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Distribution Records and Host Plant Ranges of Identified and Unidentified Species of Gall-inducing Cecidomyiids (Diptera) in Fukuoka Prefecture, Japan

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Abstract. A total of 173 sorts of cecidomyiid gall on 132 plant species across 88 genera of 54 families were recognized to occur in Fukuoka Prefecture. Among them, three sorts are new findings from Japan, and three plant species were regarded to be new hosts of cecidomyiids in Japan. Cecidomyiid galls were most abundant in Fagaceae, followed by Asteraceae, Fabaceae, Styracaceae, and Rosaceae. Species of gall-bearing plant were most abundant in Asteraceae, followed by Fagaceae, Fabaceae, Vitaceae, and Rosaceae. Sixty cecidomyiids were identified to the species level and 34 to the genus level. Among identified cecidomyiids, species of the genus *Asphondylia* were most abundant, followed by *Contarinia, Rhopalomyia*, and *Schizomyia*. The faunistic comparison between Fukuoka and Korea supports the consideration that Japanese cecidomyiids expanded their range northwards through Tsushima as a stepping stone island rather than for Korean cecidomyiids did southwards.

Key words: cecidomyiid gall, faunistic comparison, gall-bearing plant, species composition, species identification.

Introduction

Plant galls are induced by various species of arthropod taxa, such as Agromyzidae, Cecidomyiidae, Chloropidae, Tephritidae Chalcidoidea, (Diptera), Cynipidae, Tenthredinidae Adelgidae, (Hymenoptera), Aleyrodidae, Aphidoidea, Coccoidea, Phylloxeridae, Psylloidea, Tingidae (Hemiptera), Pyralidae, Sesiidae, Tortricidae (Lepidoptera), Apionidae, Buprestidae, Curculionidae (Coleoptera), Phlaeothripidae, Thripidae (Thysanoptera), and Eriophyoidea (Acarina). (e.g. Dreger-Jauffret & Shorthouse 1992; Mani 1964; Yukawa & Tokuda 2021). Among them, Cecidomyiidae are the most dominant gall inducers in the Holoarctic Region (e.g. Felt 1965; Roskam 2019; Yukawa & Masuda 1996). Gall-inducing cecidomyiids are appropriate materials for faunistic studies because galls are conspicuous in shape and exist on the host plants

for a long time (e.g. Yukawa & Tokuda 2021). In addition, many gall-inducing cecidomyiids are mono- or oligophagous, and the appearance, structure and position of galls are specific to gall-inducing species in many instances (e.g. Yukawa & Masuda, 1996). Therefore, gallinducing cecidomyiids can be frequently identified to the species or genus level based on host plant information and the appearance and structure of galls. In other words, the number of gall sorts roughly represents the potential number of gall-inducing cecidomyiid species, although we need to adjust both the numbers in cases when the species exhibit gall shape polymorphism (e.g. Ganaha et al. 2007), sister species relation (e.g. Tokuda et al. 2004b), host plant alternation (e.g. Uechi & Yukawa 2006; Uechi et al. 2004), and polyphagous host range (e.g. Uechi et al. 2003).

Before 1996, 628 sorts of cecidomyiid gall were found in Japan (Yukawa & Masuda 1996).

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Thereafter, many amateur naturalists, our colleagues, former students of Kagoshima, Kyushu, and Saga Universities, and we have found various sorts of cecidomyiid gall in many parts of Japan. As a result, they approximately amount to 734 sorts on 88 families of 38 vascular plant orders (Yukawa & Tokuda 2021). Up to present, 122 species of gall-inducing cecidomyiid have been identified (e.g. Yukawa 2014; Yukawa & Tokuda 2021).

In Japan, local gall-inducing cecidomyiid fauna has been presented in Hokkaido (Minami 2017; Yukawa & Sunose 1979), and various prefectures such as Aomori (Yamauchi et al. 2016), Niigata (Yukawa 1994; Yukawa & Sunose 1988), Wakayama (Yukawa et al. 2018), Miyazaki (e.g. Nagai 2015, 2016, 2017, 2018, 2019, 2021), Kagoshima (Yukawa 1988), and Okinawa (Yamauchi et al. 1982). In Fukuoka Prefecture, however, no faunistic data for gallinducing cecidomyiids was gathered together for a single paper although the occurrence of various species has been recorded in respective papers (e.g. Ganaha et al. 2004; Tokuda & Yukawa 2005; Tokuda et al. 2002, 2004b, 2006; Tsuda 1982; Uechi & Yukawa 2006; Uechi et al. 2002, 2012, 2018; Yukawa 1971, 1978; Yukawa et al. 2014; see Table 2 for other references).

Finding of two sorts of gall on Celtis sinensis Pers. (Cannabaceae) was the first record of cecidomyiid galls from Fukuoka Prefecture (Monzen 1938). Later Monzen (1955b) recorded three sorts of cecidomyiid gall, and then followed by one of us, J. Yukawa from the 1970s. Thereafter, gall-inducing cecidomyiids have been most intensively and extensively surveyed in Fukuoka Prefecture because J. Yukawa was working for Kyushu University as a professor and many students studied taxonomy and ecology of gall-inducing cecidomyiids in his laboratory. On this occasion, we intend to gather together published and unpublished data on distribution records and host plant ranges of gall-inducing cecidomyiids in Fukuoka Prefecture. The current data will contribute to future comparative faunistic studies between localities with different vegetation, topographies, latitudes, and altitudes. In particular, faunistic comparison with gall-inducing cecidomyiids in the Korean Peninsula is essential to understand north- and southward expansion of cecidomyiids through a stepping-stone island, Tsushima (Kim et al. 2015; Yukawa et al. 2021).

Materials and methods

Collection, dissection, and rearing of cecidomyiid galls, and species identification

Gall-inducing cecidomyiids listed in this paper were derived from literature survey, our field survey performed from 1971 to 2021, and cecidomyiid galls found in Fukuoka Prefecture by our colleagues. Some of the galls and gallbearing plants found in the field surveys were brought back to laboratories of Kyushu or Saga University. After taking photographs, some galls were dissected under a binocular microscope to identify the gall inducer and to obtain larval and pupal specimens. Some galls were kept in plastic bags or in rearing cages to obtain adults and pupal exuviae. Gall-inducing cecidomyiids were identified based mainly on adult morphological features, and partly on molecular data. When adult specimens were not available, they were identified to the species or genus level based on larval morphological characters together with information on host plants and gall shapes. In case when galls look immature inhabited by

young larvae or too old with emergence holes of cecidomyiid or parasitoid, we took photographs of the galls on the host plants instead of collecting galls for species identification of gallinducing cecidomyiids. Particularly in the protected area at Hiraodai of Kitakyushu City, we did not collect galls.

Depository of specimens examined

Gall midge specimens were preserved in 75% ethanol for morphological observation and in 99% ethanol or acetone for future DNA analysis. Galls and gall midge specimens used in the current study are kept mainly in the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Japan and partly in the Laboratory of Systems Ecology, Faculty of Agriculture, Saga University, Japan.

Arrangement of gall-inducing cecidomyiids in Table 2 and photographs of their galls

We followed the names of plant family that were compiled by Yonekura (2019). In Table 2, however, gall-inducing cecidomyiids are arranged, together with Japanese name and number of each gall, following the old-style order of plant families adopted by Yukawa & Masuda (1996) for readers to find photographs of cecidomyiid galls easier in their book.

Photographs are provided only for the galls

Abura-yama (Fukuoka City)	Kasuya Research Forest (Sasaguri Town)	Rikimaru Dam (Miyawaka City)
Akama (Munakata City)	Katsuyama-yayama (Miyako Town)	Rouji (Fukuoka City)
Akiduki (Asakura City)	Kita-yama (Koga City)	Sangahata (Miyawaka City)
Amagi (Asakura City)	Koishi-wara (Asakura County)	Sangun-san (Chikushino City)
Aobano-mori Park (Fukuoka City)	Konomi-yama (Fukutsu City)	Sefuri-san (Fukuoka City)
Chikushi (Chikushino City)	Kosho-san (Asakura City)	Sharikura (Fukutsu City)
Dazaifu Shrine (Dazaifu City)	Koura-san (Kurume City)	Shikano-shima (Fukuoka City)
Fukuchi-yama (Kitakyushu City)	Kouzono (Chikushino City)	Shima (Itoshima City)
Futsukaichi (Chikushino City)	Kurogi (Yame City)	Shimizu (Miyama City)
Hachiryû Shrine (Ukiha City)	Kusano (Kurume City)	Shimobaru (Fukuoka City)
Hakozaki (Fukuoka City)	Kusenbu-san (Nakagawa City)	Shiouji-yama (Dazaifu City)
Hakozaki Shrine (Fukuoka City)	Kuwabara (Fukuoka City)	Shôunji (Fukutsu City)
Hanami (Fukutsu City)	Magaribuchi (Fukuoka City)	Susenji (Fukuoka City)
Hanatate-yama (Ogôri City)	Maiduru Park (Fukuoka City)	Tachibana-yama (Fukuoka City)
Haruda (Chikushino City)	Masubuchi Dam (Kitakyushu City)	Takada (Iiduka City)
Hibaru (Fukuoka City)	Minami Park (Fukuoka City)	Tatara (Fukuoka City)
Hikarigaoka (Chikushino City)	Minou-san (Kurume City)	Tenpai-zan (Chikushino City)
Hiko-san (Soeda Town)	Mitsusawa (Ogôri City)	Tsuko (Ogôri City)
Hirao (Fukuoka City)	Mizunashi (Itoshima City)	Tsuya-honmachi (Fukuoka City)
Hiraodai (Kitakyushu City)	Motooka (Fukuoka City)	Tsuyazaki (Fukutsu City)
Hisasue Dam (Fukutsu City)	Naganobu (Hirokawa Town)	Wakasugi-yama (Sasaguri Town)
Hôman-zan (Dazaifu City)	Nagatani Dam (Fukuoka City)	Wakita (Miyawaka City)
Ichinose (Kitakyushu City)	Nishi Park (Fukuoka City)	Yahata (Kitakyushu City)
Ideura (Kitakyushu City)	Nogouchi (Fukuoka City)	Yakiyama-touge (Sasaguri Town)
Ino (Hisayama Town)	Nokono-shima (Fukuoka City)	Yakuouji (Koga City)
Inunaki-touge (Hisayama Town)	Notouge (Miyako Town)	Yamagami Dam (Chikushino City)
Jouyou (Yame City)	Orihata Shrine (Munakata City)	Yamamoto (Kurume City)
Kabuto-yama (Kurume City)	Orono-shima (Fukuoka City)	Yanouchi (Asakura City)
Kanayama (Fukuoka City)	Ôhori Park (Fukuoka City)	Yoshii (Ukiha City)
Kashii (Fukuoka City)	Ôtake (Fukuoka City)	Yoshiki (Chikushino City)
Kashii Shrine (Fukuoka City)	Rai-zan (Itoshima City)	Yukawa-yama (Okagaki Town)

TABLE 1 Names of site where cecidomyiid galls were found in Fukuoka Prefecture

that were not shown previously in Yukawa & Masuda (1996) and other publications such as Elsayed *et al.* (2018a), Kim *et al.* (2014), Kodoi *et al.* (2003), Shinji (1944), Tokuda & Yukawa (2004), Tokuda *et al.* (2006), Uechi & Yukawa (2004), Uechi *et al.* (2002, 2005a, 2007, 2012, 2018), Yukawa *et al.* (2014, 2018), and Yukawa & Tokuda (2021). Cecidomyiid galls newly found in Japan are briefly described with photographs, and galls on newly found host plants are also referred to with photographs.

Results and discussion

We found cecidomyiid galls at 93 places in 23 cities or towns of Fukuoka Prefecture including three islands, Nokono-shima, Orono-shima, and Shikano-shima, and 17 mountains such as Hiko-san (1199m), Kosho-san (860m), and Sefuri-san (1055m) (Table 1, Fig. 1). Ninety-seven sorts of cecidomyiid gall were previously recorded from



FIGURE 1. Map of cecidomyiid gall-collecting sites in Fukuoka Prefecture.

TABLE 2 A list of identified and unidentified species of gall-inducing cecidomyiids in Fukuoka Prefecture together with information on their host plants, galled organs, Japanese gall names, known distribution records, and current collecting data

PINACEAE

Paradiplosis manii (Inouye, 1959) on Abies firma

Galled organ & Japanese gall name (gall no.): Needle, "Momi-ha-tama-fushi" (B-0010c) Known distribution record: Hiko-san (Tokuda & Yukawa 2003) Current collecting data: none

Thecodiplosis japonensis Uchida & Inouye, 1955 on Pinus thunbergii & P. densiflora

Galled organ & Japanese gall name (gall no.): Needle, "Kuromatsu-ha-tama-fushi" (B-0060a), "Akamatsu-ha-tama-fushi" (B-0060b) Known distribution record: Fukuoka Pref. (Kuranaga & Taketani 1985)

Current collecting data: Hakozaki on *P. thunbergii* by M. Tokuda & N. Uechi

CUPRESSACEAE

Contarinia inouyei Mani, 1954 on *Cryptomeria japonica*

Galled organ & Japanese gall name (gall no.): Needle, "Sugi-ha-tama-fushi" (B-0110) Known distribution record: Fukuoka Pref. (Morimoto 1996)

Current collecting data: Motooka by J. Yukawa; Hisasue Dam, Konomi-yama, Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara

SALICACEAE

Lygocecis yanagi (Shinji, 1938) on *Salix babylonica & Salix* sp.

