Elytra, *Tokyo*, New Series, **6** (1): 141–147
May 25, 2016

A New Rove Beetle Species (Coleoptera, Staphylinidae) of China: *Erichsonius* (*Sectophilonthus*) *luoi* sp. nov.

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Abstract *Erichsonius* (*Sectophilonthus*) *luoi* sp. nov. is described, figured and distinguished from the Chinese species and those abroad.

Introduction

The *Erichsonius* fauna of China is poorly known. Seven species only are described from this palaeo-historically, zoogeographically and ecologically mega-diverse country (Bernhauer, 1939; Herman, 2001; Schülke & Smetana, 2015; Uhlig & Watanabe, 1992; Watanabe, 2001; Zheng, 1990, 1993): *Actobius chinensis* Bernhauer, 1939; *Erichsonius transversiceps* Zheng, 1990; *Erichsonius pullus* Zheng, 1993; *Erichsonius puncticulosus* Zheng, 1993; *Erichsonius* (*Sectophilonthus*) *nishikawai* Watanabe, 2001; *Erichsonius* (*S.*) *jiuzhaiensis* Watanabe, 2001; *Erichsonius* (*S.*) *yunnanus* Watanabe, 2001.

The old records of *E. horni* (Bernhauer, 1922), *E.* (*S.*) *japonicus* (Cameron, 1933), and *E.* (*S.*) *kobensis* (Cameron, 1933) of China are very probably based on misidentifications.

New material recently collected shows a distinctly higher diversity of the *Erichsonius* fauna in China, amongst them rather large individuals of a new species which were collected by Y. Watanabe in co-operation with Mr. Zhi-Yi Luo, Shanghai Institute of Entomology, Academia Sinica, China. This species is described in the paper presented.

Material and Methods

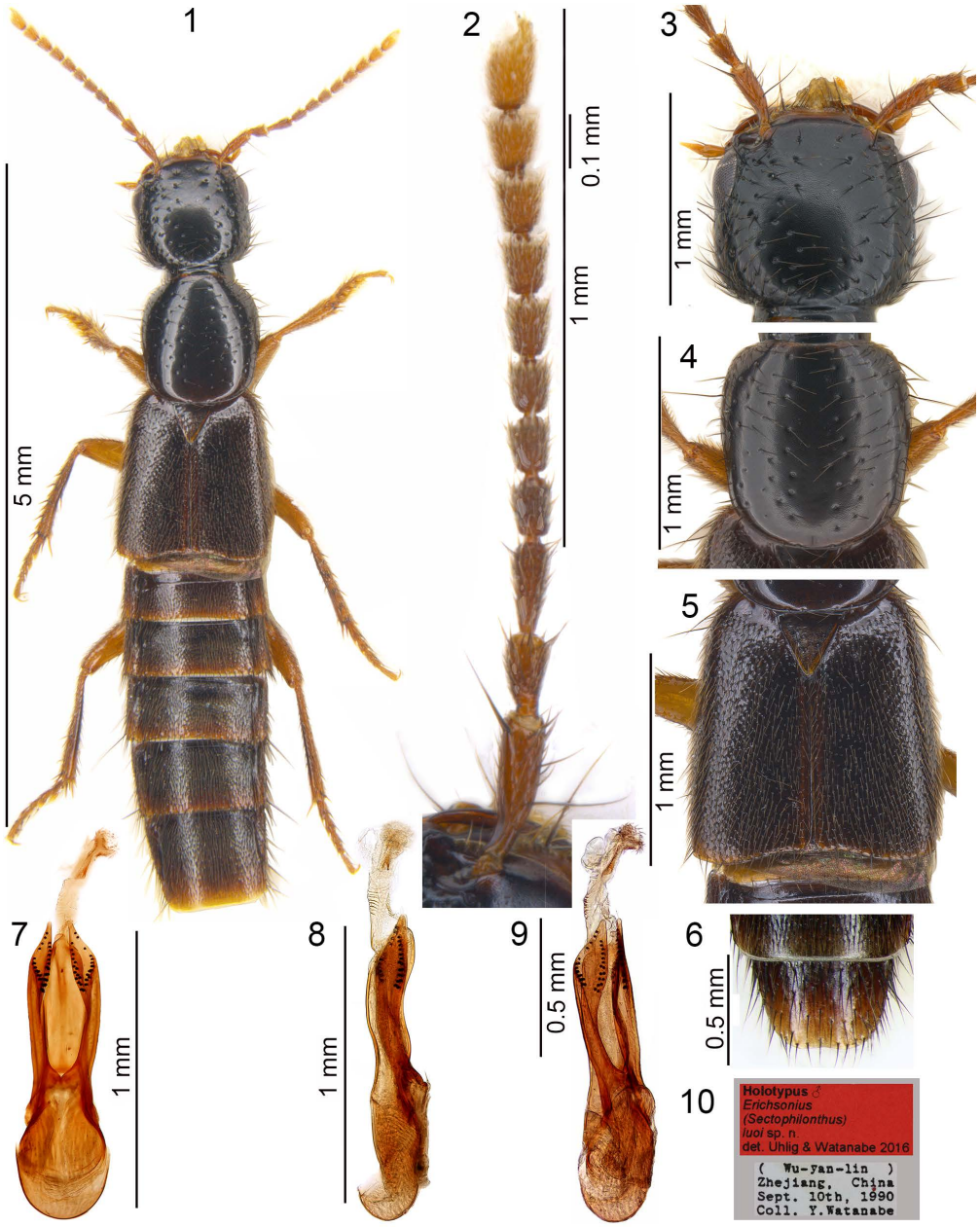
The terms and methods follow those used in previous papers on *Erichsonius* (Uhlig, 1988, 1989; Uhlig & Watanabe, 1992; Uhlig & Janák, 2013, for the techniques of photography and image processing see especially Uhlig & Janák, 2009). Abbreviations used in the text are derived from Latin and English terms and explained in Table 2. Measurements and indices are cited in the text in the following order:

$\bar{X}$ ± SD (HT/Min–Max) = arithmetic mean of males and females ± standard deviation (holotype / smallest – largest specimen).

Because the interior puncture series of the pronotum consists often on left and right side of different numbers of punctures, this is indicated by e.g., 1+7|9.

The following acronyms are used to indicate the depository of specimens:

TUAA	Laboratory of Entomology, Tokyo University of Agriculture, Atsugi, Japan
MFNB	Museum für Naturkunde, Berlin, Germany



Figs. 1–10. Holotype of *Erichsonius* (*Sectophilonthus*) *luoi* sp. nov. —— 1, Habitus; 2, left antenna; 3, head; 4, pronotum; 5, elytra; 6, tergites VIII and VII with palisade fringe; 7, aedeagus in transmitted light: ventral; 8, lateral; 9, 1/3 lateral; 10, type and locality labels.

Table 1. *Erichsonius* (*Sectophilonthus*) *luoi* sp. nov.: measurements and length/width indices of antennomeres of holotype.

Antennomere	1	2	3	4	5	6	7	8	9	10	11
Length (µm)	300	164	200	113	109	100	100	100	109	109	200
Width (µm)	109	91	73	76	82	85	91	91	100	109	100
Index	2.75	1.80	2.75	1.48	1.33	1.17	1.10	1.10	1.09	1.00	2.00

Erichsonius* (*Sectophilonthus*) *luoi M. UHLIG & Y. WATANABE, sp. nov.

[Japanese name: Ruo-munesuji-migiwahanekakushi]

(Figs. 1–20)

Length. HT 7.1 mm. Anterior body length 3.2 mm.

Habitus of a rather large and stout *Sectophilonthus* with large elytra (Fig. 1).

Colour (Figs. 1–6). Pitchy. Head pitchy black. Mouthparts, antennae, tergite II and legs yellowish brown. Middle segments of antennae (3) 4–8 (9), meso- and metatibiae infuscate. Posterior margin of urites slightly paler.

Caput (Figs. 1, 3). Of rounded quadrangular shape [i LC:TO = 0.99], temples parallel sided, eyes only slightly prominent [i TO:TTe = 1.03], about two third as long as temples [i LO:LTe = 0.65]. Caput slightly convex transversely. Caput slightly shorter [i LC:LP = 0.88], but nearly as broad as pronotum [i TO:TP = 0.97].

Measurements, indices and ranges see Table 2.

Antennae (Figs. 1, 2) long and slender, all antennomeres except 10 elongate but antennomere 10 as broad as long [i L10:T10 = 1.00]. For proportions of the antennal segments of the holotype see Table 1.

