

Lectotype Designation for the Japanese Species of *Arthromacra*  
(Coleoptera, Tenebrionidae, Lagriinae)

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**Abstract** All the types of the Japanese species of the lagriine genus *Arthromacra* described by MARSEUL, LEWIS, KÔNO and NAKANE are re-examined. After due consideration to IMASAKA's species, the lectotypes are designated for *Arthromacra viridissima* LEWIS, *A. sumptuosa* LEWIS, and *A. decora* MARSEUL. *Arthromacra apicalis* KÔNO is regarded as a junior synonym of *A. viridissima*.

In 2005, IMASAKA revised the Japanese species of the lagriine genus *Arthromacra* based on a large number of specimens, and classified them into 14 species in three species-groups. Regrettably, he did not examine the types of *A. viridissima* LEWIS, 1895, which contained many specimens collected from various localities. Furthermore, he did not clarify the status of *A. apicalis* KÔNO, 1929.

The authors re-examined all the types of the lagriine species described by MARSEUL (1876), LEWIS (1895), KÔNO (1929) and NAKANE (1963), and examined nearly one thousand specimens of this genus from Japan including the species described by IMASAKA. The results of their study are presented herein.

Before going into details, they would like to express their cordial thanks to Mr. Maxwell V. L. BARCLAY (Natural History Museum, London), Dr. Thierry DEUVE (Muséum national d'Histoire naturelle, Paris), and Dr. Masahiro ÔHARA (Hokkaido University Museum), for loaning types. We also thank Dr. Syozo OSAWA (Hiroshima City), Dr. Takeshi YÔRÔ (Kamakura City), Mr. Yukihiro HIRANO (Odawara City), Mr. Shôichi IMASAKA (Kurume City), Mr. Nobuo SANO (Kagawa Pref.), Mr. Shin-ichi TANAKA (Shûnan City), Mr. Kazuyuki KAWADA (Kawasaki City), Mr. Tatsunosuke KIMOTO (Tokyo), Mr. Hiroshi OTOBE (Tsu City), and Mr. Takashi SHIMADA (Tokyo) for offering specimens and references. Appreciation should be expressed to Dr. Shûhei

NOMURA (National Museum of Nature and Science, Tokyo), for giving the author invaluable advice. Finally, they thank Emeritus Curator Dr. Shun-Ichi UÉNO for critically reading the manuscript of this paper.

The authors were able to borrow all the cotype specimens of *Arthromacra* described from Japan in the LEWIS collection preserved in the Natural History Museum, London. This amounted to 37 specimens and the details are as shown in the list.

Determination and judgment of sexes are by the authors. Names and dates penciled in parentheses on the back of the pasteboard are presumably written by LEWIS.