Galled organ & Japanese gall name (gall no.): Stem, "Yanagi-eda-katagawa-fushi" (C-0200) Known distribution record: Ôhori Park, Tsuyahonmachi (Nijveldt & Yukawa 1982) Current collecting data: none

Rabdophaga salicivora (Shinji, 1938) on *Salix babylonica & Salix* sp.

Galled organ & Japanese gall name (gall no.): Stem, "Yanagi-eda-maru-zui-fushi" (C-0210) Known distribution record: Fukuoka Pref. (Monzen 1955b)

Current collecting data: Koishi-wara by J. Onagamitsu

Rabdophaga salicis (Schrank, 1803) on *Salix babylonica & Salix* sp.

Galled organ & Japanese gall name (gall no.): Stem, "Yanagi-eda-kobu-fushi" (C-0350) Known distribution record: Hiko-san, Ôhori Park, & Sefuri-san (Nijveldt & Yukawa 1982) Current collecting data: none

FAGACEAE

Contarinia sp. on Quercus glauca Galled organ & Japanese gall name (gall no.): Leaf, "Arakasi-ha-ore-fushi" (C-0490a) Known distribution record: none Current collecting data: Hanatate-yama & Ino by J. Yukawa; Hisasue Dam & Konomi-yama, by J. Yukawa; Hisasue Dam & Konomi-yama, by J. Yukawa; M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita; Mitsusawa by K. Matsunaga

Contarinia sp. on Quercus serrata

Galled organ & Japanese gall name (gall no.): Leaf, "Konara-hatoji-fukure-fushi" (C-0492) (Fig. 2a)

Known distribution record: none Current collecting data: Hanatate-yama by J. Yukawa; Hikarigaoka by K. Matsunaga

Macrodiplosis selenis Kim & Yukawa, 2014 on *Quercus serrata & Q. dentata*

Galled organ & Japanese gall name (gall no.): Leaf, "Konara-haberiore-fushi" (C-0493a) & "Kashiwa-haberiore-fushi" (C-0493c)

Known distribution record: Haruda, Kasuya Research Forest, Mitsusawa (Kim *et al.* 2014) Current collecting data: none

Unidentified species on Quercus serrata

Galled organ & Japanese gall name (gall no.): Leaf, "Konara-ha-fukure-fushi" (C-0495a) (Figs 2b, c)

Known distribution record: none

Current collecting data: Haruda, Hikarigaoka, & Mitsusawa by K. Matsunaga

Contarinia sp. (possibly) on *Quercus serrata* & *Q. crispula*

Galled organ & Japanese gall name (gall no.):

Leaf, "Konara-haberi-uramaki-fushi" (C-0498a) (Fig. 2d) & "Mizunara-haberiuramaki-fushi" (C-0498b) Known distribution record: none Current collecting data: Haruda, Hikarigaoka, & Tsuko on *Q. serrata* by K. Matsunaga; Sefuri-san on *Q. crispula* by J. Yukawa

Unidentified species on Quercus crispula

Galled organ & Japanese gall name (gall no.): Leaf, "Mizunara-ha-fukure-fushi" (C-1893) Known distribution record: Hiko-san (Yukawa 1982)

Current collecting data: none

Unidentified species on Castanea crenata

Galled organ & Japanese gall name (gall no.): Flower, "Kuri-hana-ketama-fushi" (C-0499) (Fig. 2e) Known distribution record: none

Current collecting data: Hikarigaoka by K. Matsunaga

Ametrodiplosis ? acutissima (Monzen, 1937) on *Quercus acutissima*

Galled organ & Japanese gall name (gall no.): Stem, "Kunugi-eda-himekobu-fushi" (C-0770a)

Known distribution record: none

Current collecting data: Tachibana-yama by K. Yamagishi

Note: Generic position of this species should be reexamined (Yukawa 2014).

Schizomyia castanopsisae Elsayed & Tokuda, 2018 on Castanopsis sieboldii & C. cuspidata

Galled organ & Japanese gall name (gall no.): Flower bud, "Sudajii-hanaeda-fukure-fushi (C-1630a) & "Tsuburajii-hanaeda-fukurefushi" (C-1630b)

Known distribution record: Haruda on the two host plants (Tokuda *et al.* 2019) Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-hamyaku-kobu-fushi" (C-1640) Known distribution record: Hiko-san (Tsuda 1982)

Current collecting data: none

Mikiola bicornis Sato & Yukawa, 2008 on

Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-hasuji-togari-tama-fushi" (C-1650) Known distribution record: Hiko-san, Kusenbu-san (Tsuda 1982)

Current collecting data: none

Mikiola glandaria Sato & Yukawa, 2008 on *Fagus crenata*

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-hasuji-donguri-fushi" (C-1660) Known distribution record: Sefuri-san (Sato & Yukawa 2008) Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-haberi-tama-fushi" (C-1670) Known distribution record: Hiko-san, Kusenbu-san (Tsuda 1982) Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-haberi-hoso-fushi" (C-1680) Known distribution record: Hiko-san (Tsuda 1982; Sato *et al.* 2010) Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-haura-ke-fushi" (C-1690) Known distribution record: Hiko-san (Tsuda 1982; Sato *et al.* 2010) Current collecting data: none

Janetiella infrafoli Monzen, 1955 on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-haura-kobu-fushi" (C-1700) Known distribution record: Hiko-san (Tsuda 1982)

Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-haura-kometsubu-fushi" (C-1710)

Known distribution record: Hiko-san (Tsuda 1982; Sato et al. 2010)

Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-haura-hishigata-fushi" (C-1720) Known distribution record: Kusenbu-san (Tsuda 1982)

Current collecting data: none

Hartigiola faggalli (Monzen, 1955) on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-haomote-kaigara-fushi" (C-1740), "Buna-haura-kaigara-fushi" (C-1741)

Known distribution record: Hiko-san (Tsuda 1982; Sato et al. 2010); Kusenbu-san (Tsuda 1982); Hôman-san, Notouge (Mishima et al. 2014)

Current collecting data: none

Note: There are two sexually isolated intraspecific populations, one inducing galls on upper leaf surface and the other on under leaf surface (Mishima *et al.* 2014).

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-ha-kibatsuno-fushi" (C-1750) Known distribution record: Hiko-san, Kusenbu-san (Tsuda 1982) Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-ha-kotsuno-fushi" (C-1760) Known distribution record: Hiko-san (Tsuda 1982; Sato *et al.* 2010); Kusenbu-san (Tsuda 1982) Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-ha-tsuno-fushi" (C-1780) Known distribution record: Hiko-san (Tsuda 1982; Sato *et al.* 2010); Kusenbu-san (Tsuda 1982)

Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-ha-nagatsuno-fushi" (C-1790) Known distribution record: Hiko-san (Tsuda 1982)

Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-ha-fukure-fushi" (C-1800) Known distribution record: Hiko-san, Kusenbu-san (Tsuda 1982) Current collecting data: none

Unidentified species on Fagus crenata

Galled organ & Japanese gall name (gall no.): Leaf, "Buna-ha-marutama-fushi" (C-1830) Known distribustion record: Hiko-san (Tsuda 1982; Sato *et al.* 2010); Kusenbu-san (Tsuda 1982)

Current collecting data: none

Tokiwadiplosis matecola Simbolon & Yukawa, 1992 on *Lithocarpus edulis*

Galled organ & Japanese gall name (gall no.): Leaf, "Matebashii-ha-usu-fushi" (C-1850) Known distribution record: Shikano-shima (Tokuda *et al.* 2014) Current collecting data: none

CANNABACEAE

Unidentified species on Celtis sinensis

Galled organ & Japanese gall name (gall no.): Leaf, "Enoki-ha-kobu-fushi" (C-2000a) Known distribution record: Fukuoka Pref.

(Monzen 1938) Current collecting data: Ino & Yoshii by J.

Yukawa

Unidentified species on Celtis sinensis

Galled organ & Japanese gall name (gall no.): Leaf bud, "Enoki-me-kobu-fushi" (C-2006) Known distribution record: none Current collecting data: Mitsusawa by K. Matsunaga

Celticecis japonica Yukawa & Tsuda, 1987 on *Celtis sinensis*

Galled organ & Japanese gall name (gall no.): Leaf, "Enoki-ha-togari-tama-fushi" (C-2020a) Known distribution record: Fukuoka Pref. (Monzen 1938); Hiko-san, Wakasugi-yama (Yukawa & Tsuda 1987)

Current collecting data: Hakozaki, Ino, Kashii, Tachibana-yama, & Wakasugi-yama by J. Yukawa; Hisasue Dam, Konomi-yama, Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Orihata Shrine by J. Yukawa & M. Nohara;

Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Haruda by K. Matsunaga

Schizomyia humuli (Shinji, 1939) on Humulus japonicus

Galled organ & Japanese gall name (gall no.): Leaf, "Kanamugura-haura-kobu-fushi" (C-2250a)

Known distribution record: Ino (Tokuda et al. 2004b), Mitsusawa (Kim et al. 2019)

Current collecting data: Hisasue Dam by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Shikano-shima by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Nishi Park by J. Yukawa, S. Kamitani & M. Tokuda

MORACEAE

Lasioptera sp. on Ficus sarmentosa & F. thunbergii

Galled organ & Japanese gall name (gall no.): Leaf, "Itabikazura-haura-goma-fushi" (C-2210a) & "Himeitabi-haura-goma-fushi" (C-2210c)

Known distribution record: Tachibana-yama on the two host plants (Yukawa *et al.* 2014)

Current collecting data: Konomi-yama by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara

Unidentified species on Ficus erecta

Galled organ & Japanese gall name (gall no.): Leaf, "Inubiwa-ha-marutama-fushi" (C-2232) (Fig. 2f)

Known distribution record: none

Current collecting data: Hisasue Dam, Konomi-yama, Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara

Unidentified species on Morus alba

Galled organ & Japanese gall name (gall no.): Leaf, "Kuwa-hamyaku-kobu-fushi" (C-2300a) Known distribution record: none Current collecting data: Hisasue Dam J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Haruda by K, Matsunaga

URTICACEAE

Unidentified species on *Boehmeria spicata* Galled organ & Japanese gall name (gall no.): Leaf, "Koakaso-hamyaku-fukure-fushi" (C-2349) Known distribution record: none

Current collecting data: Wakasugi-yama by J. Yukawa & T. Ganaha

Unidentified species on Boehmeria spicata

Galled organ & Japanese gall name (gall no.): Fruit, "Koakaso-mi-toge-fushi" (C-2350a) Known distribution record: Hiko-san (Yukawa 1982)

Current collecting data: Ino by J. Yukawa

Lasioptera sp. on Boehmeria spicata

Galled organ & Japanese gall name (gall no.): Stem, "Koakaso-kuki-kobu-fushi" (C-2353b) Known distribution record: Ino (Yukawa *et al.* 2014)

Current collecting data: none

POLYGONACEAE

Unidentified species on Fallopia japonica

Galled organ & Japanese gall name (gall no.): Flower bud, "Itadori-tsubomi-fukure-fushi" (C-2395a) (Fig. 2g)

Known distribution record: none

Current collecting data: Masubuchi Dam by J. Yukawa

AMARANTHACEAE

Lasioptera achyranthii Shinji, 1939 on Achyranthes bidentata

Galled organ & Japanese gall name (gall no.): Stem, "Inokoduchi-kuki-maru-zui-fushi" (C-2450a)

Known distribution record: Hiko-san, Hirao (Yukawa 1971); Fukuchi-yama, Magaribuchi, Motooka, Orono-shima, Shôunji, Tachibanayama, Wakasugi-yama, Yakuouji (Yukawa *et al.* 2014)

Current collecting data: Ino & Katsuyamayayama by J. Yukawa; Hisasue Dam, Konomiyama, Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Nishi Park by J. Yukawa, S. Kamitani & M. Tokuda; Haruda & Mitsusawa by K. Matsunaga

Note: Two varieties of the host plant, *A. bidentata* var. *tomentosa* and *A. b.* var. *japonica* are not distinguished.

