

A List of South African Weevils of the Genus *Sibinia* Germar, 1817 (Coleoptera, Curculionidae, Curculioninae) Intercepted in Import Plant Quarantine at the Narita International Airport, Japan

Masaaki Genka and Roberto Caldara¹⁾

Haneda Airport Sub-station, Yokohama Plant Protection Station, Haneda-Kūkō 2-6-3, Ōta-ku, Tokyo 144-0041, Japan

Abstract: A list of weevil specimens of the genus *Sibinia* Germar, 1817 (Coleoptera, Curculionidae, Curculioninae) intercepted on cut flowers imported from South Africa during plant quarantine inspections at the Narita International Airport, Japan from 1997 to 2024 was presented. The 59 examined specimens comprised seven species belonging to four species groups. In addition, habitus images in dorsal and lateral views were provided for each species.

Key Words: Curculionidae, Curculioninae, *Sibinia*, Afrotropical, Plant quarantine

Introduction

Weevils, or the superfamily Curculionoidea (Coleoptera), represent one of the most dominant insect groups, with more than 60,000 species described to date (Bouchard *et al.*, 2017). They utilize various parts of plants—ranging from living to decaying tissues—including roots, stems, trunks, leaves, buds, flowers, and fruits (Morimoto *et al.*, 2006), and are considered one of the most significant taxonomic groups that include numerous agricultural pests.

A considerable number of weevil species have been intercepted during import plant quarantine inspections in Japan. Genka and Yoshitake (2014) studied exotic weevil specimens intercepted by the Kobe Plant Protection Station and recorded 193 species belonging to seven families. Subsequently, Genka and Yoshitake (2018) surveyed 2,435 specimens intercepted at the Narita International Airport (hereafter NRT), one of the largest airports in Japan, from 1978 to 2016, recognizing 427 species across seven families. However, more than half of the weevil species in these studies were identified only to the subfamily, tribe, or genus level, particularly those originating from regions where taxonomic studies remain limited, such as South Africa. For instance, Genka and Yoshitake (2018) recognized 117 species from South Africa, of which only eight were identified to species level and 78 to genus level. Species-level identification of these specimens is still in progress, as species names are the most fundamental element for

pest risk analysis.

Among South African weevils, several taxa have been studied in detail, and review papers have been published that greatly facilitate identification. Caldara (1989) reviewed the Afrotropical genus *Sibinia* Germar, 1817 (Coleoptera, Curculionidae, Curculioninae, Tychiini), recognizing 53 species—41 of them described as new—and dividing them into eight species groups. Later, Caldara (1993) described seven additional species, and Caldara *et al.* (2009) added another new species to *Sibinia*. These studies presented numerous figures including male and female genitalia, which are invaluable for identification; however, habitus images were provided for only 16 of the 61 known species. Genka and Yoshitake (2018) also referred to these works and recognized four *Sibinia* species, but only one, *Sibinia bruchoides* Caldara, 1989, was identified to species level because too few specimens of the remaining taxa were available at that time.

In this paper, we provide a list of South African weevil genus *Sibinia* intercepted during import plant quarantine at NRT, including additional specimens obtained after Genka and Yoshitake (2018), to contribute to pest risk analysis. In addition, dorsal and lateral habitus images of all identified species are provided as references for identification.

Materials and Methods

All examined specimens were intercepted during import plant

¹⁾ Via Lorenteggio 37, IT-20146 Milano, Italy

inspections at NRT from 1997 to 2024 and are preserved at the Narita Sub-station, Yokohama Plant Protection Station, Japan. The specimens which were intercepted between 1997 and 2016 were identical to those examined in Genka and Yoshitake (2018). Specimens were observed under a stereomicroscope (Olympus SZX16), and identified based on Caldara (1989, 1993). The habitus images for each species were captured using a digital camera (Canon EOS Kiss X9) with a macro photo lens (Canon MP-E 65 mm). Each final image was assembled from a series of photographs with different focal planes using the image-stacking software CombineZP (Hadley, 2010). The scientific names and species-group classifications follow Caldara (1989, 1993), while the plant nomenclature follows the WFO Plant List (online).