**List of *Arthromacra* collected by LEWIS and  
preserved in the Natural History Museum, London**

1. *Arthromacra viridissima* LEWIS, ♂: (Miya / 5.80 // Type / H. T. // Japan. / G. LEWIS. / 1910-320 // Miyanoshita. // 11.V.-14.V.80. // *Arthromacra / viridissima / Type ♂ LEWIS.*
2. *A. viridissima*, ♂: (Miya 5 / 80) // Japan. / G. LEWIS. / 1910-320. // Miyanoshita. / 24.IV.-3.V.80.
3. *A. viridissima*, ♀: (Miya 5 / 80) // Miyanoshita. / 11.V.-14.V.80. // Japan. / G. LEWIS. / 1910-320.
4. *A. viridissima*, ♀: (Miya 5 / 80) // Japan. / G. LEWIS. / 1910-320. // Miyanoshita. / 11.V.-14.V.80.
5. *A. viridissima*, ♂: (Miya 5 / 80) // Japan. / G. LEWIS. / 1910-320. // Miyanoshita. / 24.IV.-3.V.80.
6. *A. viridissima*, ♂: (Miya 5 / 80) // Japan. / G. LEWIS. / 1910-320. // Miyanoshita. / 11.V.-14.V.80.
7. *A. viridissima*, ♂: (Miya) // Miyanoshita. // Japan. / G. LEWIS. / 1910-320.
8. *A. viridissima*, ♂: (Miya) // Miyanoshita. // Japan. / G. LEWIS. / 1910-320.
9. *A. viridissima*, ♀: (24.5.80) // Japan. / G. LEWIS. / 1910-320. // Oyama / 24.V.-26.V.80.
10. *A. viridissima*, ♀: (Oyama 5 / 80) // Japan. / G. LEWIS. / 1910-320. // Oyama / 24.V.-26.V.80.
11. *A. viridissima*, ♀: (Oyama 5 / 80) // Japan. / G. LEWIS. / 1910-320. // Oyama. / 24.V.-26.V.80. // *Arthromacra / viridissima / LEWIS.*
12. *A. viridissima*, ♂: (Oyama 24.5.80) // Japan. / G. LEWIS. / 1910-320. // Oyama. / 24.V.-26.V.80.
13. *A. majuscula* NAKANE, ♀: (?/8/?) // Japan. / G. LEWIS. / B. M. 1926-369. Nikko. / 10.VIII.-18.VIII.81.
14. *A. kinodai* NAKANE, ♀: (16 / 5 / 81) // Japan. / G. LEWIS. / 1910-320. // Hi-toyoshi. / 15.V.-17.V.81.
15. *A. viridissima*, ♂: (18. / 6 / 81) // Japan. / G. LEWIS. / 1910-320. // Kashiwagi 15.VI.-24.VI.81.

16. *A. flavipes* NAKANE, ♂: (18. / 6 / 81) // Japan. / G. LEWIS. / 1910–320. // Kashiwagi / 15.VI.–24.VI.81.
17. *A. flavipes*, ♂: (18. / 6 / 81) // Japan. / G. LEWIS. / 1910–320. // Kashiwagi / 15.VI.–24.VI.81.
18. *A. kinodai*, ♀: (13 / 5 / 81) // Japan. / G. LEWIS. / 1910–320. // Yuyama / 10.V.–14.V.81 // *Arthromacra / viridissima* / Type ♀ LEWIS.
- 19–20. *A. kyushuensis* NAKANE, ♀: // Higo. // Japan. / G. L.
- 21–22. *A. kyushuensis*, ♂: (Higo) // Japan. / G. LEWIS. / 1910–320.
23. *A. kyushuensis*, ♂: (Higo) // Japan. / G. LEWIS. / 1910–320.
24. *A. kyushuensis*, ♂: (Hi) // Japan. / G. LEWIS. / 1910–320.
25. *A. kyushuensis*, ♂: (Higo) // Japan. / G. LEWIS. / 1910–320.
26. *A. kyushuensis*, ♀: (Higo) // Japan. / G. LEWIS. / 1910–320.
27. *A. kyushuensis*, ♀: // *Arthromacra / viridissima* / LEWIS // Japan. / G. LEWIS. / 1910–320.
28. *A. majuscula*, ♀: (1.8.81) // Japan. / G. LEWIS. / 1910–320. \*Judging from the collecting data, the locality is estimated to be the Wada Tôge Pass.
29. *A. takahashii* IMASAKA, ♀: // Japan. / G. LEWIS. / 1910–320.
30. *A. viridissima*, ♀: // Japan. / G. LEWIS. / 1910–320.
31. *A. kyushuensis*, ♂: // Japan. / G. LEWIS. / 1910–320. // Sharp Coll. / 1905–313.
32. *A. sumptuosa* LEWIS, ♀: (Nikko) // Type / H. T. // Japan. / G. LEWIS. / 1910–320. // Nikko. // *Arthromacra / sumptuosa* / Type. LEWIS.
33. *A. sumptuosa*, ♂: (Chiuzenji) // Chiuzenji. // Japan. / G. LEWIS. / 1910–320.
34. *A. sumptuosa*, ♂: (8.5.81) // Type / H. T. // Japan. / G. LEWIS. / 1910–320. // Hitoyoshi. / 3.V.–8.V.81 // *Arthromacra / higoensis* / Type LEWIS.
35. *A. decora* (MARSEUL), ♀: (Kobe June / 71) // Type / H. T. // Japan. / G. LEWIS. / 1910–320. // Kobe. // *LAGRIA / decora* Mars / Type.
36. *A. decora*, ♂: (8.6.81) // Japan. / G. LEWIS. / 1910–320. // Kobe. / 6.VI.–9.VI.81.
37. *A. decora*, ♀: (10 / 6 / 81) // Japan. / G. LEWIS. / 1910–320. \*Judging from the collecting data, Kyoto is estimated as the collecting locality.