Schizomyia achyranthesae Elsayed & Tokuda, 2018 on *Achyranthes bidentata*

Galled organ & Japanese gall name (gall no.): Fruit, "Inokoduchi-mi-fukure-fushi" (C-2460) Known distribution record: Motooka (Elsayed *et al.* 2018b)

Current collecting data: Shikano-shima, Tachibana-yama, & Tenpai-zan, by J. Yukawa; Hisasue Dam, Konomi-yama, Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Ino by M. Tokuda; Haruda by K. Matsunaga; Mitsusawa by N. Gyotoku

SCHISANDRACEAE

Illiciomyia yukawai Tokuda, 2004 on *Illicium anisatum*

Galled organ & Japanese gall name (gall no.): Leaf, "Shikimi-ha-kobu-fushi" (C-2490)

Known distribution record: Futsukaichi (Tokuda 2004); Hiko-san (Tokuda 2004; Yukawa *et al.* 2016); Kanayama, Tenpai-zan (Yukawa *et al.* 2013); Wakasugi-yama (Tokuda 2004; Yukawa *et al.* 2013; Yukawa *et al.* 2016)

Current collecting data: Sefuri-yama by J. Yukawa; Konomi-yama & Sharikura by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara

LAURACEAE

Pseudasphondylia neolitseae Yukawa, 1974 on *Neolitsea sericea*

Galled organ & Japanese gall name (gall no.): Leaf, "Shirodamo-ha-kobu-fushi" (C-2540) Known distribution record: Hirao (Yukawa 1974); Hiraodai, Ino (Tokuda & Yukawa 2005); Kurogi (Yukawa & Takahashi 2017) Current collecting data: Abura-yama, Kanayama, Kashii Shrine, & Motooka by J. Yukawa; Hisasue Dam, Konomi-yama, & Sharikura by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Tachibana-yama by K, Yamagishi; Chikushi & Tsuko by K. Matsunaga; Mitsusawa by N. Gyoutoku; Nishi

Daphnephila machilicola Yukawa, 1974 on

Park by J. Yukawa, S. Kamitani & M. Tokuda

Machilus thunbergii

Galled organ & Japanese gall name (gall no.): Leaf, "Tabunoki-haura-usu-fushi" (C-2560) Known distribution record: Tachibana-yama (Maeda *et al.* 1982)

Current collecting data: Ino, & Nagatani Dam by J. Yukawa; Konomi-yama & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita; Haruda by K. Matsunaga; Wakasugi-yama by M. Mishima & N. Uechi

Daphnephila sp. on Machilus japonica

Galled organ & Japanese gall name (gall no.): Leaf, "Hosobatabu-haura-tsubo-fushi" (C-2600)

Known distribution record: none

Current collecting data: Mizunashi & Tachibana-yama by J. Yukawa; Ino by N. Uechi; Wakasugi-yama by M. Mishima & N. Uechi

Unidentified species on Machilus japonica

Galled organ & Japanese gall name (gall no.): Leaf, "Hosobatabu-ha-fukure-fushi" (C-2620a)

Known distribution record: none

Current collecting data: Konomi-yama by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara

Unidentified species on Machilus thunbergii

Galled organ & Japanese gall name (gall no.): Leaf, "Tabunoki-ha-fukure-fushi" (C-2620b) Known distribution record: none

Current collecting data: Ino, Motooka, & Nokono-shima by J. Yukawa; Hisasue Dam, Konomi-yama, Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita

Unidentified species on Lindera glauca

Galled organ & Japanese gall name (gall no.): Leaf, "Yama-koubashi-ha-kobu-fushi" (C-2657) (Fig. 2h)

Known distribution record: none

Current collecting data: Tachibana-yama by J. Yukawa

RANUNCULACEAE

Schizomyia sp. on Cimicifuga simplex

Galled organ & Japanese gall name (gall no.): Flower bud, "Sarashina-shouma-tsubomifukure-fushi" (C-2660a)

Known distribution record: none

Current collecting data: Kanayama by J. Yukawa

Note: Generic position of this gall midge was determined by Toji *et al.* (2021) based on molecular phylogenetic analysis.

LARDIZABALACEAE

Unidentified species on *Akebia quinata* Galled organ & Japanese gall name (gall no.): Leaf, "Akebi-ha-toji-fushi" (C-2685a) Known distribution record: none Current collecting data: Hanatate-yama & Koura-san by J. Yukawa

Contarinia sp. on Akebia trifoliata

Galled organ & Japanese gall name (gall no.): Leaf, "Mitsuba-akebi-haberi-maki-fushi" (C-2687) (Fig. 2i) Known distribution record: none Current collecting data: Hikarigaoka & Mitsusawa by K. Matsunaga

ACTINIDIACEAE

Pseudasphondylia matatabi (Yuasa & Kumazawa, 1938) on *Actinidia polygama*

Galled organ & Japanese gall name (gall no.): Flower bud, "Matatabi-tsubomi-fukure-fushi" (C-2710)

Known distribution record: Ino (Tokuda & Yukawa 2005)

Current collecting data: Hiko-san by K. Setoya; Inunaki-touge by J. Yukawa, N. Uechi & W. Kim; Sefuri-san by T. Kawarabata

PENTAPHYLACACEAE

Unidentified species on *Eurya japonica & E. emarginata*

Galled organ & Japanese gall name (gall no.): Stem, "Hisakaki-eda-kobu-fushi" (C-2760a), "Hama-hisakaki-eda-kobu-fushi" (C-2760b) Known distribution record: none

Current collecting data: Ino on *E. japonica* by J. Yukawa; Orono-shima on *E. emarginata* by M. Tokuda *et al*.

THEACEAE

Lasioptera camelliae Ohno & Yukawa, 1984 on Camellia japonica

Galled organ & Japanese gall name (gall no.): Leaf, "Yabutsubaki-hamyaku-fukure-fushi" (C-2800a)

Known distribution record: Shima, Tachibanayama (Ohno & Yukawa 1984)

Current collecting data: Ino by J. Yukawa; Konomi-yama, Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by T. Katsuda; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita; Minami Park by M. Tokuda; Nishi Park by J. Yukawa, S. Kamitani & M. Tokuda

HAMAMELIDACEAE

Asphondylia itoi Uechi & Yukawa, 2004 on Distylium racemosum

Galled organ & Japanese gall name (gall no.): Fruit, "Isunoki-mi-kogata-fushi" (C-2890) Known distribution record: Hakozaki Shrine (Uechi & Yukawa 2004) Current collecting data: none

HYDORANGEACEAE

Contarinia hydrangea Shinji, 1939 on *Hydrangea paniculata*

Galled organ & Japanese gall name (gall no.): Fruit, "Noriutsugi-mi-fukure-fushi" (C-2920) Known distribution record: none Current collecting data: Hiko-san by K. Ohno

Unidentified species on Hydrangea serrata

Galled organ & Japanese gall name (gall no.): Fruit, "Yama-ajisai-mi-fukure-fushi" (C-2960) Known distribution record: none Current collecting data: Hiko-san, Ino, & Tenpai-zan by J. Yukawa

ROSACEAE

Unidentified species on Pourthiaea villosa

Galled organ & Japanese gall name (gall no.): Leaf, "Kamatsuka-hamyaku-kobu-fushi" (C-3070)

Known distribution record: none

Current collecting data: Hiko-san by K. Tsuda

Unidentified species on Rubus palmatus

Galled organ & Japanese gall name (gall no.): Terminal bud, "Nagaba-momiji-ichigoshintome-fushi" (C-3170a)

Known distribution record: none Current collecting data: Ino by J. Yukawa

Lasioptera rubi (Schrank, 1803) on Rubus parvifolius

Galled organ & Japanese gall name (gall no.): Stem, "Nawashiro-ichigo-kuki-kobu-fushi" (C-3200a)

Known distribution record: Shimobaru (Yukawa 1971)

Current collecting data: Dazaifu Shrine, Hanami, Hiko-san, & Nogouchi by J. Yukawa

Lasioptera sp. on Rosa multiflora

Galled organ & Japanese gall name (gall no.): Stem, "Noibara-kuki-kobu-fushi" (C-3210a) Known distribution record: Motooka (Yukawa *et al.* 2014)

Current collecting data: Ino by J. Yukawa

Unidentified species on Rosa multiflora

Galled organ & Japanese gall name (gall no.): Leaf bud, "Noibara-me-fukure-fushi" (C-3220a)

Known distribution record: none

Current collecting data: Nagatani Dam & Yoshii by J. Yukawa; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita; Hanatate-yama & Koura-san by N. Gyoutoku

Dasineura sp. on Rosa multiflora

Galled organ & Japanese gall name (gall no.): Leaf, "Noibara-ha-ore-fushi" (C-3230a)

Known distribution record: Hiko-san (Tokuda & Yukawa 2004)

Current collecting data: Ino & Motooka by J. Yukawa; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita; Haruda, Mitsusawa, & Tsuko by K. Matsunaga

Contarinia sp. on a cultivated Rosa

Galled organ & Japanese gall name (gall no.): Leaf, "Bara-ha-ore-fushi" (C-3231) Known distribution record: Jouyou, Kurogi, & Susenji (Tokuda & Yukawa 2004) Current collecting data: none

Asphondylia yushimai Yukawa & Uechi, 2003 on Laurocerasus zippeliana

Galled organ & Japanese gall name (gall no.):

Fruit, "Bakuchinoki-mi-midori-fushi" (C-3290)

Known distribution record: Minami Park (Uechi et al. 2018)

Current collecting data: Motooka by J. Yukawa; Minami Park by J. Yukawa & M. Ichinose

Note: *L. zippeliana* is an overwintering host plant of *A. yushimai* (Yukawa *et al.* 2003).

FABACEAE

Unidentified species on *Pueraria lobata*

Galled organ & Japanese gall name (gall no.): Leaf, "Kuzu-haura-tama-fushi" (C-3380)

Known distribution record: none

Current collecting data: Ino & Tenpai-zan by J. Yukawa; Konomi-yama, Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Ôtake by M. Tokuda; Yoshii by H. Inoue; Mitsusawa & Tsuko by K. Matsunaga; Kasuya Research Forest by N. Uechi

Pitydiplosis puerariae Yukawa, Ikenaga & Sato, 2012 on *Pueraria lobata*

Galled organ & Japanese gall name (gall no.): Leaf, "Kuzu-ha-togari-tama-fushi" (C-3390a) Known distribution record: Ino (Yukawa *et al.* 2012)

Current collecting data: Hiko-san, Ideura, Koga, Motooka, Shikano-shima, Tachibanayama, Tatara, & Yoshii by J. Yukawa; Hisasue Dam by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Mitsusawa & Tsuko by K. Matsunaga

Asphondylia yushimai Yukawa & Uechi, 2003 on *Glycine max*

Galled organ & Japanese gall name (gall no.): Pod, "Daizu-saya-kubire-fushi" (C-3440a) Known distribution record: Yoshiki (Yukawa *et al.* 2003; Ganaha *et al.* 2004; Uechi & Yukawa 2006; Uechi *et al.* 2018) Current collecting data: none Note: *G. max* is a summer-autumn host plant of *A. yushimai* (Yukawa *et al.* 2003).

Unidentified species on Albizia julibrissin

Galled organ & Japanese gall name (gall no.): Leaf, "Nemunoki-hatoji-fushi" (C-3448)

Known distribution record: none

Current collecting data: Motooka by J. Yukawa

Dasineura wistariae Mani, 1954 on Wisteria floribunda

Galled organ & Japanese gall name (gall no.): Flower bud, "Fuji-tsubomi-fukure-fushi" (C-3470)

Known distribution record: none

Current collecting data: Kashii Shrine, Kurogi, & Sangahata by J. Yukawa; Haruda by K. Matsunaga

Unidentified species on *Wisteria floribunda* & *W. brachybotrys*

Galled organ & Japanese gall name (gall no.): Leaf, "Fuji-ha-ore-fushi" (C-3471a) (Fig. 2j), "Yamafuji-ha-ore-fushi" (C-3471b)

Known distribution record: none

Current collecting data: Haruda on *W. floribunda & W. brachybotrys* (New host record) by K. Matsunaga

Lasioptera lespedezae Shinji, 1939 on Lespedeza bicolor

Galled organ & Japanese gall name (gall no.): Stem, "Yamahagi-kuki-tsuto-fushi" (C-3480a) Known distribution record: Wakasugi-yama (Yukawa *et al.* 2014)

Current collecting data: Kasuya Research Forest by K. Yamagishi

Unidentified species on Lespedeza bicolor

Galled organ & Japanese gall name (gall no.): Leaf, "Yamahagi-haguki-kobu-fushi" (C-3481) (Fig. 2k) Known distribution record: none Current collecting data: Kasuya Research Forest by K. Yamagishi

Unidentified species on Lespedeza bicolor

Galled organ & Japanese gall name (gall no.): Leaf, "Yamahagi-hatoji-tamago-fushi" (C-3490a)

Known distribution record: none

Current collecting data: Tenpai-zan by N. Uechi; Hibaru, Hiko-san, & Ino by J. Yukawa

Unidentified species on Lespedeza cyrtobotrya

Galled organ & Japanese gall name (gall no.): Leaf, "Marubahagi-hatoji-tamago-fushi" (C-3490b)

Known distribution record: none

Current collecting data: Hiko-san & Nagatani Dam by J. Yukawa

Unidentified species on *Wisteria brachybotrys* & *W. floribunda*

Galled organ & Japanese gall name (gall no.): Leaf, "Yamafuji-haberi-maki-fushi" (C-3500a), "Fuji-haberi-maki-fushi" (C-3500b) Known distribution record: none

Current collecting data: Fukuchi-yama & Kasuya Research Forest on *W. brachybotrys* by Yukawa; Tachibana-yama W_{\cdot} J. on brachybotrys by K. Takasu; Konomi-yama & Sharikura on *W. brachybotrys* by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima on W. brachybotrys by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Haruda by K. Matsunaga on W. brachybotrys; Hisasue Dam & Shôunji on W. floribunda by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Minou-san by J. Yukawa on W. floribunda

Unidentified species on *Wisteria brachybotrys* & *W. floribunda*

Galled organ & Japanese gall name (gall no.): Leaf, "Yamafuji-ha-ibo-fushi" (C-3510a), "Fuji-ha-ibo-fushi" (C-3510b)

Known distribution record: none

Current collecting data: Akama, Kasuya Research Forest, & Motooka by on W. brachybotrys J. Yukawa; Hisasue Dam & Konomi-yama on W. brachybotrys by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Inunaki-touge on W. brachybotrys J. Yukawa & K. Katahira; Haruda on W. brachybotrys by K. Matsunaga; Hiko-san, Ino, Kasuya Research Forest, Tachibana-yama, Takada, Wakasugi-yama, & Yahata on W. floribunda by J. Yukawa

Unidentified species on Wisteria brachybotrys

Galled organ & Japanese gall name (gall no.): Leaf, "Yamafuji-ha-ke-fushi" (C-3520a)

Known distribution record: none

Current collecting data: Hisasue Dam & Konomi-yama by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Notouge by F.