Results and Discussion

A total of 59 weevil specimens belonging to the genus *Sibinia* were examined, comprising seven species in four species groups. The most dominant species was *Sibinia bruchoides* Caldara, 1989, which was intercepted from 10 of 16 genera of cut flowers and accounted for 47% (28 specimens) of all specimens. This species is widespread in South Africa (Caldara *et al.*, 2009), and it is likely that individuals occurring in or near cultivation fields were unintentionally mixed into harvested cut flowers.

The intercepted specimens were collected from 16 genera of cut flowers belonging to nine plant families. A relatively large number of weevils was obtained from *Berzelia* (Bruniaceae; 10 specimens), *Phyllica* (Rhamnaceae; 9 specimens), *Adenanthos* (Proteaceae; 5 specimens), *Erica* (Ericaceae; 5 specimens), and *Leucadendron* (Proteaceae; 5 specimens). However, none of these plants seem to be host plants of the weevils because the known host plants of Afrotropical *Sibinia* species belong to Aizoaceae (Caldara, 1989; Caldara *et al.*, 2009). The cut flowers of aforementioned genera were shipped with relatively dense foliage and/or numerous small flowers, which should provide refuge for weevils to remain on the plants after harvest and packaging, resulting in their detection during import plant inspections.

List of the species of the Genus *Sibinia* intercepted on cut flowers from South Africa at Narita International Airport, Japan

Sibinia punctirostris group

1. *Sibinia punctirostris* (Gyllenhal, 1836) (Figs. 1, 2)

Sibynes punctirostris Gyllenhal, 1836: 434.

Sibinia punctirostris: Caldara, 1989: 262, figs. 1, 2, 37, 38, 68, 79, 88; Caldara *et al.*, 2009: 137.

Sibynes sublineatus Fåhreaeus, 1843: 318.

Sibinia sp. 3: Genka & Yoshitake, 2018: 16, figs. 341, 342.

Specimens examined.

2♂, 11.I.2007, T. Sakota, on cut flower *Leucadendron* sp. (Proteaceae).

1♂, 2.II.2007, Y. Seino, on cut flower *Leucadendron* sp. (Proteaceae).

1♀, 9.II.2007, H. Yanagisawa, on cut flower *Leucadendron* sp. (Proteaceae).

Notes. The examined specimens were previously listed and illustrated as “*Sibinia* sp. 3” in Genka and Yoshitake (2018). In South Africa, this species was collected from *Conicosia pugioniformis* (syn. *Mesembryanthemum pugioniforme*) and *Mesembryanthemum* sp. (Aizoaceae) (Caldara, 1989).

Sibinia cervina group

2. *Sibinia cervina* (Fåhreaeus, 1843) (Figs. 3, 4)

Sibynes cervinus Fåhreaeus, 1843: 322.

Sibinia cervina: Caldara, 1989: 267, figs. 42, 43; Caldara *et al.*, 2009: 138.

Specimen examined.

1♂, 29.X.2018, N. Kobayashi, on cut flower *Leucadendron* sp. (Proteaceae).

Note. No biological information is currently available for this species.

Sibinia laeta group

3. *Sibinia laeta* Caldara, 1989 (Figs. 5, 6)

Sibinia laeta Caldara, 1989: 285, figs. 12-14, 47, 48, 71, 80; Caldara *et al.*, 2009: 140.

Specimens examined.

1♂, 7.XI.2002, T. Ishizu, on cut flower *Berzelia* sp. (Bruniaceae).

1♂, 4.XI.2018, T. Hiramoto, on cut flower *Prionium* sp. (Thurniaceae).

1♀, 22.XI.2019, T. Sakai, on cut flower *Berzelia* sp. (Bruniaceae).

1♀, 10.X.2022, S. Sakaemura, on cut flower *Paranomos* sp. (Proteaceae).

1♂, 21.XI.2022, S. Matsumoto, on cut flower *Metalasia* sp. (Asteraceae).

1♀, 8.XII.2022, T. Sakaguchi, on cut flower *Metalasia* sp. (Asteraceae).

1♂, 4.XII.2023, Y. Hirakawa, on cut flower *Adenanthos* sp. (Proteaceae).

1♀, 18.XII.2023, J. Suzuki, on cut flower *Adenanthos* sp. (Proteaceae).