*Arthromacra viridissima* LEWIS, 1895

(Figs. 1–2)

*Arthromacra viridissima* LEWIS, 1895, Ann. Mag. nat. Hist., (6), 15: 277 (Miyanoshita, Oyama, Tokio and Hitoyoshi).

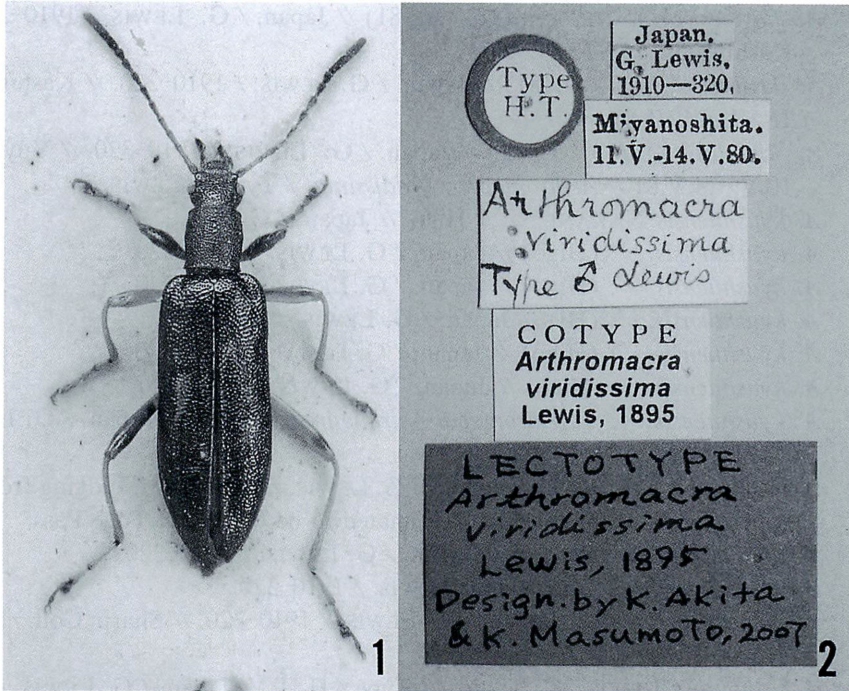
*Arthromacra decora*: MASUMOTO, 1987, Ent. Rev. Japan, *Osaka*, 42 (suppl.): 45–48 [partim, nec MARSEUL, 1876].

*Arthromacra apicalis* KÔNO, 1929, Ins. mats., 4: 31. *Syn. nov.*

*Arthromacra viridissima*: IMASAKA, 2005, Misc. Rept. Hiwa Mus. nat Hist., (44):100 [nec LEWIS, 1895].

In the description of *A. viridissima*, LEWIS (1895) enumerated localities of the