Kodoi; Haruda by K. Matsunaga

Unidentified species on *Wisteria brachybotrys* & *W. floribunda*

Galled organ & Japanese gall name (gall no.): Leaf, "Yamafuji-ha-fukure-fushi" (C-3530a), "Fuji-ha-fukure-fushi" (C-3530b)

Known distribution record: none

Current collecting data: Ino, Kasuya Research Forest, Takada, & Yahata on *W. brachybotrys* by J. Yukawa; Tachibana-yama & Wakasugiyama on *W. brachybotrys* by K. Takasu; Haruda on *W. brachybotrys* & *W. floribunda* by K. Matsunaga; Hisasue Dam & Shôunji on *W. floribunda* by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara

Obolodiplosis robiniae (Haldeman, 1847) on *Robinia pseudoacacia*

Galled organ & Japanese gall name (gall no.): Leaf, "Harienju-haberi-maki-fushi" (C-3539) Known distribution record: Kasuya Research Forest (Kodoi *et al.* 2003); Hakozaki & Kasuya Research Forest (Uechi *et al.* 2005b) Current collecting data: Hikarigaoka & Tsuko by K. Matsunaga

EUPHORBIACEAE

Asphondylia sp. on Neoshirakia japonica

Galled organ & Japanese gall name (gall no.): Leaf bud, "Shiraki-me-tama-fushi" (C-3570) Known distribution record: Kitayama & Sangun-san (Uechi *et al.* 2005a) Current collecting data: none

RUTACEAE

Unidentified species on Zanthoxylum ailanthoides

Galled organ & Japanese gall name (gall no.): Leaflet, "Karasuzanshou-haberi-maki-fushi" (C-3597) (Fig. 2l)

Known distribution record: none

Current collecting data: Haruda & Mitsusawa by K. Matsunaga (New finding)

Brief description: One or both margins of leaflet are rolled upward, containing plural larvae that exhibit jumping behavior.

ANACARDIACEAE

Asphondylia sphaera Monzen, 1937 on Rhus sylvestris & R. succedanea

Galled organ & Japanese gall name (gall no.):

Flower bud, "Yamahaze-tsubomi-fukure-fushi" (C-3650a), "Hazenoki-tsubomi-fukure-fushi" (C-3650b)

Known distribution record: Amagi & Kabutoyama on *R. sylvestris* (Uechi & Yukawa 2006); Aoba Park & Yamamoto on *R. succedanea* (Uechi & Yukawa 2006)

Current collecting data: Tachibana-yama on *R. succedanea* by K. Yamagishi

Note: Species of *Rhus* are short-term spring host plants of *A. sphaera* (Uechi & Yukawa 2006).

SAPINDACEAE

Unidentified species on Acer palmatum

Galled organ & Japanese gall name (gall no.): Leaf, "Irohamomiji-ha-wamon-fushi" (C-3677a)

Known distribution record: none

Current collecting data: Hiko-san by J. Yukawa

AQUIFOLIACEAE

Schizomyia sasakii (Monzen, 1937) on Ilex crenata

Galled organ & Japanese gall name (gall no.): Axillary bud, "Inutsuge-me-tama-fushi" (C-3730a)

Known distribution record: Fukuoka Pref. (Monzen 1955b); Hiko-san (Yukawa 1971; Tokuda *et al.* 2004b); Ino (Tokuda *et al.* 2004b); Inunaki, Sefuri-san & Tachibanayama (Tokuda *et al.* 2002, 2004b)

Current collecting data: Sangun-san by F. Kodoi & N. Uechi

Schizomyia soyogo Kikuti, 1939 on Ilex pedunculosa, I. chinensis, & I. integra

Galled organ & Japanese gall name (gall no.): Axillary bud, "Soyogo-me-tama-fushi" (C-3750a), "Nanaminoki-me-tama-fushi" (C-3750b), "Mochinoki-me-tama-fushi" (C-3750d)

Known distribution record: Amagi, Hiko-san, Mizunashi, & Tsuyazaki on *Ilex pedunculosa* (Tokuda *et al.* 2002, 2004b), Aobano-mori Park, Sefuri-san, & Tachibana-yama on *I. chinensis* (Tokuda *et al.* 2002, 2004b), Maiduru Park & Minami Park on *I. integra* (Tokuda *et al.* 2002, 2004b)

Current collecting data: Hanatate-yama & Koura-san on *Ilex pedunculosa* by J. Yukawa;

Haruda on I. chinensis by K. Matsunaga

CELASTRACEAE

Asphondylia sp. on Celastrus orbiculatus

Galled organ & Japanese gall name (gall no.): Fruit, "Tsuru-umemodoki-mi-fukure-fushi" (C-3790)

Known distribution record: Kusenbu-san (Uechi et al. 2005a)

Current collecting data: Mitsusawa by K. Matsunaga; Motooka by J. Yukawa & T. Fujii

Masakimyia pustulae Yukawa & Sunose, 1976 on Euonymus japonicus

Galled organ & Japanese gall name (gall no.): Leaf, "Masaki-ha-fukure-fushi" (C-3810a)

Known distribution record: Hakozaki & Shikano-shima (Fujii et al. 2014)

Current collecting data: Akama & Shima by J. Yukawa; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita

VITACEAE

Schizomyia uechiae Elsayed & Tokuda, 2019 on Ampelopsis brevipedunculata

Galled organ & Japanese gall name (gall no.): Flower bud, "Kireha-nobudou-tsubomifukure-fushi" (C-3850b)

Known distribution record: Haruda (Elsayed et al. 2019)

Current collecting data: Mitsusawa by K. Matsunaga

Asphondylia baca Monzen, 1937 on Ampelopsis glandulosa & Cayratia japonica

Galled organ & Japanese gall name (gall no.): Fruit, "Nobudou-mi-fukure-fushi" (C-3860a), "Yabugarashi-mi-fukure-fushi" (C-3860b)

Known distribution record: Aobano-mori Park, Konomi-yama, Kusenbu-san, Sharikura, Shikano-shima, Yame (Uechi *et al.* 2002), Hiko-san (Uechi *et al.* 2002, 2004), Ino (Uechi *et al.* 2002, 2004, 2018; Uechi & Yukawa 2006), Inunaki (Uechi *et al.* 2002, Uechi & Yukawa 2006) on *Ampelopsis glandulosa*; Kasuya Research Forest on *C. japonica* (Uechi *et al.* 2002)

Current collecting data: Haruda, Mitsusawa, & Tsuko on *A. glandulosa* by K. Matsunaga; Katsuyama-yayama on *A. glandulosa* by J. Yukawa; Motooka by J. Yukawa & M. Ichinose; Nokono-shima & Shikano-shima on *A. glandulosa* by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita

Note: *A. glandulosa* and *C. japonica* are summer-autumn host plants of *A. baca* (Uechi *et al.* 2004).

Unidentified species on *Vitis coignetiae*, *V. ficifolia*, & *V. flexuosa*

Galled organ & Japanese gall name (gall no.): Leaf, "Yama-budou-ha-kobu-fushi" (C-3930a), "Ebiduru-ha-kobu-fushi" (C-3930b), "Sankakuduru-ha-kobu-fushi" (C-3930c)

Known distribution record: none

Current collecting data: Motooka on V. coignetiae, Hiko-san on V. ficifolia by J. Yukawa; Nokono-shima on V. ficifolia by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima on V. ficifolia by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Hiko-san on V. flexuosa by J. Yukawa

Ampelomyia conicocoricis Elsayed & Tokuda, 2019 on *Vitis vinifera*

Galled organ & Japanese gall name (gall no.): Leaf, "Budou-ha-tokkuri-fushi" (C-3940d) Known distribution record: none Current collecting data: Hibaru (former Horticultural Experiment Station of Fukuoka Prefecture) by K. Yamada & J. Yukawa

ELAEOCARPACEAE

Pseudasphondylia elaeocarpi Tokuda & Yukawa, 2005 on *Elaeocarpus zollingeri*

Galled organ & Japanese gall name (gall no.): Leaf, "Horutonoki-haura-eboshi-fushi" (C-3950)

Known distribution record: none

Current collecting data: Ino by J. Yukawa; Sharikura by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima & Shikano-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Orono-shima by. M. Tokuda *et al*.

ELAEAGNACEAE

Unidentified species on *Elaeagnus pungens*

Galled organ & Japanese gall name (gall no.): (C-4057d) (Fig. 2m) Known distribution record: none Leaf bud

Known distribution record: none Leaf bud, "Nawashiro-gumi-me-fukure-fushi"

Current collecting data: Mitsusawa by K. Matsunaga (New host record from Fukuoka Pref.)

CUCURBITACEAE

Lasioptera sp. on Trichosanthes cucumeroides & T. bracteata

Galled organ & Japanese gall name (gall no.): Vine, "Karasuuri-kuki-fukure-fushi" (C-4100a), "Ôkarasuuri-kuki-fukure-fushi" (C-4100b)

Known distribution record: Inunaki, Konomiyama, Motooka, Shikano-shima, & Tachibanayama on T. cucumeroides (Yukawa et al. 2014) Current collecting data: Katsuyama-yayama, Masubuchi Dam, Wakita, & Yakiyama-touge on T. cucumeroides by J. Yukawa; Hisasue Sharikura, & Shôunji Dam, on Т. cucumeroides by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima on T. cucumeroides by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Nishi Park on T. cucumeroides & T. bracteata by J. Yukawa, S. Kamitani, & M. Tokuda

GARRYACEAE

Asphondylia aucubae Yukawa & Ohsaki, 1988 on Aucuba japonica

Galled organ & Japanese gall name (gall no.): Fruit, "Aoki-mi-fukure-fushi" (C-4130a)

Known distribution record: Hiko-san, Inunaki (Yukawa 1971); Ino (Uechi *et al.* 2018); Hikosan, Ino, Konomi-yama, & Tachibana-yama (Uechi *et al.* 2002)

Current collecting data: Motooka & Koura-san by J. Yukawa; Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita; Wakasugi-yama by M. Tokuda

CORNACEAE

Unidentified species on Swida macrophylla & Cornus controversa

Galled organ & Japanese gall name (gall no.): Leaf, "Kumano-mizuki-hamyaku-fukure-fushi" (C-4140a), "Mizuki-hamyaku-fukure-fushi" (C-4140b)

Known distribution record: Ino Dam on *S. macrophylla* (Kim *et al.* 2015)

Current collecting data: Hiko-san on *S. macrophylla* by J. Yukawa; Nokono-shima on *S. macrophylla* by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Motooka on *S. macrophylla* by J. Yukawa & W. Kim; Yamagami Dam on *S. macrophylla* by. K. Matsunaga; Ino Dam on *S. macrophylla* and *C. controversa* by J. Yukawa, W. Kim, M. Nohara, & K. Katahira.

HELWINGIACEAE

Asphondylia sp. on Helwingia japonica Galled organ & Japanese gall name (gall no.): Fruit, "Hanaikada-mi-fukure-fushi" (C-4150) Known distribution record: Hiko-san (Uechi et al. 2002)

Current collecting data: none

ARALIACEAE

Asphondylia sp. on Hedera rhombea

Galled organ & Japanese gall name (gall no.): Flower bud, "Kiduta-tsubomi-fukure-fushi" (C-4170)

Known distribution record: none

Current collecting data: Ino, Motooka, & Nogouchi by J. Yukawa; Yakuouji by J. Yukawa & D. Yamaguchi; Rai-zan by M. Tokuda; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita

Asphondylia sp. on Hedera rhombea

Galled organ & Japanese gall name (gall no.): Fruit, "Kiduta-mi-fukure-fushi" (C-4172) Known distribution record: Shikano-shima,

Yakuouji, & Yoshiki (Uechi et al. 2005a); Kuwabara (Uechi et al. 2018)

Current collecting data: Ino & Nokono-shima by J. Yukawa; Orono-shima by M. Tokuda; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita

Note: Fruit of *H. rhombea* is an overwintering site for this gall midge (Uechi *et al.* 2018).

Unidentified species on *Kalopanax* septemlobus

Galled organ & Japanese gall name (gall no.): Leaf, "Harigiri-hamyaku-fukure-fushi" (C-4180)

Known distribution record: Hiko-san (Yukawa 1978)

Current collecting data: none

SCHOEPFIACEAE

Asphondylia tojoi Elsayed & Tokuda, 2018 on *Schoepfia jasminodora*

Galled organ & Japanese gall name (gall no.): Leaf bud, "Boroboronoki-me-fukure-fushi" (C-4351)

Known distribution record: Shimizu, Kourasan, Tsuko, & Yoshii (Uechi et al. 2012); Koura-san (Elsayed et al. 2018a)

Current collecting data: Haruda & Mitsusawa by K. Matsunaga

PHYTOLACCACEAE

Asphondylia sp. on Phytolacca americana

Galled organ & Japanese gall name (gall no.): Fruit, "Youshu-yamagobou-mi-fukure-fushi" (C-4391a) (Fig. 2n)

Known distribution record: none

Current collecting data: Mitsusawa by K. Matsunaga

Note: *P. americana* is a summer host plant of this gall midge (Uechi *et al.* 2018).

