A LIST OF THE DELPHACIDAE (HOMOPTERA) IN JAPAN WITH SPECIAL REFERENCE TO HOST PLANTS, TRANSMISSION OF PLANT DISEASES, AND NATURAL ENEMIES

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Contents

I. Introduction

The family Delphacidae in Japan was revised by Esaki & Ishihara (1943), Matsumura & Ishihara (1945), and Ishihara (1949, 1951); about sixty species were recorded. Since then some species were recorded for the first time in Japan

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or described as new species. However, there remain still some species not as yet added to the list of the family. Many species of the family undoubtedly injure the plants by sucking the sap or injecting toxic substances. Some species are serious pests on crops and also vectors of plant diseases. Especially, both *Nilaparvata lugens* (Stål) and *Sogatella furcifera* (Horváth) are very important pests on the rice plant and have been intensively studied for the purpose of elucidation of their overwinterings and the prediction of their occurrences for longer than these forty years. However, their annual and erratic appearance in paddy fields early summer is mysterious even now* in Japan. The economic problem of both pests on rice is still present in Japan after about forty years of studies.

There are many applied entomologists and plant pathologists who want to know of the family; distribution, host plants, crops attacked, natural enemies, relation to the transmission of plant diseases, host range of plant diseases transmitted by vectors, etc. It is the purpose of the present list to offer the records of many studies on the Delphacidae in one convenient catalogue for such researchers. As the studies will progress, the species of planthoppers, host plants, and natural enemies will increase in number. The present list shall be revised with the advancement of studies.

II. Explanatory notes of lay-out, terms, references, and symbols

Names of planthoppers

The arabic figure given in front of a specific name indicates a designation for convenience. The genera are arranged under Metcalf's catalogue of Araeopidae (Delphacidae) (1943). The genera described newly after his catalogue are arranged in as nearly a phylogenetic order as our present knowledge will permit. The trivial names are listed alphabetically within each genus. The nomenclature of each species mentioned here is not always valid: Fennah (1963ab), Wagner (1963), Vilbaste (1968), etc. described some new genera, especially as to *Delphacodes*, *Sogata*, etc. Not all the Japanese species in Delphacidae have been determined yet which new genera they belong to. The old or invalid names of such genera are given in this list when the valid names of some species have not been determined yet. The generic names of the specific number 69~81 are arranged

* The possibility that both species overwinter in China and fly from the mainland of China into Japan early in every summer was shown in the summer of 1969 (Mochida, O. & Kisimoto, R. (1970) Insects caught on the Eastern China Sea in the summer of 1969 with special reference to *Nilaparvata lugens* (S.) and *Sogatella furcifera* (H.) (Hom., Delphacidae). Kyushu Agr. Expt. Sta., 15 pp. +10 tables. Mimeographed. In Japanese.).

tentatively alphabetically.

Names of plants

As a rule, scientific names of plants are followed after Ohwi's *Flora of Japan* (1965). Otherwise, they are conformed to Takeoka (1959), Makino et al. (1961), Nemoto (1936), Corner & Watanabe (1969).

The names of host plants are listed alphabetically within a genus and the generic names within a family. The higher categories are arranged alphabetically in Chapter III but systematically in Chapter IV.

Host and oviposition plants

Some different meanings or definitions of 'host plants' for planthoppers are given in various papers or reports in Japan. For example, one researcher recorded a plant as a host plant when he collected some adult specimens of a planthopper on the plant. Another listed *Poa annua* Linn. as a host of *Sogatella furcifera* as he could rear some young nymphs to adults on the winter grass *Poa annua* within test-tubes in the laboratory. On the other hand, it is well-known on four main islands of Japan that *S. furcifera* can not be usually discovered on *P. annua* in winter though many entomologists have been anxious to find the planthopper for longer than about forty years. Hence, it is doubtful that *P. annua* is a host plant of *S. furcifera* in the field. The present authors consider that when a planthopper has at least one generation on a plant in the field the plant is regarded as a host plant of the planthopper. However, the present authors hardly pick out the real host plants from many plants mentioned simply as 'host plants' without evident proofs in some papers. Accordingly, they catalogue all the such plants as host plants in the present list when some plants are recorded as host plants, even if some of them are not real but false host plants.

There are some researchers who regard the plant as an oviposition plant when the adults of a planthopper deposit some eggs into a plant within test-tubes under some experimental conditions though eggs are not usually discovered in the plant in the field. Accordingly, the term, oviposition plant, is not used here because of the avoidance of confusion, and the present authors express some plants definitely at need as follows:

Plants in which eggs were discovered in the field;

Plants attacked;

Plants on which adults were collected;

Plants on which 1st-instar nymphs were reared to adults under experimental conditions;

References

The references cited in the present list were issued in Japan as a rule for convenience of Japanese readers. However, some foreign papers are referred for readers' information.