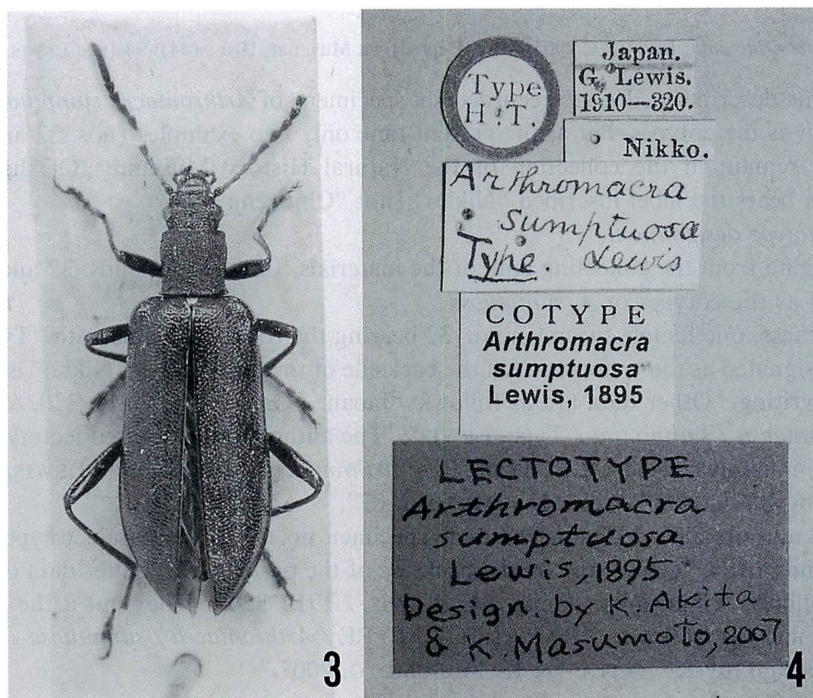
Figs. 1-2. *Arthromacra viridissima* LEWIS; 1, habitus, lectotype; 2, type labels.

cotypes as Miyanoshita, Oyama, Tokio, Nikko and Hitoyoshi, but he did not mention the number of specimens. The authors were unable to find the specimen from Tokio.

In the above list, the authors determined that Specimens 1 to 12 are *A. viridissima*. Specimen 13 from Nikko is *A. majuscula* NAKANE, 1994, and Specimen 14 from Hitoyoshi is *A. kinodai* NAKANE, 1997. Specimen 18 was determined as "*A. viridissima*", and the data were handwritten by LEWIS as "Type ♀, Yuyama". In his description, Yuyama is not mentioned, though it is located near Hitoyoshi. The specimen is actually *A. kinodai*. According to the collecting itinerary, LEWIS visited Hitoyoshi and Yuyama on different days.

In his revisional study, MASUMOTO (1987) regarded *Arthromacra* species from the main islands of Japan as one species, *A. decora* (MARSEUL). IMASAKA (2005) suggested that *A. apicalis* could be a synonym of *A. viridissima* LEWIS, but left the problem unsolved. The authors examined the type specimen of *A. apicalis* KÔNO, preserved in the Hokkaido University Museum. The specimen is wholly yellowish brown including antennae and legs, with the apical halves of the elytra bearing weak golden greenish luster. Presumably it is a male, but the abdominal parts are lost. Except for the coloration, it resembles in the most of features *A. viridissima* LEWIS distributed in Nikko. Therefore, the authors herewith regard *A. apicalis* KÔNO as a junior synonym of *A. viridissima* LEWIS.





Figs. 3-4. *Arthromacra sumptuosa* LEWIS; 3, habitus, lectotype; 4, type labels.

#### Lectotype designation.

Judging from the collecting data of the materials, LEWIS' specimens nos. 1 to 14 are regarded herewith as the cotypes of *Arthromacra viridissima* LEWIS, 1895. The lectotype of *A. viridissima* must be selected from these cotypes, and a male specimen (no. 1) bearing the round red-circled label with 'H. T.' is chosen. The data are as follows: "Miya / 5.80 (on the backside of the pasteboard in handwriting) // Type / H. T. // Japan. / G. LEWIS. / 1910-320 // Miyanoshita. / 11.V.-14.V.80. // *Arthromacra* / *viridissima* / Type ♂ LEWIS." The authors add to them the lectotype label: "LECTOTYPE / *Arthromacra* / *viridissima* / LEWIS, 1895 / Design. by K. AKITA / & K. MASUMOTO, 2007" in handwriting on a red label.

The remaining cotypes nos. 2 to 12 are designated as paralectotypes, and are put blue labels inscribed as follows: "PARALECTOTYPE / *Arthromacra* / *viridissima* / LEWIS, 1895 / Design. by K. AKITA / & K. MASUMOTO, 2007."

#### *Arthromacra sumptuosa* LEWIS, 1895

(Figs. 3-4)

*Arthromacra sumptuosa* LEWIS, 1895, Ann. Mag. nat. Hist., (6), 15: 277 (Chiuzenji).