CLETHRACEAE

Unidentified species on *Clethra barbinervis*

Galled organ & Japanese gall name (gall no.): Leaf, "Ryoubu-ha-tama-fushi" (D-0010) Known distribution record: none Current collecting data: Shiouji-yama by J. Yukawa & W. Kim

ERICACEAE

Asphondylia sp. on Pieris japonica

Galled organ & Japanese gall name (gall no.): Flower bud, "Asebi-tsubomi-toji-fushi" (D-0035)

Known distribution record: Minami Park (Uechi *et al.* 2002, 2005a) Current collecting data: none

PRIMULACEAE

Asphondylia sp. on Ardisia japonica

Galled organ & Japanese gall name (gall no.): Flower bud, "Yabukouji-mi-fukure-fushi" (D-0055a)

Known distribution record: Ino (Uechi et al. 2002, 2005a)

Current collecting data: none

STYRACACEAE

Lasioptera sp. on Styrax japonicus

Galled organ & Japanese gall name (gall no.): Stem, "Egonoki-eda-fukure-fushi" (D-0100) Known distribution record: Ino (Yukawa *et. al.* 2014)

Current collecting data: Hiko-san & Sefuriyama by Y. So & M. Tokuda

Unidentified species on Styrax japonicus

Galled organ & Japanese gall name (gall no.): Leaf bud, "Egonoki-me-fukure-fushi" (D-0110a)

Known distribution record: none

Current collecting data: Hiko-san, Ino, Sefuriyama, & Tachibana-yama by J. Yukawa; Wakasugi-yama by J. Yukawa & T. Ganaha; Ino by M. Tokuda; Haruda by K. Matsunaga

Dasineura sp. on Styrax japonicus

Galled organ & Japanese gall name (gall no.): Leaf, "Egonoki-haura-ketama-fushi" (D-0130) Known distribution record: Sefuri-yama & Tachibana-yama (Tokuda *et al.* 2006)

Current collecting data: Fukuchi-yama, Motooka, & Shikano-shima by J. Yukawa; Sharikura by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Koura-san by J. Yukawa & K. Katahira; Hikarigaoka by K. Matsunaga; Hiko-san & Ino by Y. So & M. Tokuda; Yukawa-yama by Y. So, M. Tokuda, & J. Yukawa

Oxycephalomyia styraci (Shinji, 1944) on Styrax japonicus

Galled organ & Japanese gall name (gall no.): Leaf, "Egonoki-ha-tsubo-fushi" (D-0150a)

Known distribution record: Ino (Tokuda et al. 2004a)

Current collecting data: Koura-san by J. Yukawa; Haruda & Mitsusawa by K. Matsunaga

Contarinia sp. on Styrax japonicus

Galled organ & Japanese gall name (gall no.): Leaf, "Egonoki-ha-hirata-maru-fushi" (D-0160)

Known distribution record: Sefuri-yama & Tachibana-yama (Tokuda *et al.* 2006)

Current collecting data: Futsukaichi, Ino, & Tachibana-yama by J. Yukawa; Konomi-yama M. Nohara; Koura-san by J. Yukawa & K.

Katahira; Hikarigaoka by K. Matsunaga; by J.

Yukawa, M. Tokuda, J. Abe, N. Uechi, & Hiko-san by Y. So & M. Tokuda; Yukawayama by Y. So, M. Tokuda, & J. Yukawa

Contarinia sp. on Styrax japonicus

Galled organ & Japanese gall name (gall no.): Leaf, "Egonoki-ha-ibo-fushi" (D-0161) Known distribution record: Sefuri-yama & Tachibana-yama (Tokuda *et al.* 2006) Current collecting data: Hikarigaoka by K. Matsunaga; Rai-zan by M. Tokuda; Ino by Y. So & M. Tokuda; Yukawa-yama by Y. So, M. Tokuda, & J. Yukawa; Haruda & Mitsusawa by K. Matsunaga, Y. So, & M. Tokuda

Unidentified species on Styrax japonicus

Galled organ & Japanese gall name (gall no.): Flower bud, "Egonoki-tsubomi-fukure-fushi" (D-0170) Known distribution record: none Current collecting data: Tachibana-yama by J. Yukawa; Mitsusawa & Kouzono by K. Matsunaga; Ino by Y. So & M. Tokuda

Unidentified species on *Styrax japonicus*

Galled organ & Japanese gall name (gall no.): Leaf, "Egonoki-haura-tama-fushi" (D-0171) Known distribution record: none Current collecting data: Hiko-san, Ino, & Tachibana-yama by J. Yukawa

Contarinia sp. on Styrax japonicus

Galled organ & Japanese gall name (gall no.): Leaf, "Egonoki-haura-murasaki-fushi" (D-0172) Known distribution record: Sefuri-yama (Tokuda *et al.* 2006)

Current collecting data: none

Unidentified species on Styrax japonicus

Galled organ & Japanese gall name (gall no.): Fruit, "Egonoki-mi-fukure-fushi" (D-0173) (Fig. 20)

Known distribution record: none

Current collecting data: Haruda by K. Matsunaga; Ino by Y. So & M. Tokuda (New finding)

Brief description: Somewhat flattened subglobular swelling of the fruit; pale green on the surface; mean height 8.4 mm and mean diameter 14.7 mm at maturity; each gall containing 8-16 larvae.

SYMPLOCACEAE

Unidentified species on Symplocos coreana

Galled organ & Japanese gall name (gall no.): Leaf bud, "Tanna-sawafutagi-me-fukure-fushi" (D-0230)

Known distribution record: Hiko-san (Yukawa 1978)

Current collecting data: none

OLEACEAE

Asphondylia sphaera Monzen, 1937 on Ligustrum japonicum

Galled organ & Japanese gall name (gall no.): Flower bud, "Nezumimochi-tsubomi-tojifushi" (D-0260)

Known distribution record: Aobano-mori Park, Kasuya Research Forest, Nagatani Dam, & Tachibana-yama (Uechi *et al.* 2002)

Current collecting data: none

Note: Flower bud of *L. japonicum* is a short-term spring galling-site for *A. sphaera* (Uechi & Yukawa 2006).

Asphondylia sphaera Monzen, 1937 on Ligustrum japonicum

Galled organ & Japanese gall name (gall no.): Fruit, "Nezumimochi-mi-midori-fushi" (D-0270a)

Known distribution record: Aobano-mori Park, Rai-zan, & Tachibana-yama (Uechi *et al.* 2002, 2018; Uechi & Yukawa 2006); Ino, Maiduru Park, Nagatani Dam, Orono-shima, Minami Park, & Yakuouji (Uechi *et al.* 2002); Kasuya Research Forest (Uechi & Yukawa 2006)

Current collecting data: Hanatate-yama & Motooka by J. Yukawa; Konomi-yama & Sharikura by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita; Orihata Shrine, Rai-zan, Shikano-shima, & Wakasugi-yama by M. Tokuda; Hikarigaoka by K. Matsunaga

Note: Fruit of *L. japonicum* is an annual galling-site for *A. sphaera* (Uechi & Yukawa 2006).

Asphondylia sphaera Monzen, 1937 on Ligustrum obtusifolium & L. lucidum

Galled organ & Japanese gall name (gall no.): Fruit, "Ibotanoki-mi-midori-fushi" (D-0270b),

"Tou-nezumimochi-mi-midori-fushi" (D-

0270d)

Known distribution record: Kasuya Research Forest on *L. obtusifolium* (Uechi *et al.* 2002); Yoshiki on *L. lucidum* (Uechi & Yukawa 2006) Current collecting data: none

Asphondylia yushimai Yukawa & Uechi, 2003 on Osmanthus heterophyllus

Galled organ & Japanese gall name (gall no.): Fruit, "Hiiragi-mi-midori-fushi" (D-0290)

Known distribution record: Maiduru Park (Uechi et al. 2005a, 2018)

Current collecting data: Kasuya Research Forest by J. Yukawa

Note: *O. heterophyllus* is an overwintering host plant of *A. yushimai* (Uechi *et al.* 2005a).

Unidentified species on Fraxinus platypoda

Galled organ & Japanese gall name (gall no.): Leaf, "Shioji-hamyaku-fukure-fushi" (D-0299) (Fig. 3a)

Known distribution record: none

Current collecting data: Hiko-san by K. Odagiri

GENTIANACEAE

Unidentified species on Swertia bimaculata

Galled organ & Japanese gall name (gall no.): Fruit, "Akebonosou-mi-fukure-fushi" (D-0302) (Fig. 3b)

Known distribution record: none

Current collecting data: Yanouchi by A. Tominaga

APOCYNACEAE

Ametrodiplosis aeroradicis Elsayed, Yukawa & Tokuda, 2021 on Trachelospermum asiaticum

Galled organ & Japanese gall name (gall no.): Aerial root, "Teikakazura-ne-kobu-fushi" (D-0320a)

Known distribution record: none

Current collecting data: Ino by J. Yukawa; Konomi-yama & Sharikura by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Tachibana-yama by. N. Uechi

Schizomyia usubai Elsayed & Tokuda, 2018 on Trachelospermum asiaticum

Galled organ & Japanese gall name (gall no.): Fruit, "Teikakazura-mi-saki-fukure-fushi" (D-

0330a)

Known distribution record: none

Current collecting data: Masubuchi Dam by J. Yukawa; Shikano-shima by J. Yukawa, K. Matsuo, S. Seto, & A. Sugita; Mitsusawa by K. Matsunaga; Kasuya Research Forest by M. Tokuda

RUBIACEAE

Asphondylia sp. on Paederia foetida

Galled organ & Japanese gall name (gall no.): Flower bud, "Hekusokazura-tsubomi-hosofushi" (D-0360)

Known distribution record: Ino (Uechi et al. 2002); Kasuya Research Forest (Uechi et al. 2018)

Current collecting data: Konomi-yama by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Hikarigaoka & Mitsusawa by L. Matsunaga

Note: *P. foetida* is a summer host plant of this gall midge (Uechi *et al.* 2018).

Schizomyia paederiae Elsayed & Tokuda, 2018 on Paederia foetida

Galled organ & Japanese gall name (gall no.): Flower bud, "Hekusokazura-tsubomi-marufushi" (D-0370)

Known distribution record: Mitsusawa (Elsayed *et al.* 2018a)

Current collecting data: Ino by J. Yukawa; Nishi Park by J. Yukawa, S. Kamitani, & M. Tokuda; Hikarigaoka & Tsuko by K. Matsunaga

Asphondylia sp. on Paederia foetida

Galled organ & Japanese gall name (gall no.): Fruit, "Hekusokazura-mi-maru-fushi" (D-0371) (Fig. 3c)

Known distribution record: none

Current collecting data: Hikarigaoka & Mitsusawa by N. Gyoutoku

Lasioptera paederiae (Shinji, 1944) on *Paederia foetida*

Galled organ & Japanese gall name (gall no.): Vine, "Hekusokazura-kuki-fukure-fushi" (D-0378)

Known distribution record: Inunaki (Yukawa 1971); Motooka (Yukawa et al. 2014)

Current collecting data: Dazaifu, Koura-san, & Tachibana-yama by J. Yukawa

Unidentified species on Galium spurium

Galled organ & Japanese gall name (gall no.): Leaf bud, "Yaemugura-me-fukure-fushi" (D-

0384f) (Figs 3d, e)

Known distribution record: none

Current collecting data: Hikarigaoka by K. Matsunaga (New host record)

Unidentified species on *Galium* pseudoasprellum

Galled organ & Japanese gall name (gall no.): Leaf bud, "Ôba-yaemugura-ha-fukure-fushi" (D-0385)

Known distribution record: Shikano-shima (Yukawa 1982)

Current collecting data: none

Unidentified species on *Galium kikumugurai* & *G. spurium*

Galled organ & Japanese gall name (gall no.): Leaf bud, "Kikumugura-tsubomi-fukure-fushi" (D-0389a), "Yaemugura-tsubomi-fukure-fushi" (D-0389b) (Fig. 3f)

Known distribution record: none

Current collecting data: Haruda on G. kikumugurai & Hikarigaoka on G. spurium by K. Matsunaga

BORAGINACEAE

Unidentified species on Ehretia acuminata

Galled organ & Japanese gall name (gall no.): Flower bud, "Chishanoki-tsubomi-fukurefushi" (D-1211) (Fig. 3g) Known distribution record: none Current collecting data: Ichinose by D. Kunitoku

LAMIACEAE

Lasioptera callicarpae Shinji, 1938 on *Callicarpa japonica*

Galled organ & Japanese gall name (gall no.): Stem, "Murasaki-shikibu-eda-tsuto-fushi" (D-0420)

Known distribution record: Sharikura (Yukawa *et al.* 2014)

Current collecting data: Konomi-yama by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara

Unidentified species on *Callicarpa japonica* & *C. mollis*

Galled organ & Japanese gall name (gall no.):

Leaf, "Murasaki-shikibu-ha-ketama-fushi" (D-0422a), "Yabu-murasaki-ha-ketama-fushi" (D-0422b) (Fig. 3h)

Known distribution record: none

Current collecting data: Sharikura on *C. japonica* by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Hiko-san on *C. mollis* by K. Yamagishi

Asphondylia sp. on Callicarpa japonica

Galled organ & Japanese gall name (gall no.): Fruit, "Murasaki-shikibu-mi-fukure-fushi" (D-0430a)

Known distribution record: none

Current collecting data: Hiko-san by K. Takeno; Konomi-yama by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Tachibana-yama by K. Yamagishi

Rhopalomyia ? *callicarpae* Shinji, 1939 on *Callicarpa mollis*, *C. japonica*, & *C. j.* var. *luxurians*

Galled organ & Japanese gall name (gall no.): Stem, "Yabu-murasaki-haguki-kobu-fushi" (D-0440a), "Ômurasaki-shikibu-haguki-kobufushi" (D-0440b), "Murasaki-shikibu-hagukikobu-fushi" (D-0440c)

Known distribution record: none

Current collecting data: Motooka on *C. mollis*, *C. japonica*, & *C. j.* var. *luxurians* by J. Yukawa; Tachibana-yama on *C. mollis* by K. Yamagishi; Kasuya Research Forest on *C. japonica* by N. Uechi; Konomi-yama & Sharikura on *C. japonica* by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara Note: Generic position of this species should be reexamined (Yukawa 2014).