References are shown in the present list with the arabic figures given behind the specific names of each planthopper, host plant, transmission of plant disease, natural enemy, etc.

The reference(s) behind a specific name of each planthopper indicate(s) the paper(s) which is(are) useful for identification of the planthopper and knowing of its valid name.

All the names of insect, nematode, and spider natural enemies are given in the present list. Each reference to insect natural enemies given in the catalogue compiled by Yasumatsu & Watanabe (1965) is omitted; see their catalogue. All the necessary references not listed in their catalogue are shown.

Symbols in Chapters III & IV

?(prefix): Doubtful identification of a plant (used before the specific name of a plant).

?(suffix): Doubtful identification of a planthopper (used after the specific name of a plant or planthopper and the name of a place or natural enemy).

Footnotes are indicated in the usual way by the use of asterisks.

III. Planthopper — distribution — host plant — transmission of plant disease — natural enemy list

A. Determined species collected in Japan

1. **Ugyops vittatus** (Matsumura) 48
=*Bidis vittata*
シダスケバモドキ，モンスケバモドキ，モンスケバハゴロモ，モンスケバウンカ
Distribution: Izu Is. (Ao-ga-shima 28; Hachijō-jima 28, 48, 95; Miyake-jima 28; Ōshima 28); Bonin Is. (Chichi-jima 103; Haha-jima 103) 12, 48, 95; Kyūshū (Ao-shima) 28; Yaku-shima 145; Amami-ōshima 57; Ryūkyū Is. (Iriomote-jima 95; Okinawa 48, 144) 12, 144
Hosts:
Amaryllidaceae
Crinum asiaticum Linn. var. *japonicum* Baker 28
Polypodiaceae
Pteridis sp. = ? *Pteris* sp. 48

2. **Tropidocephala brunnipennis** Signoret 48
コブウンカ
Distribution: Honshū 48; Shikoku 48; Kyūshū 48; Ryūkyū Is. (Iriomote-jima) 5, 95
Hosts:
Gramineae
Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 31, 62, 111
Miscanthus sinensis Anderss. 111
Oryza sativa Linn. 48
Saccharum officinarum Linn. 48
Plant attacked:
Gramineae
Setaria italica Beauv. in Formosa 91
Natural enemy:
Psenulus (*Eopsenulus*) *iwatai* Gussakovskij (Hym., Sphecidae) 157

3. **Tropidocephala festiva** (Distant) 48
ヒメコブウンカ
Distribution: Honshū (Atami) 11, 48, 49; Shikoku 11, 48, 49; Kyūshū 95; Ryūkyū Is. (Iriomote-jima) 95
Host: Unknown.

4. **Tropidocephala nigra** (Matsumura) 48
クロコブウンカ
Distribution: Honshū 48; Shikoku 48; Kyūshū 48; Ryūkyū Is. (Iriomote-jima 95; Okinawa 144)
Hosts:
Gramineae
Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 62, 109, 111
Miscanthus sinensis Anderss. 111

5. **Terauchiana nigripennis** Kato 48
クロバネテラウチウンカ
Distribution: Honshū 48; Kyūshū 48
Host:
Gramineae
Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 48

6. **Terauchiana singularis** Matsumura 48
テラウチケヅメウンカ, テラウチウンカ
Distribution: Honshū 48; Kyūshū 48
Hosts:
Gramineae
Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 48. 111
Miscanthus sinensis Anderss. 48
Phragmites communis Trinius 31, 48, 107, 111
Poa annua Linn. 48
Polypodiaceae
Onoclea sensibilis Linn. 111

7. **Purohita cervina** Distant 48
=*P. maculata*, Matsumura & Ishihara (1945), p. 60, fig. 29.
〔ヒゲブトウンカ〕, タケヒゲブトウンカ
Distribution: Satsunan & Ryūkyū Is. 21
Host:
Gramineae
Phyllostachys bambusoides Sieb. et Zucc. in Formosa 91

8. **Purohita taiwanensis** Muir 48, 88
タイワンヒゲブトウンカ
Distribution: Ryūkyū Is. (Iriomote-jima, Ishigaki-jima, Okinawa) 144
Hosts:
Gramineae
Arundinaria simonii (Carr.) Rivière 144
Bambusa vulgaris Schrad. 144

9. **Eurysa nawaii** (Matsumura) 48
=*Epeurysa nawaii*
タケウンカ, タケトビウンカ
Distribution: Hokkaidō 111; Honshū 48, 111; Shikoku 48; Kyūshū 48, 111
Hosts:
Gramineae
Arundinaria chino (Fr. et Sav.) Makino 31
Arundinaria spp. 31, 111
Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 111
Phyllostachys bambusoides Sieb. et Zucc. 107, 111

10. **Perkinsiella graminicida** Kirkaldy 99, 122*
=*P.* sp., Ōuchi (1965), pp. 104~105.
Distribution: Amami-ōshima 122
Host: Unknown.