*Arthromacra decora*: MASUMOTO, 1987, Ent. Rev. Japan, Osaka, 42 (suppl.); 46 [partim, nec MARSEUL,

1876].

*Arthromacra viridissima*: IMASAKA, 2005, Misc. Rept. Hiwa Mus. nat. Hist., (44): 94 [nec LEWIS, 1895].

In his description, LEWIS recorded six specimens of *Arthromacra sumptuosa* from Chiuzenji as the cotypes, but at the present time only two examples (nos. 32 and 33 in the list) remain in the collection of the Natural History Museum. Of these, one specimen bears the label inscribed "Nikko" (not "Chiuzenji").

*Lectotype designation.*

Judging from the collecting data of the materials, LEWIS' types nos. 32 and 33 are regarded as the cotypes of *A. sumptuosa*.

Of these, one female specimen no. 32 bearing the round red label with "Type / H. T." is designated as the lectotype. On the backside of the pasteboard, "Nikko" is written in handwriting. Other data are as follows: "Japan. / G. LEWIS. / 1910-320. // Nikko. // *Arthromacra / sumptuosa / Type. LEWIS*". The authors put it the red lectotype label written in handwriting: "LECTOTYPE / *Arthromacra / sumptuosa / LEWIS, 1895 / Design. by K. AKITA / & K. MASUMOTO, 2007*".

The authors also designate the male specimen no. 33 as the paralectotype, which bears handwritten "Chiuzenji" on the backside of the pasteboard. Other data on labels are as follows: "Chiuzenji // Japan. / G. LEWIS. / 1910-320". They put it the paralectotype label as follows: "PARALECTOTYPE / *Arthromacra / sumptuosa / LEWIS, 1895 / Design. by K. AKITA / & K. MASUMOTO, 2007*".

*Arthromacra higoniae* LEWIS, 1895

*Arthromacra higoniae* LEWIS, 1895, Ann. Mag. nat. Hist., (6), 15: 278 (Yuyama in Higo).

*Arthromacra decora*: MASUMOTO, 1987, Ent. Rev. Japan, *Osaka*, 42 (suppl.): 46 [partim, nec MARSEUL, 1876].

*Arthromacra sumptuosa*: IMASAKA, 2005, Misc. Rept. Hiwa Mus. nat. Hist., (44): 95 [partim, nec LEWIS, 1895].

The collecting data of Specimen no. 34 accord with the original description by LEWIS; therefore, this specimen should be the type of *A. higoniae*, though the name written by LEWIS is "*Arthromacra higonensis*". This species was downgraded to a junior synonym of *A. sumptuosa* by IMASAKA (2005).

*Arthromacra decora* (MARSEUL, 1876)

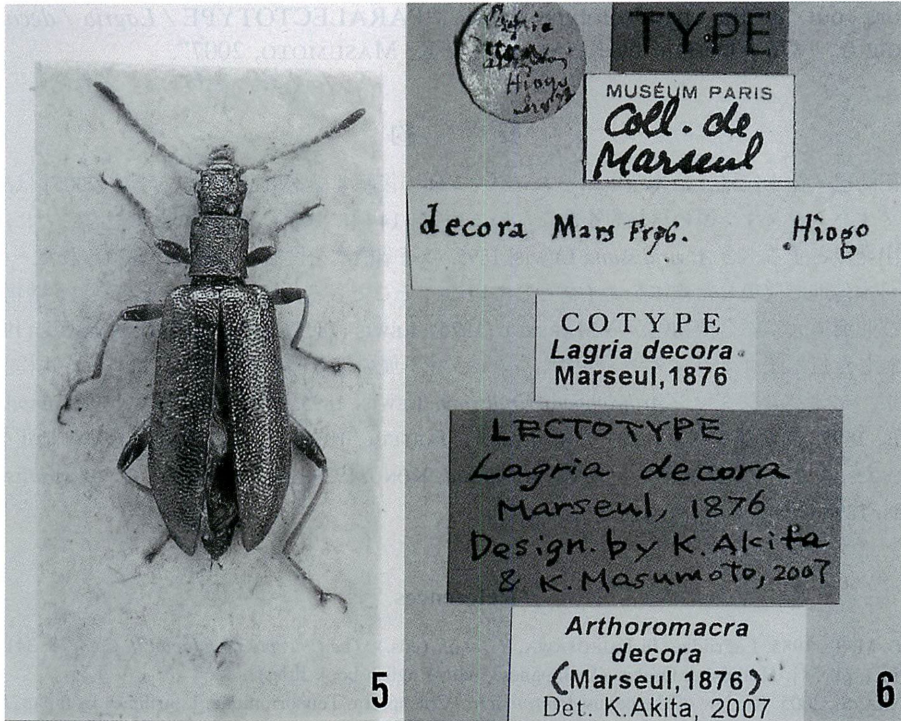
(Figs. 5-6)