Unidentified species on Isodon inflexus

Galled organ & Japanese gall name (gall no.): Leaf bud, "Yamahakka-me-fukure-fushi" (D-0520)

Known distribution record: none

Current collecting data: Tachibana-yama by K. Yamagishi

SOLANACEAE

Asphondylia sp. on Solanum nigrum ?

Galled organ & Japanese gall name (gall no.): Fruit, "Inuhoozuki?-mi-midori-fushi" (D-1235d) (Fig. 3i)

Known distribution record: none Current collecting data: Tsuko by K. Matsunaga

Note: This fruit gall is similar to that induced by *Asphondylia* sp. on *Solanum photeinocarpum* in Okinawa Prefecture (Uechi *et al.* 2012).

Asphondylia sp. on Solanum nigrum ?

Galled organ & Japanese gall name (gall no.): Flower bud, "Inuhoozuki?-tsubomi-midorifushi" (D-1235g) (Fig. 3j) Known distribution record: none Current collecting data: Mitsusawa by K. Matsunaga (New host record)

ADOXACEAE

Unidentified species on Viburnum dilatatum

Galled organ & Japanese gall name (gall no.): Stem, "Gamazumi-eda-kobu-fushi" (D-0570a) Known distribution record: none

Current collecting data: Tsuko possibly on V. dilatatum by K. Matsunaga

Unidentified species on Viburnum phlebotrichum

Galled organ & Japanese gall name (gall no.): Leaf, "Otoko-youzome-ha-hirata-fushi" (D-0580b)

Known distribution record: Hiko-san (Yukawa 1978)

Current collecting data: none

Unidentified species on *Viburnum dilatatum* & *V. erosum*

Galled organ & Japanese gall name (gall no.): Flower bud, "Gamazumi-tsubomi-toji-fukurefushi" (D-0596a) (Fig. 3k), "Kobanogamazumi-tsubomi-toji-fukure-fushi" (D-0596b)

Known distribution record: none

Current collecting data: Kusano on the two host plants by N. Gyoutoku

CAPRIFOLIACEAE

Asphondylia baca Monzen, 1937 on Weigela hortensis, W. japonica, W. coraeensis, & W. decora

Galled organ & Japanese gall name (gall no.): Leaf bud, "Taniutsugi-me-tama-fushi" (D-0610a), "Tsukushi-yabuutsugi-me-tama-fushi" (D-0610b), "Hakone-utsugi-me-tama-fushi" (D-0610c), "Nishiki-utsugi-me-tama-fushi" (D-0610d)

Known distribution record: Nagatani Dam & Minami Park on *W. hortensis* (Uechi *et al.* 2002); Hiko-san on *W. japonica* (Yukawa 1971; Uechi *et al.* 2004); Aobano-mori Park & Rikimaru Dam on *W. coraeensis* (Uechi *et al.* 2002); Inunaki on *W. coraeensis* (Uechi *et al.* 2004); Minami Park on *W. decora* (Uechi *et al.* 2002)

Current collecting data: Shiouji-yama on *W. japonica* by J. Yukawa & W. Kim; Nokono-shima & Shikano-shima on *W. coraeensis* by J. Yukawa; Koura-san on *W. coraeensis* by N. Gyoutoku

Note: Species of *Weigela* are overwintering host plants of *A. baca* (Uechi *et al.* 2004).

Unidentified species on Lonicera japonica

Galled organ & Japanese gall name (gall no.): Flower bud, "Suikazura-tsubomi-toji-fushi" (D-0688) (Fig. 31)

Known distribution record: none

Current collecting data: Hikarigaoka & Tsuko by K. Matsunaga

ASTERACEAE

Lasioptera artemisifoliae Shinji, 1939 on Artemisia japonica

Galled organ & Japanese gall name (gall no.): Leaf, "Otokoyomogi-ha-fukure-fushi" (D-0740a)

Known distribution record: Hiraodai, Ideura, & Shikano-shima (Yukawa *et al.* 2014) Current collecting data: none

Rhopalomyia artemisiae (Bouche, 1834) on *Artemisia japonica*

Galled organ & Japanese gall name (gall no.): Leaf bud, "Otokoyomogi-me-hanagata-fushi" (D-0742a)

Known distribution record: none

Current collecting data: Hiraodai & Ideura by J. Yukawa

Rhopalomyia japonica Monzen, 1937 on *Artemisia japonica*

Galled organ & Japanese gall name (gall no.): Leaf, "Otokoyomogi-ha-maruibo-fushi" (D-0744a) (Fig. 3m)

Known distribution record: none

Current collecting data: Ideura by J. Yukawa

on

TABLE 2 (continued)

chrysanthemum

Chrysanthemum × morifolium (cultivated

Rhopalomyia

chrysanthemum)

Galled organ & Japanese gall name (gall no.):	Known distribution record: none
Leaf, "Kiku-ha-ibo-fushi" (D-0750a)	Current collecting data: Haruda by K
Known distribution record: Fukuoka Pref.	Matsunaga
(Monzen 1955a)	Note: In addition to yellowish larvae of
Current collecting data: Motooka by J.	Schizomyia sp., larvae of two more specie
Yukawa; Konomi-yama by J. Yukawa, M.	were sometimes found in the flower bud galls
Tokuda, J. Abe, N. Uechi, & M. Nohara;	One possibly belongs to Trotteria (inquiline
Hikarigaoka by K. Matsunaga	and the other to Cecidomyiidi (predator o inquiline).
Schizomyia sp. on Aster ageratoides	
Galled organ & Japanese gall name (gall no.):	Unidentified species on Artemisia stolonifera
Flower, "Yamashirogiku-hana-hossu-fushi"	Galled organ & Japanese gall name (gall no.)
(D-0810c)	Leaf, "Hiroha-yamayomogi-ha-magatama
Known distribution record: none	fushi" (D-0940)
Current collecting data: Tachibana-yama by K.	Known distribution record: Ideura (Nohara &
Yamagishi	Yukawa 2003)
	Current collecting data: none
Unidentified species on Aster ageratoides	
Galled organ & Japanese gall name (gall no.):	Unidentified species on <i>Paraseneci</i>
Leaf bud, "Yamashirogiku-me-uroko-fushi"	delphiniifolius
(D-0817) (Figs 3n, o)	Galled organ & Japanese gall name (gall no.)
Known distribution record: Tachibana-yama	Leaf, "Momijigasa-ha-togari-kobu-fushi" (D
(Yukawa 1982)	0970a)
Current collecting data: none	Known distribution record: none
	Current collecting data: Hiko-san by H

Rhopalomyia on Chrysanthemum sp. japonense & C. indicum

Galled organ & Japanese gall name (gall no.): Leaf bud, "Nojigiku-me-nagatsubo-fushi" (D-0870a), "Shima-kangiku-me-nagatsubo-fushi" (D-0870f)

Known distribution record: none

Current collecting data: Ideura & Motooka on C. japonense by J. Yukawa; Hiraodai, Ino, & Shikano-shima on C. indicum by J. Yukawa; Tachibana-yama on C. indicum by K. Yamagishi; Nokono-shima on C. indicum by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita

Unidentified species on *Eupatorium makinoi*

Galled organ & Japanese gall name (gall no.): Flower, "Hiyodoribana-hana-fukure-fushi" (D-0930a)

Known distribution record: none

Current collecting data: Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara

Schizomyia sp. on Eupatorium makinoi

Galled organ & Japanese gall name (gall no.): Flower bud, "Hiyodoribana-tsubomi-fukurefushi" (D-0932) (Fig. 3p)

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Ŧ. Ikenaga

Rhopalomvia struma Monzen, 1937 on Artemisia indica var. maximowiczii & A. japonica

Galled organ & Japanese gall name (gall no.): Stem, "Yomogi-kuki-kobu-fushi" (D-1020a), "Otokoyomogi-kuki-kobu-fushi" (D-1020c)

Known distribution record: Hiraodai & Ideura (Ganaha et al. 2004)

Current collecting data: Ino, Hachiryû Shrine, Shikano-shima on A. indica var. maximowiczii by J. Yukawa; Shikano-shima on A. indica var. maximowiczii by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Ideura on A. japonica by J. Yukawa

Rhopalomyia giraldii Kieffer & Trotter, 1900 on Artemisia indica var. maximowiczii, A. capillaris & A. lancea

Galled organ & Japanese gall name (gall no.): Stem, "Yomogi-kuki-wata-fushi" (D-1070a), "Kawarayomogi-kuki-wata-fushi" (D-1070c), "Himeyomogi-kuki-wata-fushi" (D-1070d)

Known distribution record: none

Current collecting data: Ideura & Ino on *A. i.* var. *maximowiczii* by J. Yukawa; Nokonoshima on *A. i.* var. *maximowiczii* by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima on *A. i.* var. *maximowiczii* by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Nishi Park on *A. i.* var. *maximowiczii* by J. Yukawa, S. Kamitani, & M. Tokuda; Ideura on *A. capillaris* by J. Yukawa; Hiraodai on *A. lancea* by J. Yukawa

Rhopalomyia iwatensis Shinji, 1938 on *Artemisia indica var. maximowiczii*

Galled organ & Japanese gall name (gall no.): Terminal bud, "Yomogi-shintome-fushi" (D-1080a)

Known distribution record: none

Current collecting data: Ideura, Ino, Motooka, & Shikano-shima by J. Yukawa; Nokonoshima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Tachibana-yama by K. Yamagishi

Rhopalomyia longitubifex (Shinji, 1939) on Artemisia indica var. maximowiczii

Galled organ & Japanese gall name (gall no.): Axillary bud, "Yomogi-me-tsubo-fushi" (D-1090a), "Yomogi-me-nagatsubo-fushi" (D-1101)

Known distribution record: Hiraodai, Hakozaki, Ideura, Ino, Kasuya, Nokono-shima, & Yakuouji (Ganaha *et al.* 2007)

Current collecting data: Ideura by J. Yukawa; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita

Note: Galls induced by this species are regarded as "gall polymorphism" (Ganaha *et al.* 2007).

Rhopalomyia yomogicola (Matsumura, 1931) on *Artemisia indica* var. *maximowiczii*

Galled organ & Japanese gall name (gall no.): Leaf, "Yomogi-ha-eboshi-fushi" (D-1120a)

Known distribution record: Hakozaki, Rouji, & Wakasugi-yama (Yukawa 1971); Hibaru, Hanami, Nokono-shima, & Hachiryû Shrine (Nohara & Yukawa 2003); Motooka & Nokono-shima (Nohara *et al.* 2007)

Current collecting data: Ideura, Ino, & Tachibana-yama by J. Yukawa; Hiraodai by J. Yukawa & T. Ganaha; Hisasue Dam, Konomiyama, & Sharikura by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Hiko-san by A. Taketani; Wakasugi-yama by J. Yukawa & T. Ganaha

Rhopalomyia cinerarius Monzen, 1937 on *Artemisia indica* var. *maximowiczii*

Galled organ & Japanese gall name (gall no.): Leaf, "Yomogi-ha-shiroke-tama-fushi" (D-1130a)

Known distribution record: none

Current collecting data: Akiduki, Hachiryû Shrine, Ideura, Ino, & Wakasugi-yama by J. Yukawa; Konomi-yama, Sharikura, & Shôunji by J. Yukawa, M. Tokuda, J. Abe, N. Uechi, & M. Nohara; Hiraodai by J. Yukawa & T. Ganaha; Nokono-shima by J. Yukawa, K. Matsuo, W. Kim, S. Seto, & A. Sugita; Shikano-shima by J. Yukawa, W. Kim, S. Seto, & A. Sugita

Rhopalomyia foliorum (Loew, 1850) on *Artemisia indica var. maximowiczii*

Galled organ & Japanese gall name (gall no.): Leaf, "Yomogi-ha-himeeboshi-fushi" (D-1140a)

Known distribution record: Ideura (Nohara & Yukawa 2003)

Current collecting data: Ino by J. Yukawa; Shikano-shima by J. Yukawa, W. Kim, S. Seto, & A. Sugita; Tachibana-yama by K. Yamagishi

DIOSCOREACEAE

Lasioptera sp. on Dioscorea japonica & D. tokoro

Galled organ & Japanese gall name (gall no.): Vine, "Yamanoimo-tsuru-fukure-fushi" (E-0020a), "Onidokoro-tsuru-fukure-fushi" (E-0020c)

Known distribution record: Aobano-mori Park, Inunaki-touge, Konomi-yama, Koura-san, Motooka on *D. japonica* & Tachibana-yama on *D. tokoro* (Yukawa *et al.* 2014)

Current collecting data: Mitsusawa on *D. japonica* by K. Matsunaga

POACEAE

Unidentified species on Setaria sp.