11. **Perkinsiella saccharicida** Kirkaldy 48, 122, 158
サトウウシウンカ, サトウノウシウンカ゛(サタウノウシウンカ), サトウキビウンカ, クロフツノウンカ
Distribution: Amami-ōshima 122, 126; Tokuno-shima 122; Ryūkyū Is. (Iheya-jima 144; Iriomote-jima 5; 144; Ishigaki-jima 5, 144; Kita-daitō-jima 5, 143; Kume-jima 5, Minami-daitō-jima 5, 143; Miyako-jima 5, 144; Okinawa 5, 107, 144; Yonakuni-jima 5)
Hosts:
Gramineae
Saccharum officinarum Linn. 48, 126, 143, 144, 153, 158
Zea mays Linn. 48
Plants attacked:

* Hasegawa, H. (1965, oral communication) identified Ōuchi's *Perkinsiella* sp. as *P. graminicida*.

Chrysopa sp. (Neurop., Chrysopidae) in Hawaii 140, 150

Coelophora inaequalis (Fabricius) (Col. Coccinellidae), introduced into Hawaii from Australia 140, 150

Stenocranophilus perkinsiellae (Pierce) (Strep., Elenchidae) in Puerto Rico 123, 141

Muirixenos perkinsiellae Pierce (Strep., Halictophagidae) in Java 123, 153

Anagrus flaveolus Waterhouse (Hym., Mymaridae) in Mauritius 153

Anagrus frequens Perkins (Hym., Mymaridae), introduced into Hawaii from Australia 7, 140, 149, 158

Paranagrus optabilis Perkins (Hym., Mymaridae) in the Queensland 153 and introduced into Hawaii from Australia 7, 140, 149, 158

Paranagrus perforator Perkins (Hym. Mymaridae), introduced into Hawaii from Australia 7, 140, 149, 158

Paranagrus sp. (Hym., Mymaridae) in Hawaii 149

Ootetrastichus beatus Perkins (Hym., Eulophidae), introduced into Hawaii from Fiji and in Australia 7, 140, 149, 158

Ootetrastichus formosanus Timberlake (Hym., Eulophidae), in Formosa 25 and introduced into Hawaii from Formosa 140, 149, 158

Ootetrastichus pallidipes Perkins (Hym., Eulophidae) in Mauritius 153

Ootetrastichus sp. (Hym., Eulophidae), introduced into Hawaii from Formosa 149

Echthrodelphax fairchildi Perkins (Hym., Dryinidae) in Dutch E. Indies and Hawaii 140, 149, 158

Haplogonatopus vitiensis Perkins (Hym., Dryinidae) introduced into Hawaii from Fiji 7, 140, 149, 158

Pseudogonatopoides mauritianus Williams (Hym., Dryinidae) in Mauritius 153

Pseudogonatopus hospes Perkins (Hym., Dryinidae), introduced into Hawaii from China 7, 140, 149, 158

Pseudogonatopus saccharetorum Perkins (Hym., Dryinidae) in Australia 149 and the Queensland 153

Pheidole megacephala Fabricius (Hym., Formicidae) in Hawaii 150

Nesomimesa hawaiiensis Perkins (Hym., Sphecidae) in Hawaii 140, 150, 158

Dorilas mauritianus Hardy (Dip., Pipunculidae) in Mauritius 153

Pipunculus hawaiiensis Perkins (Dip., Pipunculidae) in Hawaii 140, 149, 158

Pipunculus javator Perkins (Dip., Pipunculidae) in Hawaii 140, 149, 158

Pipunculus terryi Perkins (Dip., Pipunculidae) in Hawaii 140, 158

Pipunculus sp. (Dip., Pipunculidae) in Hawaii 149

12. **Perkinsiella sinensis** Kirkaldy 48, 122

ウシウンカ

Distribution: Honshū 48; Kyūshū 48; Tane-ga-shima 122; Yaku-shima 122; Amami-ōshima 122, 125, 126; Ryūkyū Is. (Ishigaki-jima 5; Kita-daitō-jima 5; Minami-daitō-jima 5; Miyako-jima 5; Okinawa 4, 5, 122)