Notes. In South Africa, this species was collected on *Aizoon africanum* (syn. *Galenia africana*) (Aizoaceae) (Caldara *et al.*, 2009). It has also been collected on *Athanasia trifurcata* (Asteraceae), which is probably only a refuge plant (Caldara, 1989).

Sibinia perfecta* group*4. *Sibinia perfecta* Caldara, 1989** (Figs. 7, 8)

Sibinia perfecta Caldara, 1989: 292, figs. 18, 54; Caldara *et al.*, 2009: 144.

Sibinia sp. 2: Genka & Yoshitake, 2018: 16, figs. 339, 340.

Specimens examined.

1♂, 13.XII.1997, G. Takahashi, on cut flower *Berzelia* sp. (Bruniaceae).

2♀, 10.XI.1998, T. Koganezawa, on cut flower *Berzelia* sp. (Bruniaceae).

1♀, 8.IX.2003, H. Yanagisawa, on cut flower *Berzelia* sp. (Bruniaceae).

1♂, 9.II.2015, K. Arakawa, on cut flower *Phylica* sp. (Rhamnaceae).

1♀, 6.VIII.2018, H. Kitamura, on cut flower *Adenanthos* sp. (Proteaceae).

1♀, 14.I.2019, J. Yoshida, on cut flower *Phylica* sp. (Rhamnaceae).

1♂, 12.II.2023, T. Sakaguchi, on cut flower *Metalasia* sp. (Asteraceae).

1♀, 18.XII.2023, J. Suzuki, on cut flower *Metalasia* sp. (Asteraceae).

1♂, 11.XII.2023, R. Takahashi, on cut flower *Paranomus* sp. (Proteaceae).

1♂1♀, 30.I.2024, R. Takahashi, on cut flower *Diosma* sp. (Rutaceae).

Notes. Most of the examined specimens were previously listed and illustrated as “*Sibinia* sp. 2” in Genka and Yoshitake (2018). This species was also listed and figured as “Curculioninae gen. sp. 8” in Genka and Yoshitake (2014: p. 22, fig. 109). In South Africa, this weevil has been collected from *Salvadora persica* (Salvadoraceae) (Caldara, 1989).

5. *Sibinia thompsoni* Caldara, 1989 (Figs. 9, 10)

Sibinia thompsoni Caldara, 1989: 295, figs. 19, 20; Caldara *et al.*, 2009: 144.

Specimens examined.

1♂, 29.XI.2011, H. Sakuma, on cut flower *Berzelia* sp. (Bruniaceae).

1♂, 12.II.2018, H. Kitamura, on cut flower *Aspalathus* sp. (Fabaceae).

1♂, 18.XI.2022, T. Maeno, on cut flower *Metalasia* sp. (Asteraceae).

Note. No biological information is currently available for this species.

6. *Sibinia micros* Caldara, 1989 (Figs. 11, 12)

Sibinia micros Caldara, 1989: 298, fig. 59; Caldara *et al.*, 2009: 145.

Specimens examined.

1♀, 17.VI.2019, N. Kobayashi, on cut flower *Adenanthos* sp. (Proteaceae).

1♀, 9.VI.2019, T. Hiramoto, on cut flower *Adenanthos* sp. (Proteaceae).

1♂, 3.V.2021, S. Sakaemura, on cut flower *Banksia* sp. (Proteaceae).

Notes. In South Africa, this species was collected on *Aizoon africanum* (syn. *Galenia africana*) (Aizoaceae) (Caldara *et al.*, 2009). It was also collected on *Athanasia trifurcata* (Asteraceae), probably only a refuge plant (Caldara, 1989).

7. *Sibinia bruchoides* Caldara, 1989 (Figs. 13-16)

Sibinia bruchoides Caldara, 1989: 301, figs. 56, 86, 87, 98; Caldara *et al.*, 2009: 145; Lee *et al.*, 2017: 528, fig. 1F.

Sibinia sp. 1: Genka & Yoshitake, 2018: 16, figs. 337, 338.

Specimens examined.

1♀, 13.VII.2002, H. Itô, on cut flower *Paranomus* sp. (Proteaceae).

1♀, 25.I.2003, T. Yamada, on cut flower *Brunia* sp. (Bruniaceae).

