fujianensis*。结合4新种之特征, 重新描述了本属属征, 指出正鳃金龟属与歪鳃金龟属 *Cyphochilus* Waterhouse 近缘。

关键词 鞘翅目 鳃金龟科 正鳃金龟属 新种

正鳃金龟属 *Malaisius* 是 Arrow 于1941年根据产于缅甸的模式种 *Malaisius mollis* 的7个雄性标本而建立的。现结合本文描述的四个新种特征, 重新描述属征如下。

体中型到大型, 狭长, 体上面除有具毛刻点外, 尚被有宽大乳白鳞片, 组成乳白条斑或斑点。上唇对称, 相当鼓突, 下缘中段常强烈凹陷, 额中部有多少可见的额凹, 复眼大而鼓凸。触角10节, 鳃片部3节, 雄者十分长大, 雌者则甚短小。前胸背板短阔, 侧缘显著弯扩, 前后侧角皆钝角形。鞘翅缝肋及4条纵肋明显, 背面2条纵肋常为具鳞刻点列一分为三, 缘折外缘有膜质饰边。足较纤弱, 前足胫节外缘2—3齿, 内缘距发达, 爪下缘中段有1枚齿突。雄虫外生殖器阳基侧突不对称, 左片长大于右片。

正鳃金龟属与歪鳃金龟属 *Cyphochilus* Waterhouse 十分近缘。歪鳃金龟的上唇甚不对称, 而正鳃金龟属上唇对称端正。二属之区别可以检索表表示。

1(2) 上唇对称, 体背面仅有乳白鳞片组成的条斑或斑点, 雄虫外生殖器阳基侧突形状简单, 左片大于右片……正鳃金龟属 *Malaisius*

2(1) 上唇不对称, 右半强度肿大前凸, 体表密被鳞片, 常盖住底色, 雄虫外生殖器阳基侧突形状十分复杂……歪鳃金龟属 *Cyphochilus*

种 检 查 表

1(2) 头面、前胸背板及鞘翅无鳞片构成的乳白条斑, 后足基节与股节被有微红色长毛, 与后胸腹板毛被相似, 雄虫触角鳃片部长度几及柄部之倍。体长19—22mm; 体阔9—10mm……………软正鳃金龟 *Malaisius mollis* Arrow

2(1) 头面、前胸背板及鞘翅除有具毛刻点外, 有鳞片构成的乳白色条斑和斑点, 后足基节与股节毛被与后胸腹板毛被显然不同, 雄虫触角鳃片部长于柄部之倍半或二倍又半:

3(4) 鞘翅背面2纵肋简单, 雄虫外生殖器阳基侧突较粗, 左片端部扩大, 下缘略角状突出(图1—7)。体长18—21.4mm……………云南松正鳃金龟, 新种 *M. piniae* sp. nov.

4(3) 鞘翅背面2纵肋, 至少在前段复分为3条细狭纵肋:

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* 请伯林先生为特征图覆墨, 谨此致谢。

- 5(6)雄虫触角鳃片部长达其柄部之二倍半,鞘翅背面 2 纵肋前半段复分为三,后半段仅复分为二或简单。唇基长大,下颏须末节较小,背面无削痕。体长 20mm.....介正鳃金龟,新种 *M. intermedius* sp. nov.
- 6(5)雄虫触角鳃片部之长度仅及其柄部之倍半,鞘翅背面 2 纵肋完全复分为 3 条细纵肋:
- 7(8)头面、鞘翅盘区黑褐色,下颏须末节扁平,背面削痕宽大。体长 20mm.....背黑正鳃金龟,新种 *M. melanodiscus* sp. nov.
- 8(7)全体淡黄褐色,下颏须末节削痕小,体长 17—22mm.....闽正鳃金龟,新种 *M. fujianensis* sp. nov.

云南松正鳃金龟,新种 *Malaisius pinae* sp. nov.