Hosts:

Gramineae

Oryza sativa Linn. 48

Phragmites communis Trinius 48

Saccharum officinarum Linn. 48

Sorghum vulgare Pers. 48

Plants attacked:

Gramineae

Oryza sativa Linn. in Formosa 91

Saccharum officinarum Linn. in Satsunan Is. 122, 125, 126, Ryūkyū Is. 4, 5, and Formosa 91

Setaria italica Beauv. in Formosa 91

Zizania latifolia Turcz. in Formosa 91

13. **Perkinsiella yakushimensis** Ishihara 53

ヤクシマウシウンカ

Distribution: Yaku-shima 53, 57; Amami-ōshima 57

Host.

Gramineae

Saccharum officinarum Linn. 53

14. **Hirozuunka japonica** Matsumura et Ishihara

ヒロズウンカ

Distribution: Honshū 48; Kyūshū 48

Hosts:

Gramineae

Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 111

Ischaemum anthephoroides (Steud.) Miq. 62, 111

Pennisetum alopecuroides (Linn.) Spreng. 62, 111

Phragmites communis Trinius 48, 109, 111, 114

Phragmites japonica Steud. 48

Plant on which 1st-instar nymphs were reared to adults under experimental conditions:

Gramineae

Briza maxima. Linn. 111

Natural enemies:

Anagrus flaveolus Waterhouse (Hym., Mymaridae) 9, 111

Paranagrus perforator (Perkins) (Hym., Mymaridae) 9, 111

15. **Cemus nigromaculosus** (Muir) 16, 18, 48

=*Phyllodinus nigromaculosus*

クロモンヒラアシウンカ

Distribution: Honshū 48, 49; Shikoku 49; Kyūshū 48, 49

Host: Unknown.

16. **Cemus nigropunctatus** (Motschulsky) 16, 48*

=*Phyllodinus nigropunctatus*

イボイボウンカ, ゴマフヒラアシウンカ, ゴマフウンカ

Distribution: Honshū 48, 49, 57; Shikoku 49, 57; Kyūshū 48, 49, 57

Hosts:

Gramineae

Eriochloa villosa (Thunb.) Kunth 62, 111

Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 62, 109, 111

Pennisetum alopecuroides (Linn.) Spreng. 62, 111

Phragmites communis Trinius 111

Zoysia japonica Steud. 111

17. **Sardia rostrata** Melichar 48

ヤリウンカ

Distribution: Honshū (Chiba 41; Kanazawa 111); Amami-ōshima 57; Ryūkyū Is. 57

Host: Unknown.

18. **Himeunka tateyamaella** (Matsumura) 48

=*Unkana tateyamaella*

=*Unkanella tateyamaella*

=*Himeunka kushiana* (Matsumura)

ヒメウンカ

Distribution: Honshū 48; Kyūshū 48; Ryūkyū Is. (Okinawa) 144

* The generic name is shown according to Hasegawa, H. (1970) *Nôrinsyô-Byôgaityû-Kankei-Senmonbetu-Sôkatukentôkaigi-Siryô*, 2 pp. Mimeographed.

Hosts.

Gramineae

Ischaemum anthephoroides (Steud.) Miq. 31, 111

Ischaemum aristatum Linn. var. *glaucum* (Honda) T. Koyama 31, 111, 114

Miscanthus sinensis Anderss. 111

19. **Hosunka testacea** (Matsumura) 48

=*Chlorionidea testacea*

=*Unkana testacea*

=*Unkanella testacea*

トビイロホソウンカ

Distribution: Honshū (Akashi, Gifu) 48

Host: Unknown.

20. **Kakuna kuwayamai** Matsumura 48

クワヤマウンカ

Distribution: Hokkaidō 48, 58; Honshū 48, 58; Shikoku 58; Kyūshū 48, 58

Host:

Gramineae

Phragmites communis Trinius 31

21. **Kakuna sapporonis** (Matsumura)

=*Toya sapporonis*

=*Toya sapporensis*, Esaki & Ishihara (1943) Rept. leaf-hoppers & natural enemies., **13**: 47.

=*Delphacodes sapporensis*, Matsumura & Ishihara (1945) Mushi, **16**: 62.

サッポロウンカ

Distribution: Hokkaidō 48; Honshū 48; Kyūshū 48

Host: Unknown

Plant on which one male adult was collected:

Typhaceae

Typha laxmanni Lap. in Primorskaya province, U.S.S.R. 151

22. **Stenocranus akashiensis** Matsumura 48

アカシナガウンカ

Distribution: Honshū 48; Kyūshū 111

Host: Unknown.