Galled organ & Japanese gall name (gall no.):

Fruit, "Enokoro-mi-kakure-fushi-modoki" (E-0102) (Figs 4a, b, c) Known distribution record: none Current collecting data: Mitsusawa & Tsuko by K. Matsunaga (New finding) Brief description: Until adult emergence, galled fruit containing a cecidomyiid larva is unrecognizable from healthy fruit by its appearance covered with glume as has been noted for the other known cecidomyiid gall of *Contarinia* ? sp. on *Setaria* sp. (E-0103a) & *S. pumila* (E-0103b). We record this gall as a new finding because male flagellomeres (Fig. 4c) exhibit differences from those of *Contarinia*

Contarinia ? sp. on Setaria sp. & S. pumila

Galled organ & Japanese gall name (gall no.): Fruit, "Enokoro-mi-kakure-fushi" (E-0103a), "Kin-enokoro-mi-kakure-fushi" (E-0103b) (Figs 4d, e, f)

Known distribution record: none

species.

Current collecting data: Mitsusawa & Tsuko on Setaria sp. by K. Matsunaga; Dazaifu & Ideura on S. pumila by J. Yukawa

Note: In addition to the gall-inducing species, larvae of unidentified species of Oligotrophidi live together in the fruit galls.

Contarinia ? sp. on *Echinochloa crus-galli* & *Paspalum urvillei*

Galled organ & Japanese gall name (gall no.): Fruit, "Inubie-mi-kakure-fushi" (E-0104a), "Tachi-suzumenohie-mi-kakure-fushi" (E-0104d) (Figs 4g, h)

Known distribution record: none

Current collecting data: Mitsusawa & Tsuko on the two host plants by K. Matsunaga (P. urvillei was newly found as a host plant of this gall midge)

Unidentified species on Sasamorpha borealis

Galled organ & Japanese gall name (gall no.): Leaf bud, "Suzutake-me-hime-sasauo-fushi" (E-0091) (Fig. 4i) Known distribution record: none

Current collecting data: Hiko-san by S. Yamauchi

ORCHIDACEAE

Contarinia maculipennis Felt, 1933 on *Dendrobium phalaenopsis*

Galled organ & Japanese gall name (gall no.): Flower bud, "Ran-tsubomi-toji-fushi" (E-0221a)

Known distribution record: Naganobu & Shima (Uechi *et al.* 2007)

Current collecting data: none

Plant family	No. of genera	No. of species	No. of gall sorts	Plant family	No. of genera	No. of species	No. of gall sorts
Pinaceae	2	3	2	Elaeagnaceae	1	1	1
Cupressaceae	1	1	1	Cucurbitaceae	1	2	1
Salicaceae	1	2	3	Garryaceae	1	1	1
Fagaceae	5	10	26	Cornaceae	2	2	1
Cannabaceae	2	2	4	Helwingiaceae	1	1	1
Moraceae	2	4	3	Araliaceae	2	2	3
Urticaceae	1	1	3	Schoepfiaceae	1	1	1
Polygonaceae	1	1	1	Phytolaccaceae	1	1	1
Amaranthaceae	1	1	2	Clethraceae	1	1	1
Schisandraceae	1	1	1	Ericaceae	1	1	1
Lauraceae	3	4	6	Primulaceae	1	1	1
Ranunculaceae	1	1	1	Styracaceae	1	1	10
Lardizabalaceae	1	2	2	Symplocaceae	1	1	1
Actinidiaceae	1	1	1	Oleaceae	3	5	5
Pentaphylacaceae	1	2	1	Gentianaceae	1	1	1
Theaceae	1	1	1	Apocynaceae	1	1	2
Hamamelidaceae	1	1	1	Rubiaceae	2	4	7
Hydorangeaceae	1	2	2	Boraginaceae	1	1	1
Rosaceae	4	6	8	Lamiaceae	2	4	5
Fabaceae	6	8	15	Solanaceae	1	1	2
Euphorbiaceae	1	1	1	Adoxaceae	1	3	3
Rutaceae	1	1	1	Caprifoliaceae	2	5	2
Anacardiaceae	1	2	1	Asteraceae	5	11	18
Sapindaceae	1	1	1	Dioscoreaceae	1	2	1
Aquifoliaceae	1	4	2	Poaceae	4	5	4
Celastraceae	2	2	2	Orchidaceae	1	1	1
Vitaceae	3	6	4	Total 53 families	88	132	173
Elaeocarpaceae	1	1	1			-	

TABLE 3 Family of gall-bearing plants with its number of genera and species, and the sorts of gall

Fukuoka Prefecture and we newly added 78 sorts based on the current field data (Table 2, Figs 2, 3, 4). Among them, three sorts are new findings from Japan (Figs 2l, o, 4a, b, c), and three plant species were regarded to be new hosts of gall-inducing cecidomyiids in Japan. As a result, a total of 173 sorts of cecidomyiid gall on 132 plant species across 88 genera of 54 families are now known to occur in Fukuoka Prefecture (Tables 2, 3). Sorts of cecidomyiid gall were most abundant in Fagaceae (26 sorts), followed by Asteraceae (18), Fabaceae (15), Styracaceae (10), and Rosaceae (8). Species of gall-bearing plant were most abundant in Asteraceae (11 species), followed by Fagaceae (10), Fabaceae (8), Vitaceae (7), and Rosaceae (6). These tendencies are usual in the Holoarctic Region (e.g. Felt 1965; Roskam 2019; Yukawa & Masuda 1996). In addition, some plant families, such as Lauraceae, Aquifoliaceae, and Oleaceae, bore several sorts of cecidomyiid gall,

respectively. These plant families include many evergreen broad-leaved trees that are growing more abundantly in southwestern Japan, of which the Southwest Islands in Kagoshima and Okinawa Prefectures are included in the Oriental Region. Therefore, we found galls induced by Oriental cecidomyiid species in Fukuoka Prefecture as have been found in Kagoshima and Wakayama Prefectures.

Among inducers of the 97 sorts of previously recorded cecidomyiid gall from Fukuoka Prefecture, 50 cecidomyiids were identified to the species level and 19 to the genus level. Among inducers of the 78 newly found galls, ten cecidomyiids were identified to the species level and 15 to the genus level. In addition, two inducers were identified to the species level based on Monzen (1937) and Shinji (1944), but their generic position should be reexamined in the future (Yukawa 2014). Except these two species, a total of 60 cecidomyiids were identifi-



FIGURE 2. Cecidomyiid galls on various plant families (1). a. Leaf fold gall of Contarinia sp. on Quercus serrata, "Konara-hatoji-fukure-fushi" (C-0492), b. Leaf gall of an unidentified cecidomyiid on *Quercus serrata*, a view of upper leaf surface, "Konara-ha-fukure-fushi" (C-0495a), c. ibid. a view of under leaf surface, d. Leaf margin roll galls of Contarinia sp. (possibly) on Quercus serrata, "Konara-haberi-uramaki-fushi" (C-0498a), e. Flower gall of an unidentified cecidomyiid on Castanea crenata, "Kuri-hana-ketama-fushi" (C-0499), f. Leaf gall of an unidentified cecidomyiid on Ficus erecta, "Inubiwa-ha-marutama-fushi" (C-2232), g. Flower bud galls of an unidentified cecidomyiid on Fallopia japonica, "Itadori-tsubomi-fukure-fushi" (C-2395a), h. Leaf galls of an unidentified cecidomyiid on Lindera glauca, "Yama-koubashi-hakobu-fushi" (C-2657), i. Leaf margin roll galls of Contarinia sp. on Akebia trifoliata, "Mitsubaakebi-haberi-maki-fushi" (C-2687), j. Leaf fold galls of an unidentified cecidomyiid on Wisteria floribunda, "Fuji-ha-ore-fushi" (C-3471a), k. Stem galls of an unidentified cecidomyiid on Lespedeza bicolor, "Yamahagi-haguki-kobu-fushi" (C-3481), I. Leaflet margin rolled galls of an unidentified cecidomyiid on Zanthoxylum ailanthoides, "Karasuzanshou-haberi-maki-fushi" (C-3597), m. Leaf bud galls of an unidentified cecidomyiid on *Elaeagnus pungens*, "Nawashirogumi-me-fukure-fushi" (C-4057d), n. Fruit galls of Asphondylia sp. on Phytolacca americana, "Youshu-yamagobou-mi-fukure-fushi" (C-4391a), o. Fruit gall caused by an unidentified cecidomyiid on Styrax japonicus, "Egonoki-mi-fukure-fushi" (D-0173).



FIGURE 3. Cecidomyiid galls on various plant families (2). a. Leaf vein and stem galls of an unidentified cecidomyiid on Fraxinus platypoda, "Shioji-hamyaku-fukure-fushi" (D-0299), b. Fruit gall of an unidentified cecidomyiid on Swertia bimaculate, "Akebonosou-mi-fukure-fushi" (D-0302), c. Fruit gall and a pupal case of Asphondylia sp. on Paederia foetida, "Hekusokazurami-maru-fushi" (D-0371), d. Leaf bud gall of an unidentified cecidomyiid on Galium spurium, "Yaemugura-me-fukure-fushi" (D-0384f), e. Female ovipositing her eggs into the leaf bud of Galium spurium, f. Leaf bud gall of an unidentified cecidomyiid on Galium spurium, "Yaemuguratsubomi-fukure-fushi" (D-0389b), g. Flower bud gall of an unidentified cecidomyiid on Ehretia acuminata, "Chishanoki-tsubomi-fukure-fushi" (D-1211), h. Hairy leaf galls of an unidentified cecidomyiid on Callicarpa mollis, "Yabu-murasaki-ha-ketama-fushi" (D-0422b), i. Fruit galls of Asphondylia sp. on Solanum nigrum?, "Inuhoozuki?-mi-midori-fushi" (D-1235d), j. Flower bud galls and pupal cases of Asphondylia sp. on Solanum nigrum?, "Inuhoozuki?-tsubomi-midorifushi" (D-1235g), k. Flower bud gall of an unidentified cecidomyiid on Viburnum dilatatum, "Gamazumi-tsubomi-toji-fukure-fushi" (D-0596a), I. Flower bud gall of an unidentified cecidomyiid on Lonicera japonica, "Suikazura-tsubomi-toji-fushi" (D-0688), m. Leaf galls caused by Rhopalomyia japonica Monzen, 1937 on Artemisia japonica, "Otokoyomogi-hamaruibo-fushi" (D-0744a), n. Leaf bud gall of an unidentified cecidomyiid on Aster ageratoides, "Yamashirogiku-me-uroko-fushi" (D-0817), o. ibid. inside the gall, p. Flower bud gall of Schizomyia sp. on Eupatorium makinoi, "Hiyodoribana-tsubomi-fukure-fushi" (D-0932).