体长: 雄 18.3—19.6mm, 雌 19—21.4mm; 体阔: 雄 8—9mm, 雌 8.9—10.2mm。

体中型狭长。体色茶褐,有时头面及腹部深褐,雌体色泽常较深。体上面除被有乳白鳞片外,尚密被乳黄色短毛。体颇光亮。

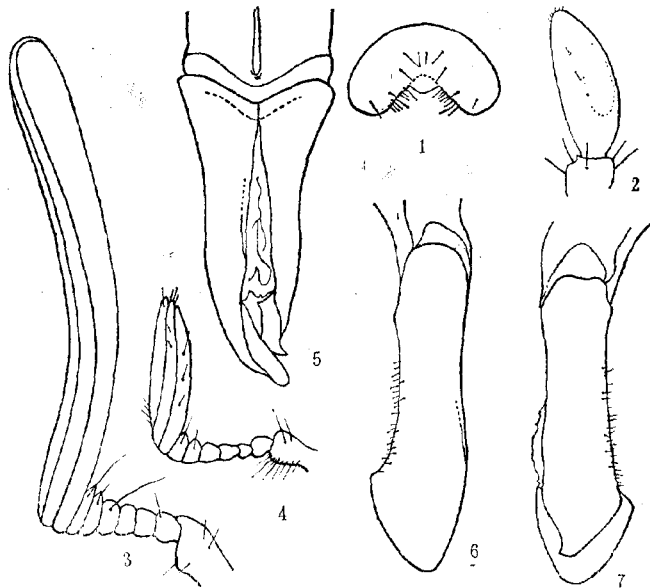


图 1—7 云南松正鳃金龟,新种 *Malaisius pinae* sp. nov.

1. 上唇(labrum) 2. 下颏须末节 (ultimate segment of maxipalp) 3. ♂触角 (antenna of male) 4. ♀触角 (antenna of female) 5—7. 阳基侧突 (paramere) (5. 背面(dorsal view) 6. 左侧 (leftside view) 7. 右侧 (right side view))

头阔大,头面匀密被有乳黄色针尖状卧毛,复眼内侧后部常密被乳白鳞片而呈乳白三角形斑。唇基短阔,侧缘弧形;额凹浅。复眼圆大。上唇十分鼓凸,下缘内凹(图 1),下颏须末节较短小,近纺锤形,上面削痕不显(图 2)。触角: 雄者柄部各节很粗壮,鳃片部十分长大,达柄部长之 2.5 倍或更长(图 3),雌者则很短小(图 4)。前胸背板阔,密布针尖形卧毛,中纵有乳白纵带,带区凹陷及一纵沟,基部两侧常有 20 左右鳞片组成的白斑,侧缘强度扩出,后段弧形内弯,最阔点前于中点,前侧角略前伸,近圆弧形,后侧角略上翘,圆弧形,前后缘皆无边框。小盾片半椭圆形,匀被乳白色卧毛。鞘翅狭长,4 条纵肋皆显著,每纵肋两侧各有 1—2 列乳黄尖狭鳞片,鳞片排列不很规则,背面 3 道列间带被有乳白椭圆

鳞片(雌体常较多而密),但多有蹿失;外侧间带常密被茸毛,多数雌体则乳白鳞片密叠,呈一道鲜明白边,缘折于肩后向下弧形扩出,外沿有明显膜质饰边。臀板短阔,末端钝圆,雌体短阔尤著,密被短毛,常有尖狭鳞片杂生,有时中纵有2道由披针形鳞片组成的乳黄纵线。胸下密被长软绒毛,常有少数鳞片杂生。雄虫腹部中央常凹陷呈纵沟,末腹板中央凹折成纵沟。足较细长,前足胫节外缘2—3齿(雄),或3齿(雌),爪成对对称,爪下缘有一近三角形爪齿。雄虫外生殖器阳基侧突较大,左片明显大于右片,右片末端呈喙突状,并向外侧折转(图5—7)。

寄主:云南松 *Pinus yunnanensis*。

正模♂,云南弥勒县乌衣,1800m,1983。V.尹光强采;配模♀,同正模。副模:4♂♂,5♀♀,同正模;1♂,云南永胜县六德,2250m,1984。VII.8,刘大军采;1♂,云南华坪县,1955。VI;1♀,云南沾益县白水,2200m,刘锐章采;2♀♀,云南永仁县,1955。VI;2♀♀,云南倘旷县,1960。VI.4;1♀,云南昆明,1974。V.28,毛金龙采。

本新种与软正鳃金龟 *Malaisius mollis* Arrow 十分肖似,今列表以示二种之区别。

	软正鳃金龟 <i>Malaisius mollis</i> Arrow	云南松正鳃金龟,新种 <i>Malaisius pinus</i> sp. nov.
触角 体背面 后足基节、股节之 毛被	♂: 鳃片部长度几及柄部之倍 无乳白鳞片构成之纵带或斑点 与后胸腹板毛被相似,密被微红长毛	♂: 鳃片部长度超过柄部二倍半或更长 有乳白鳞片构成之纵带及斑点 与后胸腹板毛被完全不同,仅稀被粗短、长短不一的毛和刚毛