23. **Stenocranus elongatus** Matsumura 48, 86

ホソナガウンカ

Distribution: Kyūshū 48

Host: Unknown.

24. **Stenocranus fallax** Matsumura 48

ニセナガウンカ

Distribution: Hokkaidō 48; Honshū 48; Kyūshū 48

Host: Unknown.

25. **Stenocranus harimensis** Matsumura 48

ハリマナガウンカ

Distribution: Honshū 48; Shikoku 48; Kyūshū 48

Host: Unknown but some adults were collected on wild grasses around ponds or brooks 57 and in paddy fields in Fukuoka-ken 111

26. **Stenocranus hokkaidoensis** Metcalf* 86, 89, 151,

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* Matsumura (1935 a, b) showed in his revisional work of the *Stenocranus*-group that there are 13 species in Japan (Hokkaidō, Honshū, Shikoku, Kyūshū, Ryūkyū, and Ogasawara); *Stenocranus akashiensis, breviceps* (=*matsumurai*, Metcalf, 1943, p. 172), *elengatus, fallax, harimensis, niisimai, ogasawarensis, sapporensis* (=*minutus*, Matsumura, 1900, p. 257, nec Fabricius 1787), *sukumonus, takasagonis, tamagawanus, tateyamanus*, & *vittatus* (=*hokkaidoensis*, Metcalf, 1943, p. 168). He did not show that *S. minutus* (Fabricius, 1787) is distributed in Japan. However, Ishihara (1949) showed that *S. vittatus* (Matsumura, 1935 a), *S. sapporensis* (Matsumura, 1935 a, b), and *S. vittatus* (Matsumura & Ishihara, 1945) are the synonyms of *S. minutus* (Fabricius, 1787), and that *S. minutus* is distributed over Japan (Hokkaidō, Honshū, and Kyūshū). On the other hand, Vilbaste (1968) reexamined Matsumura's type specimens and then showed that *S. sapporoensis* (probably an error for *sapporensis*) is a different species from *S. minutus* (Fabricius, 1787). After all Vilbaste indicated that *S. minutus, S. hokkaidoensis* (=*vittatus*), and *S. sapporensis* are different from one another.

The illustration of the male genitalia of *S. vittatus* (=*hokkaidoensis*) shown by Matsumura & Ishihara (1945, fig. 36) is the same of *S. minutus* shown by Ishihara (1949, fig. 41). Since 1945 or Matsumura & Ishihara (1945) or Ishihara (1949), therefore, it has been doubtful whether the Japanese species determined as either *S. vittatus* or *S. minutus* is truly *S. minutus* (Fabricius, 1787).

The point is whether or not *S. minutus* (Fabricius, 1787) is truly distributed in Japan. Esaki (1932, Iconogr. Insect. Jap., p. 1783, fig. 3523) and Esaki & Ishihara (1950, Ibid., rev. ed., p. 313, fig. 842) narrated that *S. minutus* is widely distributed over Hokkaidō, Honshū, and Kyūshū. In June 1970 the former of the present authors discovered one specimen determined as *S. minutus* by Muir but could not reexamine the specimen because of the lack of the genital part in the collection of the Entomological Laboratory, Kyushu University where Esaki had worked. Referring to Le Quesne (1965) and Vilbaste (1968), the present authors examined 32 or all the male specimens having been determined as *S. minutus* or *S. vittatus* in the collections of both Kyūshū University and Kyūshū National Agricultural Experment Station in August 1970. They found out that all the specimens collected in Kyūshū do not belong to *S. minutus* (Fabricius, 1787) but to *S. hokkaidoensis*. As Vilbaste (1968) mentioned, *S. hokkaidoensis* is very similar to *S. minutus* (Fabricius, 1787) in appearance. Hence, they have grave doubts as to whether *S. minutus* is really distributed in Japan:

(Continued on the following page.)

=*Stenocranus vittatus*, Matsumura (1935a) Ins. Matsum., **9**: 132. (nec *vittatus* Stål, 1862)

Stenocranus vittatus?, Matsumura & Ishihara (1945) Mushi, **16**: 69. fig. 36.

〔ウススヂボソウンカ〕*

Distribution: Hokkaidō 86; Kyūshū (see the footnote on pp. 749 *et seq.*)

Host: Unknown.