1♀, 25.I.2003, Y. Naoe, on cut flower *Brunia* sp. (Bruniaceae).

1♀, 27.VIII.2008, T. Hiramoto, on cut flower *Brunia* sp. (Bruniaceae).

1♀, 12.VI.2010, O. Hirahara, on cut flower *Berzelia* sp. (Bruniaceae).

1♂, 4.XII.2010, K. Nomura, on cut flower *Berzelia* sp. (Bruniaceae).

1♂, 22.VIII.2014, S. Kawano, on cut flower *Leucospermum* sp. (Proteaceae).

1♂, 5.IX.2014, H. Sakai, on cut flower *Leucospermum* sp. (Proteaceae).

1♂, 2.II.2015, T. Kurihara, on cut flower *Phylica* sp. (Rhamnaceae).

1♂, 9.II.2015, K. Arakawa, on cut flower *Phylica* sp. (Rhamnaceae).

1♂, 12.II.2015, T. Koyama, on cut flower *Phylica* sp. (Rhamnaceae).

1♀, 8.II.2016, M. Genka, on cut flower *Protea* sp. (Proteaceae).

1♀, 2.IX.2016, S. Kawano, on cut flower *Eucalyptus* sp. (Myrtaceae).

1♀, 21.X.2016, M. Yamaya, on cut flower *Berzelia* sp. (Bruniaceae).

1♀, 15.VIII.2017, M. Saitô, on cut flower *Paranomus* sp. (Proteaceae).

1♂, 6.X.2017, Y. Takai, on cut flower *Erica* sp. (Ericaceae).

2♂2♀, 4.IV.2019, T. Watase, on cut flower *Erica* sp. (Ericaceae).

1♀, 3.II.2019, T. Saitô, on cut flower *Phylica* sp. (Rhamnaceae).

1♂1♀, 3.II.2019, J. Yoshida, on cut flower *Phylica* sp. (Rhamnaceae).

1♀, 10.II.2019, T. Katô, on cut flower *Phylica* sp. (Rhamnaceae).

1♀, 17.II.2019, T. Hiramoto, on cut flower *Aspalathus* sp. (Fabaceae).

- 1♂, 29.III.2019, T. Saitô, on cut flower *Nebelia* sp. (Bruniaceae).
 1♂, 3.V.2021, S. Sakaemura, on cut flower *Banksia* sp. (Proteaceae).
 1♂, 28.VI.2021, J. Yoshida, on cut flower *Banksia* sp. (Proteaceae).