Thorax. Pronotum (Figs. 1, 4) longer than broad [i LP:TP = 1.10], of rounded trapezoid shape, slightly narrower posteriorly, broadest at first third of its length, transversely convex normally. Scutellum (Figs. 1, 5). Elytra (Figs. 1, 5) large, distinctly longer and broader as pronotum [i LE:LP = 1.29; i TE:TP = 1.31], together longer than broad [i LE:TE = 1.08], of rounded long-rectangular shape, sides slightly rounded and dilated posteriorly, broadest at four-fifths of their length. Posterior margin of elytra rounded obtuse-angled, latero-posterior marginal part slightly produced. Metathoracic wings fully developed.

Abdomen (Figs. 1, 6). Staphylininae-shaped, urite IV broadest. Terga III to V with feeble basal impressions. Tergite VII (Fig. 6) with completely developed membranous fringe at its posterior margin.

Punctation. Head and pronotum strongly but sparingly, elytra moderately strongly and densely, abdomen finely and densely punctured. Interior series of pronotum consists of 1 + 7|9 [1 + 9 (7 - 10)] punctures.

Microsculpture of head (Fig. 3) and pronotum (Fig. 4) consists of dense and distinct meshes. Elytra smooth (Fig. 5). Tergites (Fig. 6) with fine meshes and transverse waves.

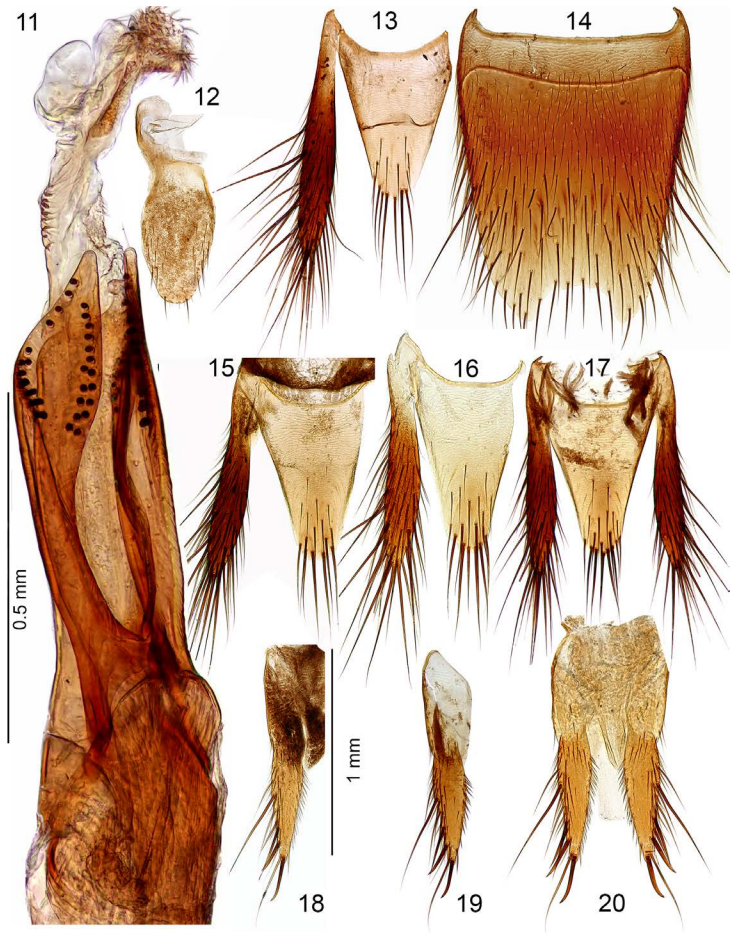
M a l e (Figs. 1–9, 11–14). Tarsomeres one to four of protarsi dilated, nearly as broad as apex of protibia. Tergite X (Fig. 13) rounded apically, posterior margin bears about 3-1-2 long and strong bristles and fine cuticular fringes. Sternite VIII (Fig. 14) broadly arcuately emarginated at posterior margin, at posterior margin with moderately long and strong bristles. Sternite IX (Fig. 12) with asymmetrical basal process. Distal margin evenly rounded. Punctures at left and right divided by an impunctate

Table 2. *Erichsonius* (*Sectophilonthus*) *luoi* sp. nov: Measurements and indices, abbreviations and terminology. Abbreviations are derived from Latin or Greek anatomical terms and English words (see also UHLIG & WATANABE, 1992).