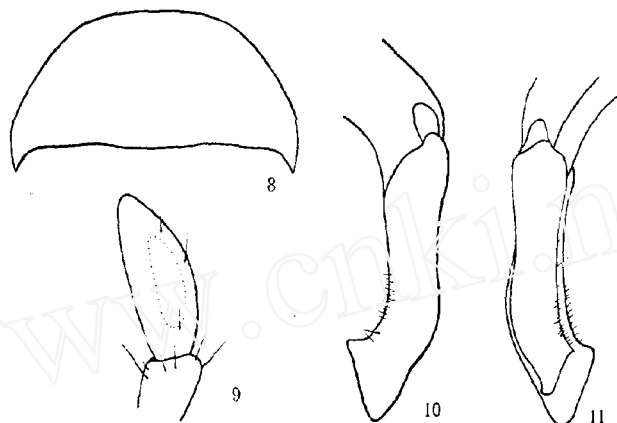
生物学 成虫严重危害云南松,大发生时,成片松林之松针被啮食殆尽,林业生产大受影响。

介正鳃金龟,新种 *Malaisius intermedius* sp. nov.

体长20mm,体阔8.7mm。体大型,狭长,鞘翅肩后微扩阔。全体淡黄褐色,腹部色略深。颇光亮。

头较长,唇基长大,略近梯形(图8),前缘高高折翘,匀被乳黄狭披针形鳞片;额凹甚浅,被相似鳞片,复眼内侧鳞片叠密,形成一乳黄色长三角形斑;下颏须末节短壮,背面外侧有削痕(图9);触角鳃片部长大,十分接近柄部二倍半,柄部各节较粗壮。前胸背板轮廓与前一种十分相似,唯前侧有一圆形滑亮无毛区,其前侧散布细毛,背面密被鳞片,中纵及基部两侧中段为密叠的大椭圆乳白或乳黄色鳞片,其余鳞片与头面的相似。小盾片基部阔,末端圆尖,被披针形鳞片。鞘翅狭长,纵肋、缝肋凸而滑亮,缝肋内侧有乳黄鳞片;背面二纵肋为椭圆形鳞片列一分为三,后部三分之一仅见一分为二或一条,中间一条最阔最凸出;背面3间带被叠密鳞片,呈3条乳白纵带,中间一条乳白纵带中段基狭,外侧第四间带具披针形鳞片,第五间带密被茸毛;缘折外沿膜质饰边狭。臀板短阔,侧缘近直,末端圆尖,密被狭长鳞片,前臀板被相似鳞片。足较细长,前足胫节外缘2齿,有第三齿痕迹。爪长大,爪下齿近中位。雄外生殖器之阳基侧突与前一种相似,唯本种明显较狭较短,如图10、11。

正模♂,云南云龙县漕涧,2600m,1980。V.14,云龙组采(标本跗爪部多残损,仅

图 8—11 介正鳃金龟, 新种 *Malaisius intermedius* sp. nov.

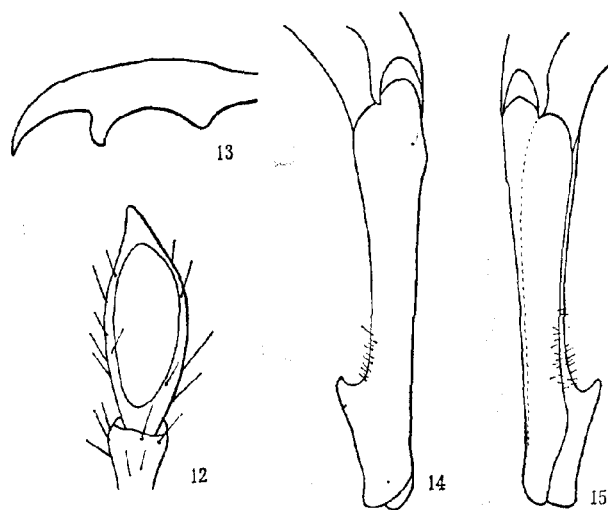
8. 唇基 (clypeus) 9. 下颚须末节 (ultimate segment of maxipalp) 10. 阳基侧突左侧 (left-side view of paramere) 11. 阳基侧突右侧 (right-side view of paramere)

右后足完整)。

本种与云南松正鳃金龟 *Malaisius pinae* 十分近似, 主要区别在于本种鞘翅背面二纵肋一分为三, 唇基长大, ♂外生殖器之阳基侧突有明显差异。

背黑正鳃金龟, 新种 *Malaisius melanodiscus* sp. nov.