Supertribe, tribe, species, and	Host plant	Galling		Distribution ¹		
(gall No. for species distinction)		position	Fukuoka ²	Kagoshima ³	Wakayama ⁴	Korea ⁶
Cecidomyiidi: Asphondyliini				Ū		
Ampelomyia conicocoricis	Vitis vinifera	Leaf	0	×	×	×
Asphondylia aucubae	Aucuba japonica	Fruit	0	0	0	×
Asphondylia baca	Ampelopsis glandulosa, Cayratia japonica	Fruit	0	0	0	0
	(Summer-autumn host)					
ibid.	Weigela hortensis, W. japonica, W. coraeensis, W.	Leaf bud	0	0	0	?
	decora (Overwintering host)					
Asphondylia itoi	Distylium racemosum	Fruit	0	×	×	×
Asphondylia sphaera	Ligustrum japonicum, L. obtusifolium, L. lucidum	Flower bud,	0	0	0	0
	(Annual host)	Fruit				
ibid.	Rhus sylvestris, R. succedanea (Short-term host)	Flower bud	0	?	?	?
Asphondylia tojoi	Schoepfia jasminodora	Leaf bud	0	×	×	×
Asphondylia yushimai	Glycine max (Summer-autumn host)	Pod	0	0	0	0
ibid.	Laurocerasus zippeliana, Osmanthus heterophyllus	Fruit	0	0	?	?
	(Overwintering host)					
Asphondylia sp. (E-0160)	Alpinia intermedia	Fruit	×	0	0	×
Asphondylia sp. (D-0055a)	Ardisia japonica	Flower bud	0	×	0	×
Asphondylia sp. (D-0430a)	Callicarpa japonica	Fruit	0	0	0	×
Asphondylia sp. (C-3790)	Celastrus orbiculatus	Fruit	0	0	×	×
Asphondylia sp. (C-4170)	Hedera rhombea	Flower bud	0	0	0	×
Asphondylia sp. (C-4172)	Hedera rhombea	Fruit	0	×	0	0
Asphondylia sp. (C-4150)	Helwingia japonica	Fruit	0	0	0	×
Asphondylia sp. (C-3570)	Neoshirakia japonica	Leaf bud	0	×	×	×
Asphondylia sp. (D-0035)	Pieris japonica	Flower bud	0	0	×	×
Asphondylia sp. (D-1235d)	Solanum nigrum ?	Fruit	0	×	0	×
Asphondylia sp. (D-1235g)	Solanum nigrum ?	Flower bud	0	×	×	×
Asphondylia sp. (C-4143)	Swida macrophylla	Fruit	×	×	0	×
Bruggmaniella actinodaphne	Actinodaphne lancifolia	Stem	×	0	0	×
Daphnephila machilicola	Machilus thunbergii	Leaf	0	0	0	0
Daphnephila sp. (C-2600)	Machilus japonica	Leaf	0	0	×	×
Illiciomyia yukawai	Illicium anisatum	Leaf	0	0	0	×
Kiefferia pericarpiicola	Apiaceae spp.	Fruit	×	×	×	0
Oxycephalomyia styraci	Styrax japonicus	Leaf	0	0	0	×
Pseudasphondylia elaeocarpi	Elaeocarpus zollingeri	Leaf	0	0	0	×
Pseudasphondylia matatabi	Actinidia polygama	Flower bud	0	0	0	0
Pseudasphondylia neolitseae	Neolitsea sericea	Leaf	0	0	0	×
Pseudasphondylia rokuharensis	Viburnum dilatatum	Fruit	×	0	0	0
Schizomyia achyranthesae	Achyranthes bidentata	Fruit	0	0	×	0
Schizomyia castanopsisae	Castanopsis sieboldii, C. cuspidata	Flower bud	0	0	×	×
Schizomyia humuli	Humulus japonicus	Leaf	0	0	0	0
Schizomyia paederiae	Paederia foetida	Flower bud	0	0	×	×
Schizomyia sasakii	Ilex crenata	Axillary bud	0	0	0	0
Schizomyia soyogo	Ilex pedunculosa, I. chinensis, I. integra	Axillary bud	0	0	0	×
Schizomyia uechiae	Ampelopsis brevipedunculata	Flower bud	0	×	×	×
Schizomyia usubai	Trachelospermum asiaticum	Fruit	0	0	0	×
Schizomyia sp. (D-0810c)	Aster ageratoides	Flower	0	×	×	×
Schizomyia sp. (C-2660a)	Cimicifuga simplex	Flower bud	0	×	×	×
Schizomyia sp. (D-0932)	Eupatorium makinoi	Flower bud	0	×	×	×

TABLE 4Faunistic comparison between three Japanese prefectures and Korea for gall-inducingcecidomyiids identified to the species or genus level

ed to the species level and 34 to the genus level in Fukuoka Prefecture (Table 4). Among identified cecidomyiids, species of the genus *Asphondylia* were most abundant (19 species), followed by *Contarinia* (13), *Rhopalomyia* (11), and *Schizomyia* (11). Inducers of 75 sorts of gall are still waiting for species or generic identification (Table 2).

From the Fukuoka side, the percentage of common species between Kagoshima or Wakayama Prefecture was more than 50 % and it was more than 80 % from the opposite side

Cecidomyiidi: Cecidomyiini						
Allocontarinia sorghicola	Sorghum bicolor	Grain	0 0	D	0 0	0 0
Contarinia hydrangea	Hydrangea paniculata	Fruit	0	0	0	0
Contarinia inouyei	Cryptomeria japonica	Needle	0	0	0	×
Contarinia maculipennis	Dendrobium phalaenopsis	Flower bud	0	×	×	×
Contarinia matusintome	Pinus densiflora	Needle	×	×	0	0
Contarinia okadai	Citrus unshiu	Flower bud	×	0	×	×
Contarinia sp. (C-2687)	Akebia trifoliata	Leaf	0	×	×	×
Contarinia sp. (C-0490a)	Quercus glauca	Leaf	0	0	0	×
Contarinia sp. (C-0492)	Quercus serrata	Leaf	0	×	×	×
Contarinia sp. (C-0498a)	Quercus serrata, Q. crispula	Leaf	0	×	×	×
Contarinia sp. (D-0160)	Styrax japonicus	Leaf	0	0	0	×
Contarinia sp. (D-0161)	Styrax japonicus	Leaf	0	×	0	×
Contarinia sp. (D-0172)	Styrax japonicus	Leaf	0	×	×	×
Contarinia sp. (C-3231)	cultivated Rosa	Leaf	0	×	×	×
Contarinia ? sp. (E-0104a,d)	Echinochloa crus-galli, Paspalum urvillei	Fruit	0	0	×	×
Contarinia ? sp. (E-0103a,b)	Setaria pumila, Setaria. sp.	Fruit	0	0	×	×
Macrodiplosis selenis	Quercus serrata, Q. dentata	Leaf	0	×	×	×
Paradiplosis manii	Abies firma	Needle	0	×	×	×
Thecodiplosis japonensis	Pinus thunbergii, P. densiflora	Needle	0	0	0	0
Cecidomyiidi: Clinodiplosini						
Ametrodiplosis aeroradicis	Trachelospermum asiaticum	Aerial root	0	0	0	×
Sitodiplosis mosellana	Triticum aestivum	Grain	×	0	×	0
Cecidomyiidi: Lopesiini						
Obolodiplosis robiniae	Robinia pseudoacacia	Leaf	0	×	0	0
Cecidomyiidi: Unplaced to tribe						
Geromyia nawai	Pleioblastus simonii	Stem	×	0	0	×
Orseolia miscanthi	Miscanthus sinensis	Leaf bud	×	0	×	0
Dasineura pteridis	Pteridium aquilinum	Leaf	×	×	0	×
Dasineura viticola	Vitis coignetiae	Leaf	?	×	×	0
Dasineura wistariae	Wisteria floribunda	Flower bud	0	×	×	×
Dasineura sp. (C-2543)	Neolitsea sericea	Leaf	×	0	×	×
Dasineura sp. (C-3230a)	Rosa multiflora	Leaf	0	×	0	×
Dasineura sp. (D-0130)	Styrax japonicus	Leaf	0	0	0	×
Hartigiola faggalli	Fagus crenata	Leaf	0	0	0	×
Janetiella infrafoli	Fagus crenata	Leaf	0	0	×	×
Lygocecis yanagi	Salix babylonica, Salix sp.	Stem	0	×	0	×
Rabdophaga rosaeformis	Salix koreensis	Leaf bud	×	×	0	0
Rabdophaga rosaria	Salix koriyanagi	Leaf bud	×	×	0	0
Rabdophaga salicis	Salix babylonica, Salix sp.	Stem	0	0	×	0
Rabdophaga salicivora	Salix babylonica, Salix sp.	Stem	0	×	0	0
Lasiopteridi: Lasiopterini						
Lasioptera achyranthii	Achyranthes bidentata	Stem	0	0	0	0
Lasioptera artemisifoliae	Artemisia japonica	Leaf	0	×	×	×
Lasioptera callicarpae	Callicarpa japonica	Stem	0	0	×	×
Lasioptera camelliae	Camellia japonica	Leaf	0	0	×	×
Lasioptera euphobiae	Eupatorium makinoi	Stem	×	×	0	0
Lasioptera lespedezae	Lespedeza bicolor	Stem	0	0	×	0
Lasioptera paederiae	Paederia foetida	Vine	0	0	×	0
Lasioptera rubi	Rubus parvifolius	Stem	0	0	0	0
Lasioptera sp. (D-0720b)	Artemisia indica var. maximowiczii	Stem	×	×	0	×
Lasioptera sp. (C-2353b)	Boehmeria spicata	Stem	0	×	0	×
Lasioptera sp. (E-0020a,c)	Dioscorea japonica, D. tokoro	Vine	0	0	0	0
Lasioptera sp. (C-2210a,c)	Ficus sarmentosa, F. thunbergii	Leaf	0	0	0	0
Lasioptera sp. (D-0470a)	Leucosceptrum japonicum	Stem	0 0	0	0	0 0
Lasioptera sp. (C-3210a)	Rosa multiflor a	Stem	0	0	0	0
Lasioptera sp. (D-0100)	Styrac japonicus	Stem				
Lasioptera sp. (C-4100a,b)	richosanthes cucumeroides, T. bracteata	v ine	0	0	0	

(Table 4). These data indicate similarity in species composition between the three

prefectures possibly because similar gallbearing plant vegetation (Table 4). In contrast,

Lasiopteridi: Rhopalomyiini						
Rhopalomyia artemisiae	Artemisia japonica	Leaf bud	0	×	×	×
Rhopalomyia caterva	Artemisia japonica	Leaf bud	×	×	×	0
Rhopalomyia chrysanthemum	Chrysanthemum × morifolium	Leaf	0	0	×	×
	(cultivated chrysanthemum)					
Rhopalomyia cinerarius	Artemisia indica var. maximowiczii	Leaf	0	0	0	0
Rhopalomyia foliorum	Artemisia indica var. maximowiczii	Leaf	0	0	0	×
Rhopalomyia giraldii	Artemisia indica var. maximowiczii, A. capillaris,	Stem	0	0	0	0
	A. lancea					
Rhopalomyia iwatensis	Artemisia indica var. maximowiczii	Terminal bud	0	0	×	×
Rhopalomyia japonica	Artemisia japonica	Leaf	0	0	0	×
Rhopalomyia longicauda	Chrysanthemum spp.	Leaf, leaf bud	×	×	×	0
Rhopalomyia longitubifex	Artemisia indica var. maximowiczii	Axillary bud	0	×	0	0
Rhopalomyia struma	Artemisia indica var. maximowiczii, A. japonica	Stem	0	0	0	0
Rhopalomyia yomogicola	Artemisia indica var. maximowiczii	Leaf	0	0	0	0
Rhopalomyia sp. (D-0870a,f)	Chrysanthemum japonense, C. indicum	Leaf bud	0	0	0	×
Lasiopteridi: Unplaced to tribe						
Celticecis japonica	Celtis sinensis	Leaf	0	0	0	×
Masakimyia pustulae	Euonymus japonicus	Leaf	0	0	0	0
Mikiola bicornis	Fagus crenata	Leaf	0	0	×	×
Mikiola glandaria	Fagus crenata	Leaf	0	×	0	×
Total number of identified cecidomyiid species excluding host-alternating Asphondylia on winter hosts.		vinter hosts.	94	68	65	37
Number of cecidomyiid species com	nonly found in Fukuoka Prefecture		-	59	53	26
% of common species from the Fukuoka side		-	62.8	56.4	27.7	

TABLE 4 (continued)

¹ \bigcirc : Galls were found, \times : Galls were not found. ²Based on the current paper. ³Based on Yukawa (1988); Tokuda *et al.* (2004a); Tokuda & Yukawa (2006); Tokuda & Kawauchi (2013); Yukawa *et al.* (2014); Yukawa & Takesaki (Unpublished data). ⁴Based on Yukawa *et al.* (2018; 2021a) excluding data from islands south of Kagoshima mainland. ⁵Based on Yukawa *et al.* (2021b).

the similarity between Fukuoka and Korea was very low from the Korean side while it was more than 70 % from the Fukuoka side. This data supports the consideration of Kim *et al.* (2015) and Yukawa *et al.* (2021) that Japanese insects expanded their range northwards through Tsushima as a stepping stone island rather than for Korean insects did southwards.

Life history strategy of gall-inducing cecidomyiids has been divided into four types, IA, IB, IIA, and IIB, based on their overwintering sites and larval developmental stadia (Yukawa 1987). In type IA, larvae mature quickly, exit the galls, and drop to the ground mostly before summer. They usually spin cocoons on the ground. In type IB, mature larvae do not exit from galls, but galls or gall-bearing organs drop to the ground usually in early summer, or in late autumn. Larvae of the two types overwinter on the ground in the cocoons or within the galls and pupate in the following spring. Because most unidentified cecidomyiids adopt type IA or IB life history strategy, their adult specimens are hardly obtained in compared to type IIA and IIB gall midges of which adult directly emerge from the galls remaining on their host plants. Further effort is required in future to obtain adult specimens for species identification.

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FIGURE 4. Cecidomyiid galls on Poaceae. a. Fruit galls and pupal cases of an unidentified cecidomyiid on *Setaria* sp., "Enokoro-mi-kakure-fushi-modoki" (E-0102), b. *ibid*. a pupal case, c. *ibid*. a male, d. Fruit galls and pupal cases of *Contarinia* ? sp. on Setaria sp., "Enokoro-mi-kakure-fushi" (E-0103a), "Kin-enokoro-mi-kakure-fushi" (E-0103b), e. *ibid*. a pupa, f. *ibid*. a female, g, h. Fruit galls and mature larvae of *Contarinia* ? sp. on *Paspalum urvillei*, "Tachi-suzumenohie-mi-kakure-fushi" (E-0104d), i. Leaf bud gall of an unidentified cecidomyiid on *Sasamorpha borealis*, "Suzutake-me-hime-sasauo-fushi" (E-0091).

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