27. **Stenocranus matsumurai** Metcalf 48, 89,

=*Stenocranus breviceps*, Matsumura (1935 a) Ins. Matsum., **9**: 127. (nec *breviceps* Dozier, 1922)

エゾナガウンカ

Distribution: Hokkaidō 48, 52; Honshū 48, 52; Shikoku 52; Kyūshū 48, 52

Hosts:

Equisetaceae

Equisetum arvense Linn. 111

Gramineae

Phalaris arundinacea Linn. 31, 62, 111

Phragmites communis Trinius 31, 48**, 62, 111

Some adults were collected in paddy fields 111 and on the following plants:

Gramineae

Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 111

Miscanthus sinensis Anderss. 111

28. **Stenocranus minutus** (Fabricius) 80

*Stenocranus minutus****, Esaki (1932) Iconogr. Ins. Jap., p. 1783, fig. 3523.

Stenocranus vittatus?, Matsumura & Ishihara (1945) Mushi, **16**: 69, fig. 36.

Stenocranus minutus?, Ishihara (1949) Sci. Rept. Matsuyama Agr. Coll., **2**: 26. figs. 38～41.

Stenocranus minutus?, Esaki & Ishihara (1950) Iconogr. Ins. Jap., p. 313, fig. 842.

(Continued from the previous page.)

S. minutus Matsumura 1900 (nec Fabricius 1787) = *S. sapporensis*

S. minutus Esaki 1932 〔probably not Fabricius 1787〕〔=probably *S. hokkaidoensis*〕

S. vittatus Matsumura 1935a (nec Stål 1862) = *S. hokkaidoensis*

S. vittatus Matsumura & Ishihara 1945 = *S. hokkaidoensis*

S. minutus Ishihara 1949 〔probably not Fabricius 1787〕〔=probably *S. hokkaidoensis*〕

S. minutus Esaki & Ishihara 1950 〔probably not Fabricius 1787〕〔=probably *S. hokkaidoensis*〕

S. minutus Ishihara 1951 〔probably not Fabricius 1787〕〔=probably *S. hokkaidoensis*〕

Thus, *S. hokkaidoensis* is surely distributed in Hokkaidō and Kyūshū.

* 角括弧で囲まれた和名は異物同名を示す. *Stenocranus minutus* をみよ.

** Probably a host plant.

*** See the footnote to *Stenocranus hokkaidoensis*.

Stenocranus minutus?, Ishihara (1951) Shin Konchū, 4(12): 45, fig. 10 K.
ウススジボソウンカ〔(ウススヂボソウンカ)〕* セスジナガウンカ (セスヂナガウンカ)
Distribution: Hokkaidō? 11, 48; Honshū? 11, 48; Kyūshū? 11, 48
Hosts:
Cyperaceae
Cyperus rotundus Linn.? 114
Gramineae
Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi? 111
Dactylis glomerata Linn. in Britain 32
Phalaris arundinacea Linn.? 62, 109, 111
Phragmites communis Trinius? 48**
Natural enemy:
Anagrus flaveolus Waterhouse? (Hym., Mymaridae) 9

29. **Stenocranus nigrifrons** Muir 48
Distribution: Ryūkyū Is. (Okinawa) 111
Host: Unknown but some adults were collected in sugarcane fields in Okinawa 111 and on *Phragmites* sp. in Formosa 48

30. **Stenocranus niisimai** Matsumura 48
=*Stenocranus niijimai*, Esaki & Ishihara (1943) p. 16.
=*Stenocranus nijimai*, Ishihara (1949) pp. 29~30.
ニイジマナガウンカ
Distribution: Hokkaidō 48, 111
Host: Unknown.

31. **Stenocranus ogasawarensis** Matsumura 48
Distribution: Bonin Is. 86, 103
Host: Unknown.

32. **Stenocranus ozenumensis** Ishihara 50
オゼナガウンカ
Distribution: Honshū (Oze 50; Ishikawa-ken 111; Yamagata-ken 31, 111)
Host:
Cyperaceae

* See the footnotes to *Stenocranus hokkaidoensis*.
** Probably a host plant.

Carex sp. 31, 111

33. **Stenocranus sapporensis** Matsumura 86*, 87*
=*Stenocranus minutus*, Matsumura (1900) Ent. Nachr., **26**: 257. (nec *minutus* Fabricius 1787)
=*Stenocranus sapporensis*, Matsumura (1935 a) Ins. Matsum., **9**: 131.
=*Stenocranus sapporensis*, Matsumura (1935 b) Ibid., **10**: 71.
=*Stenocranus sapporoensis*, Vilbaste (1968) Über die Zikadenfauna des primorje Gebietes, p. 16.
Distribution: Hokkaidō 85, 86, 87
Host: Unknown.