体长 20mm, 体阔 8.5mm。体大型, 狭长。体棕褐色, 头面、鞘翅背面及腹部 1—5 腹板黑褐色。光泽较暗。

图 12—15 背黑正鳃金龟, 新种 *Malaisius melanodiscus* sp. nov.

12. 下颚须末节 (ultimate segment of maxipalp) 13. 爪 (claw) 14. 阳基侧突左侧 (left-side view of paramere) 15. 阳基侧突右侧 (right-side view of paramere)

头大,唇基短阔近梯形,密布深大具针尖形鳞片刻点,头面较粗糙不平,密布粗大刻点,额凹较显著,刻点具针尖形鳞片(多数已磨灭),复眼内侧鳞片组成眉形斑;上唇阔大,鼓凸;下颏须末节扁大,背面有明显大型削痕(图 12);雄触角柄部较细长,鳃片部较短,长不及柄部长之倍半(1.4:1)。前胸背板十分隆拱,中纵乳白条斑只达四分之三处;另有前侧、后侧角、后缘中段由乳黄色椭圆鳞片组成的三对小斑,余处匀密布针尖形乳黄鳞片,最阔点接近中点,侧缘后段十分内弯,后侧角接近直角形。小盾片十分短阔。鞘翅被鳞与介正鳃金龟 *Malaisius intermedius* 十分相似,背面二纵肋明显一分为三,自基部直达端凸。臀板三角形,侧缘直,末端尖。前足胫节外缘 3 齿,基齿最弱。爪较长,爪下齿短,略前于中点(图 13)。腹部 1—5 腹板中凹,形成宽浅纵沟,末腹板无中纵沟。雄外生殖器之阳基侧突狭长而直,左片略大于右片,端部下缘向前延伸似钩(图 14、15)。

正模♂,贵州水城,1983,杨臣瑾采(右后足,左前足有缺损)。

本种与闽正鳃金龟 *Malaisius fujianensis* 十分近似,但本种鞘翅背面黑褐色,下颏须末节扁阔,背面削痕大而显,阳基侧突长直。

闽正鳃金龟,新种 *Malaisius fujianensis* sp. nov.

体长: 雄 17—19.5mm,雌 22mm;体阔: 雄 7.4—8mm,雌 10.3mm。体中型到大型,狭长,鞘翅于肩后明显弧形扩出,雌体大于雄体。体近栗色,雌体及腹面色较深。光泽较弱。

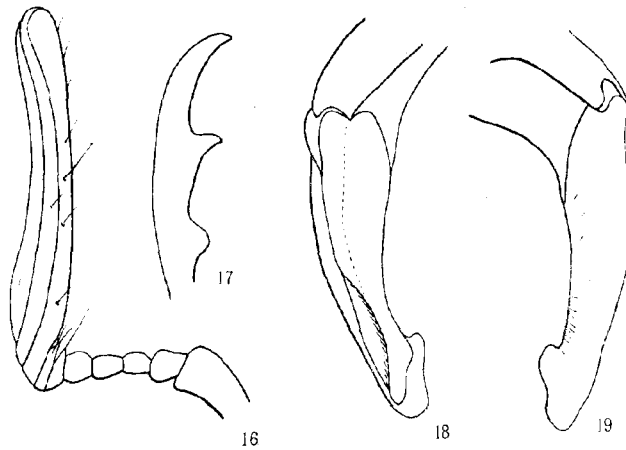


图 16—19 闽正鳃金龟,新种 *Malaisius fujianensis* sp. nov.