		Male	Females			Males and Females		
		HT	$\bar{X}$ ± SD n = 4	Min	Max	$\bar{X}$ ± SD n = 5	Min	Max
LCo	(mm)	7.1	6.7 ± 0.22	6.5	7.0	6.8 ± 0.25	6.5	7.1
LCa	(mm)	3.2	3.2 ± 0.04	3.1	3.2	3.2 ± 0.03	3.1	3.2
L5	(mm)	0.109	0.098 ± 0.004	0.095	0.104	0.100 ± 0.006	0.095	0.109
T5	(mm)	0.082	0.077 ± 0.004	0.073	0.082	0.079 ± 0.005	0.073	0.085
i L5:T5		1.329	1.279 ± 0.062	1.222	1.357	1.279 ± 0.054	1.222	1.357
L10	(mm)	0.109	0.110 ± 0.002	0.109	0.113	0.110 ± 0.002	0.109	0.113
T10	(mm)	0.109	0.102 ± 0.006	0.095	0.109	0.103 ± 0.006	0.095	0.109
i L10:T10		1.000	1.083 ± 0.063	1.000	1.154	1.066 ± 0.066	1.000	1.154
LC	(mm)	0.91	0.91 ± 0.024	0.89	0.95	0.91 ± 0.021	0.89	0.95
TO	(mm)	0.92	0.91 ± 0.034	0.88	0.95	0.91 ± 0.030	0.88	0.95
TTe	(mm)	0.89	0.90 ± 0.031	0.87	0.94	0.90 ± 0.027	0.87	0.94
LO	(mm)	0.28	0.30 ± 0.009	0.29	0.31	0.30 ± 0.012	0.28	0.31
LTe	(mm)	0.44	0.43 ± 0.035	0.39	0.47	0.43 ± 0.031	0.39	0.47
i LC:TO		0.99	1.01 ± 0.013	0.99	1.02	1.00 ± 0.013	0.99	1.02
i TO:TTe		1.03	1.01 ± 0.008	1.00	1.02	1.01 ± 0.011	1.00	1.03
i LO:LTe		0.65	0.71 ± 0.046	0.65	0.76	0.70 ± 0.050	0.65	0.76
i LC:LP		0.88	0.92 ± 0.026	0.88	0.93	0.91 ± 0.029	0.88	0.93
i TO:TP		0.97	0.98 ± 0.009	0.97	0.99	0.98 ± 0.010	0.97	0.99
i LP:TP		1.10	1.08 ± 0.021	1.06	1.11	1.08 ± 0.020	1.06	1.11
LP	(mm)	1.04	1.00 ± 0.037	0.96	1.04	1.00 ± 0.037	0.96	1.04
TP	(mm)	0.95	0.92 ± 0.034	0.89	0.96	0.93 ± 0.031	0.89	0.96
i LE:LP		1.29	1.38 ± 0.035	1.33	1.42	1.36 ± 0.050	1.29	1.42
i TE:TP		1.31	1.38 ± 0.030	1.36	1.43	1.37 ± 0.043	1.31	1.43
LE	(mm)	1.34	1.37 ± 0.04	1.33	1.42	1.37 ± 0.04	1.33	1.42
TE	(mm)	1.24	1.28 ± 0.03	1.24	1.31	1.27 ± 0.03	1.24	1.31
i LE:TE		1.08	1.07 ± 0.03	1.04	1.10	1.08 ± 0.02	1.04	1.10
LA	(mm)	1.03						
TA	(mm)	0.155						
TAPr	(mm)	0.058						
LPm	(mm)	0.75						
DA-Pm	(mm)	0.045						
i (DA-Pm):LPm		0.061						

A aedoeagus, male copulatory organ. **C** head. **Ca** anterior body (head + pronotum + elytra). **Co** body. **D** distance. **DA-Pm** distance from top of median lobe to top of parameral rami. **E** elytron (elytra). **HT** holotype. **i** index or ratio. **L** length. **LA** length of aedeagus (length of median lobe). **LC** length of head. **LCa** length of anterior body. **LCo** length of body. **LE** length of elytra. **LO** length of eyes. **LP** length of pronotum. **LPm** length of paramere(s). **LTe** length of temples. **L5(L10)** length of 5th(10th) antennal segment. **Max** maximum. **Min** minimum. **n** total of specimens. **O** eye. **P** pronotum. **Pm** paramere(s). **PT** paratype(s). **Pr** protuberance. **SD** standard deviation. **T** width. **TA** width of top of median lobe. **TAPr** width of protuberance of median lobe. **TE** width of elytra. **TO** width of head across eyes. **TP** width of pronotum. **TTe** width of head at the temples. **Te** temple(s). $\bar{X}$ arithmetic mean.