34. **Stenocranus sukumonus** Matsumura 48
スクモナガウンカ
Distribution: Shikoku (Sukumo) 48
Host: Unknown.

35. **Stenocranus takasagonis** Matsumura 48
タカサゴナガウンカ
Distribution: Honshū 48, 111; Kyūshū 111
Host: Unknown.

36. **Stenocranus tamagawanus** Matsumura 48
タマガワナガウンカ
Distribution: Honshū 48, 57, 111; Shikoku 57; Kyūshū 111
Host: Unknown.

37. **Stenocranus tateyamanus** Matsumura 48
タテヤマナガウンカ
Distribution: Honshū 48; Kyūshū 48
Host:
Gramineae
Phalaris arundinacea Linn. 48

38. **Stenocranus yasumatsui** Ishihara 51
ヤスマツナガウンカ
Distribution: Honshū (Ishikawa-ken, Toyama-ken) 111; Shikoku 51; Kyūshū

* See the footnote to *Stenocranus hokkaidoensis*.

(Mt. Hiko-san) 162

Host:

Cyperaceae

Carex sp. 51, 57, 111

39. **Kelisia guttula** (Germar) 31

ザオウウンカ

Distribution: Honshū (Yamagata-ken) 31, 111

Host:

Cyperaceae

Carex limosa Linn. 31*

40. **Megamelus notula** (Germar) 50

オゼウンカ

Distribution: Hokkaidō (Assabu) 111; Honshū (Kanazawa 111; Oze 29, 50)

Host**:

Cyperaceae

Carex sp. 29

41. **Tarophagus proserpina** (Kirkaldy) 158

=*Megamelus proserpina*

タロイモウンカ

Distribution: Ryūkyū Is. (Minami-daitō-jima 143, 144; Okinawa 144)

Hosts:

Araceae

Colocasia esculenta Schott in the Pacific tropical region 158

Colocasia esculenta Schott f. *aquatica* Makino 143, 144

Natural enemies: Unknown in Japan but known in Hawaii as follows 158;

Cyrtorhinus fulvus Knight (Heterop., Miridae)

Cyrtorhinus mundulus (Breddin) (Heterop., Miridae)

Ootetrastichus megameli Fullaway (Hym., Eulophidae)

Haplogonatopus vitiensis Perkins (Hym., Dryinidae)

42. **Saccharosydne procerus** (Matsumura)

=*Oxycranus procerus*

ホソミドリウンカ

Distribution: Hokkaidō 111; Honshū 48, 111; Shikoku 48; Kyūshū 48, 111; Ryūkyū Is. (Ishigaki-jima, Okinawa) 144

Hosts:

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* Probably a host plant.

** See an additional reference 170 on p. 817.

Gramineae

Oryza sativa Linn. 46, 48

Zizania latifolia Turcz. 46, 48, 69, 109, 111, 144, 155

43. Dicranotropis cervina Muir 99

Distribution: Honshū (Morioka)*, Ryūkyū Is.*

Host: Unknown.

44. Dicranotropis esakii Ishihara 48

エサキウンカ

Distribution: Honshū (Chiba)**; Kyūshū 48, 111

Host: Unknown.

45. Dicranotropis muiri (Kirkaldy) 19, 48, 125

=*Stenocranus sacchari* Matsumura

=*Unkana sacchari*

=*Numata sacchari*

=*Numata muiri*

サトウノウスイロウンカ（サタウノウスイロウンカ），サトウウスイロウンカ，〔ウスイロウンカ〕，サトウノナガウンカ，サトウナガウンカ（サタウナガウンカ）

Distribution: Tane-ga-shima 122; Yaku-shima 122; Amami-ōshima 122, 125, 126; Ryūkyū Is. (Iriomote-jima 5; Ishigaki-jima 5; Kita-daitō-jima 5; Kume-jima 5; Minami-daitō-jima 5; Miyako-jima 5; Okinawa 4, 5, 122, 144; Yonakuni-jima 5)

Host:

Gramineae

Saccharum officinarum Linn. 48, 122, 125, 126, 144***

Plant attacked:

Gramineae

Saccharum officinarum Linn. 4, 5, 21,

Natural enemies:

Tytthus chinensis Stål (Heterop., Miridae) 125

Elenchus templetoni Westwood (Strep., Elenchidae) in Mauritius 153

Muirixenos dicranotropidis Pierce (Strep., Halictophagidae) in Java 153

Anagrus flaveolus Waterhouse (Hym., Mymaridae) in Mauritius 153

Paranagrus optabilis Perkins (Hym., Mymaridae) in Mauritius 153

Ootetrastichus pallidipes Perkins (Hym., Eulophidae) in Mauritius 153

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* Hasegawa, H. (1964) *Nôgyôgizyutukenkyûsyo Kontyûka Kenkyûseiseki-gaiyô*, p. 38. Mimeographed, and personal communication in September 1970.