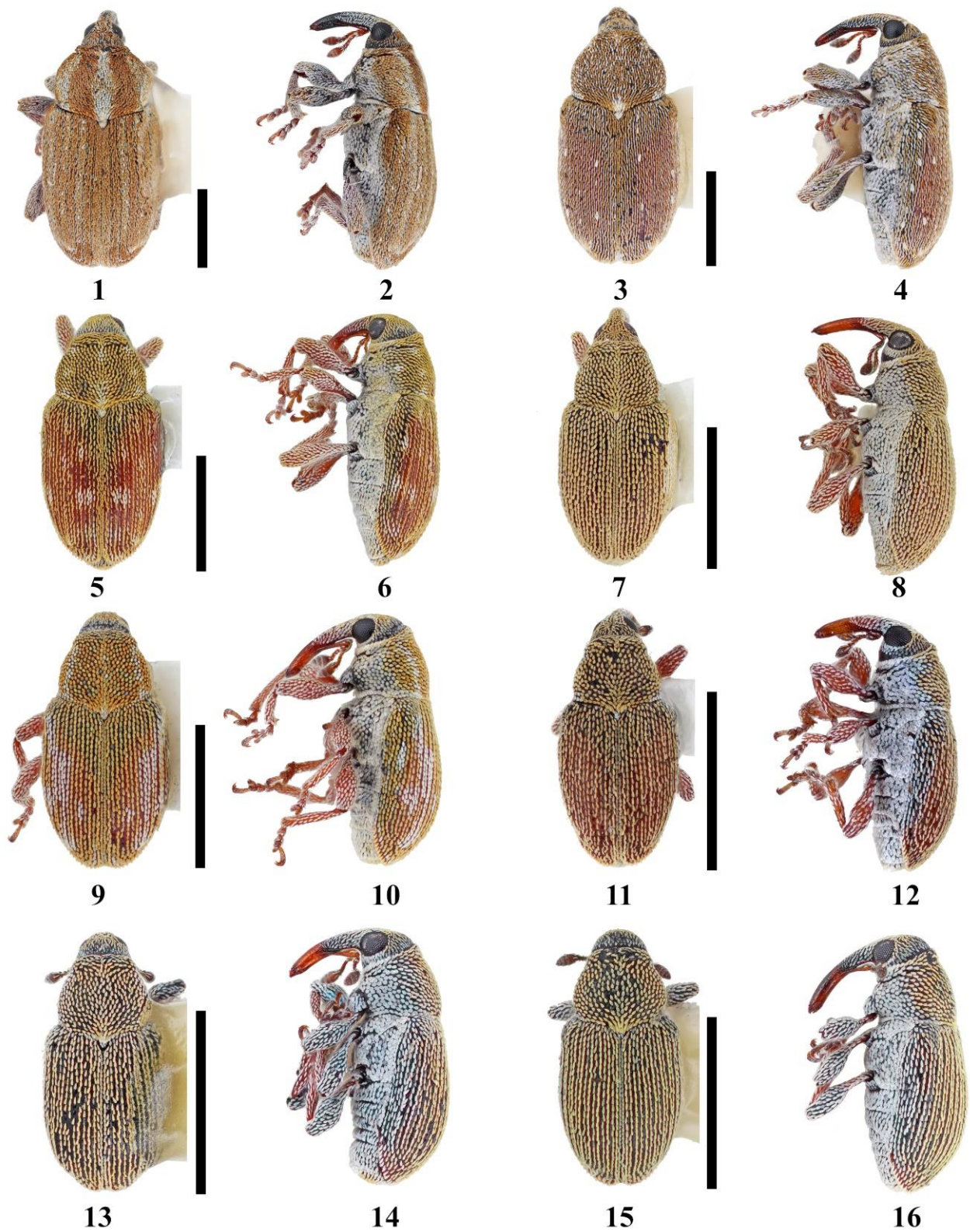
Notes. One of the examined specimens was previously listed and figured as “*Sibinia* sp. 1” in Genka and Yoshitake (2018). This species was also intercepted at the Korean quarantine border on a mixed cut flower “*Berzelia* sp., Cape mix, *Erica* sp., *Staavia* sp.” (Lee *et al.*, 2017). In South Africa, this weevil is very common and mainly collected from *Aizoon africanum* (syn. *Galenia africana*) (Aizoaceae), as well as white-flowered *Mesembryanthemum* sp. (Aizoaceae) (Caldara, 1989; Caldara *et al.*, 2009). Caldara (1989) also reported its collection from *Suaeda plumosa* (Amaranthaceae), presuming to be a refuge plant.

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Figs. 1-16. Dorsal and lateral habitus of South African *Sibinia* spp. intercepted at the Narita International Airport. — 1, 2: *Sibinia punctirostris* (Gyllenhal), male; 3, 4: *S. cervina* (Fähræus), male; 5, 6: *S. laeta* Caldara, male; 7, 8: *S. perfecta* Caldara, male; 9, 10: *S. thompsoni* Caldara, male; 11, 12: *S. micros* Caldara, male; 13, 14: *S. bruchoides* Caldara, male; 15, 16: same species, female. — 1, 3, 5, 7, 9, 11, 13, 15: Dorsal habitus; 2, 4, 6, 8, 10, 12, 14, 16: lateral habitus. Scale bars = 1.0 mm.

和 文 摘 要

成田国際空港における輸入植物検疫で発見された南アフリカ産 *Sibinia* 属 (コウチュウ目ゾウムシ科ゾウムシ亜科) のリスト

源河正明、Roberto Caldara¹⁾

横浜植物防疫所羽田空港支所

成田国際空港における輸入植物検疫で1997年から2024年にかけて南アフリカ産切り花から発見された *Sibinia* 属 (コウチュウ目ゾウムシ科ゾウムシ亜科) の標本の目録を示した。検視標

本59点は4種群にまたがる7種で構成されていた。また、全種について背面及び側面からの全形写真を示した。

¹⁾ イタリア共和国ミラノ市