longitudinal midline, with 1-1 slightly stronger apical bristles and few fine hairs. Aedeagus (Figs. 7–9, 11), position in repose 0°. Measurements and indices see Table 2. Parameral rami slightly exceeding top of median lobe [DAPm = 0.045 mm, i (DAPm): LPm = + 0.061. Median lobe with ventral keel which is slightly dilated subapically. Distal orifice situated dorso-apically. Parameral rami situated parallel of the median lobe, in its apical half distinctly dilated. The dilated apical part (Figs. 9, 11) at the inner side with 31 peg setae. The 31 peg setae are clearly arranged in a ventral ramus (16 setae)



Figs. 11–20. Holotype of *Erichsonius* (*Sectophilonthus*) *luoi* sp. nov. (11–14). —— 11, Paramere and aedeagus with evaginated internal sac 1/3 lateral; 12, sternite IX; 13, tergite IX/X; 14, sternite VIII. —— Female paratypes of *E*. (*S*.) *luoi* sp. nov. (15–20). —— 15, Tergites IX/X PTf1; 16, PTf2; 17, PTf3; 18, right valve / right and left valves PTf1; 19, PTf3; 20, PTf2.

and a dorsal ramus (15 setae). Apices of parameral rami with two thin terminal setae each. Internal sac with fine spines and squamous structures according to Figs. 7–9, 11.

F e m a l e (Figs. 15–20). Anterior tarsi not dilated. Tergite X (Figs. 15–17) rounded wedge-shaped, evenly rounded at posterior margin, bearing rather long apical setae and fine cuticular fringes. Valves (Figs. 18–20), valval external structures consist of spines, hairs and bristles. Digging spines: z1, y2. Large and strong bristles: z2, y3(α, β), y4. Large and thin bristles: y1, y3(γ, δ), y5(α). Hairs: all remaining.

Types. Holotype ♂. Labels (Fig. 10): // (Wu-yan-lin) / Zhejiang, China / Sept. 10th, 1990 / Coll. Y. Watanabe // Holotypus ♂ / Erichsonius / (Sectophilonthus) / luoi sp. n. / det. Uhlig & Watanabe 2016 [red] //. Deposited in MFNB. Paratypes: 8 ♀♀ PT with same data (3 ♀♀ in MFNB, 5 ♀♀ TUAA), 1 ♀ PT same locality data, but Sept. 11th 1990 (MFNB).

All types were obtained from under dead leaves at streamsides in the Wu-yan-lin Area, Tai-shan

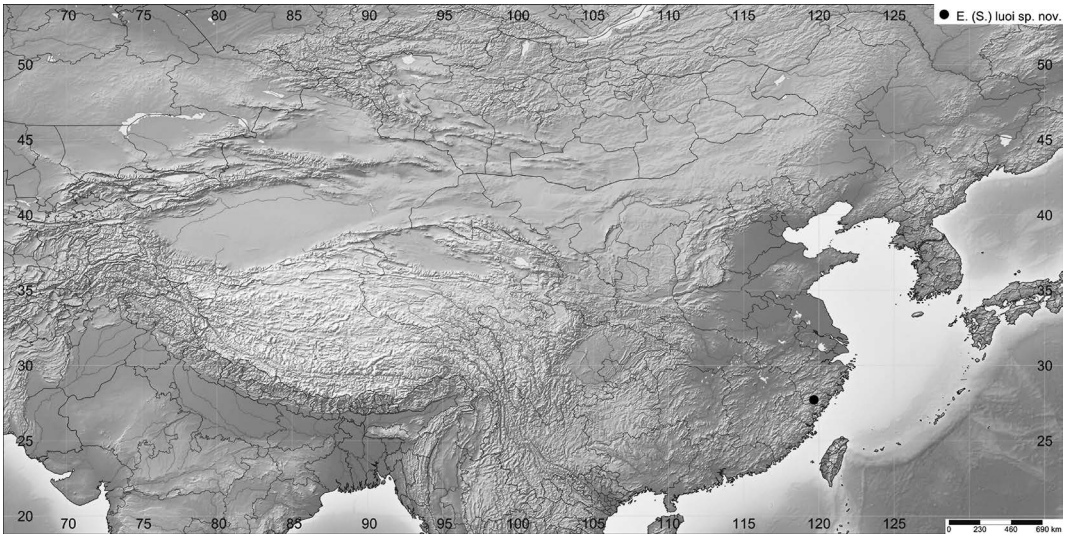


Fig. 21. Type locality of *Erichsonius* (*Sectophilonthus*) *luoi* sp. nov. in south-east China near the southern border of Zhejiang Province to Fujian Province.