16. ♂触角 (antenna of male) 17. 爪 (claw) 18. 阳基侧突左侧 (left-side view of paramere)
19. 阳基侧突右侧 (right-side view of paramere)

头较短阔,唇基短,似梯形,侧缘斜弧形,边缘十分折翘,匀被乳黄针尖状卧毛,头面粗糙皱褶,均被乳黄针尖形卧毛,复眼内侧有 30 左右长披针形鳞片,组成一近三角形白斑,额凹较深显,下颏须末节背面削痕明显。触角柄部较长,雄鳃片部较短壮,长度小于柄部长之倍半(1.3—1.4:1)(图 16)。前胸背板与背黑正鳃金龟 *Malaisius melanodiscus* 十分相似,但最阔点明显前于中点,除乳白条斑及斑点外,密被乳黄色针尖形卧毛。小盾片半

椭圆形。鞘翅狭长,背面二纵肋为乳黄色披针形到卵圆形鳞片列一分为三,由翅基直达端凸,以中央一条小纵肋较高较宽,肋间带密叠大型椭圆乳白鳞片,成乳白纵带,雌体外侧间带也密叠鳞片,组成鲜明的乳白纵带。臀板:雄侧缘直,末端尖,并略见延伸;雌则短阔,末端弧圆。前足胫节外缘3齿,基齿微弱。爪较细弱,爪下齿接近中位(图17)。雄外生殖器之阳基侧突较短而微见下弯,左片明显大于右片,左片末端略呈钩形(图18、19)。雌体背面除乳白纵带、斑点外,被乳黄色披针形鳞片。

正模♂,福建建阳桂林,1980. VI. 8,吴志江采。配模♀,福建建阳勘头,1975. V. 26,虞佩玉采。副模:1♂,福建,1933. VII. 4;1♂,福建莱州,1980. V. 22,福建林业厅;1♀,福建崇安挂墩,1981. VI. 6。

本种与背黑正鳃金龟 *Malaisius melanodiscus* 十分相似,但本种额凹深显,前胸背板最阔点明显前于中点,臀板末端微见延伸,雄外生殖器之阳基侧突较短而弯曲,据之可以识别。

参 考 文 献

- Arrow, G. J. 1941—1942 Entomological results from the Swedish Expedition 1934 to Burma and British India. Coleoptera: Melolonthidae. *Arkiv för Zoologi* 33A(8): 4—6.
- 1946—1947 Entomological results from the Swedish Expedition 1934 to Burma and British India. Coleoptera: Melolonthidae. *Arkiv för Zoologi* 38A(9): 31, Pt. II. fig. 3.
- Waterhouse, C. O. 1867 On some new lamellicorn beetles belonging to the family Melolonthidae. *The entomologist's monthly magazine*, 4: 141—144.

NOTES ON THE GENUS *MALAIISIUS* ARROW WITH FOUR NEW SPECIES FROM CHINA

(COLEOPTERA: MELOLONTHIDAE)

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This paper deals with four new species of the melolonthid genus *Malaisius* Arrow (1941) from China. All types are kept in the Institute of Zoology, Academia Sinica, Beijing.

On the base of features of genotype species and four new species, the generic characteristics is redescribed as follows:

Body oblong, middle to large size, upper surface, excepted with punctures each contain a cetiform scale, and with punctures each with a large milky-white scale formed longitudinal patches and other form patches. Labrum symmetrical, middle of its lower margin notched strongly. Frontal depression visible. Eyes large and bulging. Antennal club of male very long, and the female's very short. Pronotum broad, lateral margins expanded obviously, front and hind angles obtuse. Elytra long, each with sharply elevated narrow sutural costa and four longitudinal costae, usually two dorsal costae are divided respectively into two or three by punctate striate with scales. Legs rather slender, outer margin of front tibia with two or

three denticles, claw with a sharp and short vertical tooth at the middle. Parameres of male genitalia asymmetrical, the left paramere longer and larger than the right one.

Closely related to the genus *Cyphochilus* Waterhouse(1867), and easily separated from following key.

- 1(2) Labrum symmetrical, on upper surface with longitudinal stripes and spots scaly, parameres of male genitalia simple, left paramere larger than the right one *Malaisius*
 2(1) Labrum obviously asymmetrical, upper surface covered densely with large scales, parameres of male genitalia rather complex *Cyphochilus*

***Malaisius pinae* sp. nov.** (figs. 1—7)

Body length: 18.3—19.6mm (♂), 19—21.4mm (♀); width: 8—9mm(♂), 8.9—10.2mm(♀).