*Lagria decora* MARSEUL, 1876, Anns. Soc. ent. Fr., (5), 6: 339 (Hiogo).

*Arthromacra decora*: LEWIS, 1895, Ann. Mag. nat. Hist., (6), 15: 278.

This species was described by MARSEUL (1876) based on the specimens collected by LEWIS. Specimen no. 35 has a "type" label presumably written by LEWIS. However, MARSEUL's type is preserved in the Muséum national d'Histoire naturelle, Paris. The data of MARSEUL's type are "Japan? Hiogo? (undecipherable) // TYPE // MUSÉUM





Figs. 5–6. *Arthromacra decora* (MARSEUL); 5, habitus, lectotype; 6, type labels.

PARIS / Coll. de / MARSEUL // *decora* Mars Fr 76 Hiogo”. Collecting data on the backside of the pasteboard are “Kobe May 2. ’71” and presumably written by LEWIS. According to LEWIS (1895), he collected one specimen in 1871, and seven specimens in 1881, but it could be possible that he falsely remembered the 1871 specimen. In any event, Specimens nos. 36 and 37 were collected after MARSEUL’s description (1876) and therefore are not the types.

*Lectotype designation.*

Judging from the collecting data of the materials, the MARSEUL type and LEWIS specimen no. 35 are regarded as the cotypes of *A. decora* (MARSEUL, 1876).

Then, the MARSEUL type is designated as the lectotype. The specimen is a female and bears a yellow-circled tip inscribed as follows: Japan? Hiogo? // TYPE // MUSÉUM PARIS / Coll. de MARSEUL // *decora* Mars Fr 76. Hiogo. The authors add the red lectotype label: LECTOTYPE / *Lagria decora* / MARSEUL, 1876 / Design. by K. AKITA / & K. MASUMOTO, 2007.

The authors also designate the paralectotype from the cotype of the LEWIS collection (no. 35). It is a female. On the backside of the pasteboard, “Kobe June / 71” is written in handwriting. It is also attached the following labels: “Type / H. T. // Japan. / G. LEWIS. / 1910–320. // Kobe. // LAGRIA / *decora* Mars / Type.” The



authors put it the paralectotype label: “PARALECTOTYPE / *Lagriia / decora* / MARSEUL, 1876 / Design. by K. AKITA / & K. MASUMOTO, 2007”.

## 要 約

秋田勝己・益本仁雄：日本産アオハムシダマシ属の後基準標本指定。——今坂(2005)は、日本産アオハムシダマシ属の再検討をおこない、3 種群 14 種に分類した。しかし残念なことに、研究の出発点とするべき *A. viridissima* LEWIS, 1895, の基準標本を検せずに研究が進められた。ルイスは日本各地で採集した標本をタイプとしている。そこで著者らは、ヨーロッパの主要博物館、および北海道大学総合博物館から MARSEUL (1876), LEWIS (1895), KÔNO (1929), NAKANE (1963) が記載した日本産ゴミムシダマシ科アオハムシダマシ属の基準標本を借用し、これらを再検討した結果、アオハムシダマシ *Arthromacra viridissima* LEWIS, 1895, アカハムシダマシ *A. sumptuosa* LEWIS, 1895, アカガネハムシダマシ *A. decora* (MARSEUL, 1876) について後基準標本の指定をおこなった。また、ツマアオハムシダマシ *A. apicalis* KÔNO, 1929 をアオハムシダマシ *A. viridissima* LEWIS, 1895 のシノニムとした。

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