County, Zhejiang Province, at an altitude of about 800 m.

Diagnosis. *Erichsonius* (*Sectophilonthus*) *luoi* sp. nov. (LCo 6.5–7.1 mm) is distinctly larger than the Chinese species *E. transversiceps* ZHENG, 1990 (4.0 mm), *E. pullus* ZHENG, 1993 (3.9 mm), *E. puncticulosus* ZHENG, 1993 (3.6–4.5 mm), *E.* (*S.*) *nishikawai* WATANABE, 2001 (5.1–5.4 mm), *E.* (*S.*) *jiuzhaiensis* WATANABE, 2001 (4.0–4.4 mm), and *E.* (*S.*) *yunnanus* WATANABE, 2001 (3.8–4.2 mm), but only slightly larger than *Actobius chinensis* BERNHAUER, 1939 [now *E. chinensis* (BERNHAUER, 1939)] (6.1 mm). *E.* (*S.*) *luoi* sp. nov. is also distinguished from the latter by more widely and more coarserly punctured head, pronotum and elytra.

The new species differs from the other larger Palaearctic species:

by distinctly less densely punctured head, pronotum and elytra: *E.* (s. str.) *subopacus* (HOCHHUTH, 1851), *E.* (*S.*) *kobensis* (CAMERON, 1933), *E.* (*S.*) *nouristanicus* COIFFAIT, 1978, *E.* (*S.*) *vulgaris* UHLIG & WATANABE, 1992, *E. major* (CAMERON, 1943), *E. monticola* (CAMERON, 1943), and *E. nepalicus* (COIFFAIT, 1981);

by distinctly longer elytra and developed palisade fringe: *E.* (*S.*) *itoi* UHLIG et WATANABE, 1992;

by larger body and larger eyes (i LO:LTe 0.65–0.76 versus 0.53–0.65), with more widely and more coarsely punctured head, pronotum and elytra: *E.* (*S.*) *rivularis* (KIESENWETTER, 1858);

and by the structure of aedeagus and female genitalia: all species.

Distribution. China (Zhejiang Prov.).

Etymology. The new species is dedicated to Assoc. Prof. Zhi-Yi LUO, Shanghai Institute of Entomology, Academia Sinica, China, for co-operative work on the Wu-yan-lin Area and for searching this new species in the field.

Acknowledgements

We, Y. WATANABE in particular, are greatly obliged to Assoc. Prof. Zhi-Yi LUO, Shanghai Institute of Entomology, Academia Sinica, Shanghai, China, for his kind help for co-operative work in the Wu-yan-lin Area. We thank Dipl.-Ing. Michael SCHÜLKE, Berlin, for hints on the distribution of Chi-

nese *Erichsonius* species and for checking literature data and the manuscript. Bernd JAEGER and Dr. Barbara UHLIG, both Berlin, supported the processing of photographs. Howard FRANK, Gainesville, FLA U.S.A., improved the manuscript by providing valuable scientific and linguistic comments.

要　　約

Manfred UHLIG・渡辺泰明 : 中国浙江省烏岩嶺地域で採集された *Erichsonius* 属の 1 新種（鞘翅目ハネカクシ科）．――――中国浙江省南部の烏岩嶺地域から採集された *Erichsonius* 属の 1 未知種を検討した結果，未記載種と判断されたので *Erichsonius luoi* と命名・記載した．この種はこれまでの既知種に比べやや大型で，鞘翅が相対的に長く，頭部・前胸背板および鞘翅の点刻に差異が認められる．また，雄交尾器の形状も異なっているので容易にこれまでの既知種から区別できる．種名は採集にご協力いただいた上海昆虫研究所の羅 志叉副教授に献名した．

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Manuscript received 4 March 2016;
revised and accepted 20 March 2016.