Closely resembles to the genotype species *Malaisius mollis*, but can be differentiated by the following aspects:

	<i>Malaisius pinae</i> sp. nov.	<i>Malaisius mollis</i> Arrow
Antenna	♂: Length of the club two and a half times longer than the footstalk	♂: Length of the club nearly twice as long as the footstalk
upperside	with milk-white longitudinal stripes and spots scaly	without milk-white longitudinal stripes and spots scaly
clothing hairs on hind coxa and femur	dissimilar to <i>metasternum</i> , only with coarsely long and short hairs	alike to <i>metasternum</i> , clothed densely with reddish long hairs

Holotype ♂, Wuyi of Mile County, Yunnan, 1800 m, 24.3°N, 103.4°E, May 1983, collected by Yin Guang-qiang; allotype ♀, same as holotype. Paratypes: 4 ♂♂, 5 ♀♀, same as holotype; 1 ♂, Liude of Yongsheng County, Yunnan, 2250 m, 26.6°N, 100.8°E, 8, July 1984, collected by Liu Da-jun; 1 ♂, Huaping County, Yunnan, 26.6°N, 101.2°E, June 1955; 1 ♀, Baishui of Zhanyi County, Yunnan, 2200 m, 25.6°N, 103.8°E, collected by Liu Rui-zhang; 2 ♀♀, Yongren County, Yunnan, 26.1°N, 101.7°E, June 1955; 2 ♀♀, Tangtang of Xuanwei County, Yunnan, 26.6°N, 104.2°E, 4, June 1960; 1 ♀, Kunmin, Yunnan, 25.0°N, 102.7°E, 28, May 1974, collected by Mao Jin-long.

Host plant: *Pinus yunnanensis*

***Malaisius intermedius* sp. nov.** (figs. 8—11)

Body length: 20 mm; width: 8.7 mm.

Body oblong, large in size, pale yellowish brown, rather shining.

Head longer, clypeus somewhat trapezoid (fig. 8), clothed with milk-yellow and narrow lanceolated scales; frontal depression shallowly, covered with similar scales, inside of eyes with two long-triangle milk-yellow patches; ultimate segment of maxilla short and stout, with a small callus (fig. 9). Male's antennal club very long almost two and a half times longer than the footstalk. Pronotum densely covered with scales, and at the middle-longitudinal and sides the scales densely and pully. Scutellum broad and rounded at apex, clothing with lanceolated scales. Elytra long and narrowly, sutural costa and longitudinal costae convex and glabrous, two dorsal costae are subdivided respectively into three by scale rows, but at hind

part into two or combined into one. Pygidium short and broad, apex rounded point, densely with narrow scales, propygidium with similar scales. Outer margin of front tibia bidentate, with rudimentary base tooth. Parameres of male genitalia as shown in figs. 10, 11.

Closely resemble to *Malaisius piniae* sp. nov., but distinguished by two dorsal costae of elytra subdivided into three respectively, clypeus longer and broad, parameres narrower and shorter obviously.

Holotype ♂, Caojian of Yunlong County, Yunnan, 2600 m, 25.9°N, 99.3°E, 14, May 1980, collected by Yunlong Group (right hind leg is complete only).

***Malaisius melanodiscus* sp. nov.** (figs. 12—15)

Body length: 20 mm; width: 3.5 mm.

Resembles to the new species *Malaisius fujianensis*, but distinguished by the upper surface of head, elytra and 1—5 sterna of abdomen dark brown, ultimate segment of maxillary palp with a large callus distinctly (fig. 12), and parameres of male genitalia long and rather straight (figs. 14, 15).

Holotype ♂, Shuicheng County, Guizhou, 26.6°N, 104.8°E, 1983, collected by Yang Chen-jin (left front leg and right hind leg are incomplete).

***Malaisius fujianensis* sp. nov.** (figs. 16—19)

Body length: ♂ 17—19.5 mm, ♀ 22 mm; width: ♂ 7.4—8 mm, ♀ 19.3 mm.

This new species is allied to the *Malaisius melanodiscus* sp. nov., but distinguishable from the latter by frontal depression deep and distinct, nearly chestnut in color, and parameres of male genitalia shorter and curved (figs. 18, 19).

Holotype ♂, Guiling of Jianyang County, Fujian, 27.3°N, 118.1°E, 8, June 1980, collected by Wu Zhi-jiang; allotype ♀, Aotou of Jianyang County, Fujian, 27.3°N, 118.1°E, 26, May 1973, collected by Yu Pei-yu. Paratypes: 1 ♂, Fujian, 4, July 1933; 1 ♂, Laizhou, Fujian, 26.6°N, 118.0°E, 22, May 1980; 1 ♀, Guadeng of Chongan County, Fujian, 27.7°N, 118.0°E, 6, June 1981.

Key words Coleoptera Melolonthidae *Malaisius* new species