** —— (1962) *Nôgyôgizyutukenkyûsyo Kontyûka Kenkyûseiseki-gaiyô*, pp. 29~30. Mimeographed.

*** Doubtfully a host plant.

Pseudogonatopoides mauritianus Williams (Hym., Dryinidae) in Mauritius 153

Dorilas mauritianus Hardy (Dip., Pipunculidae) in Mauritius 153

46. **Dicranotropis tikuzenensis** Matsumura et Ishihara 48

チクゼンウンカ

Distribution: Honshū (Kanagawa-ken, Yamagata-ken*) 111; Shikoku 49, 52; Kyūshū 48, 49, 52, 111

Hosts:

Gramineae

Agrostis clavata Trinius var. *nukabo* Ohwi 111*

Coix lacryma-jobi Linn. 109, 111, 114

47. **Nagara** ** **nagaragawana** (Matsumura) 48, 151

=*Liburnia nagaragawana*

=*Dicranotropis nagaragawana*

ナガラガワウンカ

Distribution: Hokkaidō 111; Honshū 48, 57, 111; Shikoku 57; Kyūshū 48, 57, 111

Hosts

Gramineae

Miscanthus sinensis Anderss. 31, 62, 109, 111

Phragmites communis Trinius 48***, 62

Plant in which eggs were discovered in the field (excl. the host plants mentioned above):

Gramineae

Leersia sayanuka Ohwi 111

Plant on which 1st-instar nymphs were reared to adults under experimental conditions (excl. the host plants mentioned above):

Gramineae

Poa annua Linn. 111

Natural enemy:

Anagrus flaveolus Waterhouse (Hym., Mymaridae) 9, 111

48. **Nycheuma cognatum** (Muir) 16, 18, 99

=*Dicranotropis cognatum*

Distribution: Bonin Is. (Chichi-jima) 103

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* *D. tikuzenensis* is not listed in the catalogue of the Delphacidae in Yamagata prefecture (Nasu et al. (1965) p. 11). However, *A. clavata* var. *nukabo* is described as a host plant of the planthopper in that prefecture (T.c. p. 12)

** *Nagara* is invalid or nom. praeocc.; already used in a lepidopterous insect by Walker (1865) and in a crustacean by Budde-Lund (1909).

*** Probably a host plant.

Host: Unknown.

49. **Euides bilineata** (Matsumura) 48
=*Epunka bilineata*
=*Euidella bilineata*
フタスジオオウンカ
Distribution: Hokkaidō (Iwamizawa 111, Sapporo 87)
Host: Unknown.

50. **Euides speciosa** (Boheman) 31, 72
=*Euidella speciosa*
クロスジオオウンカ
Distribution: Honshū 31, 57, 111; Kyūshū 57, 111
Host:
Gramineae
Phragmites communis Trinius 31, 111

51. **Peregrinus maidis** (Ashmead) 48, 158
トウモロコシウンカ
Distribution: Bonin Is. 12, 103; Ryūkyū Is. (Iriomote-jima, Ishigaki-jima, Okinawa) 5, 144
Hosts:
Gramineae
Bromus catharticus Vahl 48
Cynodon dactylon (Linn.) Pers. 48
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius in India 165
Paspalum scrobiculatum Linn. in India 165
Pennisetum glaucum (Linn.) R. Br. in India 165
Sacchārum officinarum Linn.* 5, 48, 144
Setaria italica Beauv. in India 165
Sorghum halepense (Linn.) Pers.* in India 165
Sorghum vulgare Pers.* 48
Zea mays Linn. 48, 144, 158
Plant on which adults were collected (excl. the host plants mentioned above):
Gramineae
Coix lacryma-jobi Linn. in Palau 12 and in Mauritius 153
Pennisetum purpureum Schumach in Mauritius 153

* Although *P. maidis* may occasionally be found on *Saccharum*, *Sorghum*, *Coix*, etc. in Hawaii and Mauritius, such the plants are not regarded as the hosts but attacked temporarily (Zimmerman, 1949; Williams, 1957).

Plant in which eggs were discovered in the field (excl. the host plants mentioned above):

Gramineae

Pennisetum purpureum Schumach in Mauritius 153

Transmission of plant disease: Vector of maize mosaic virus in Hawaii, etc. 6, 33, 55, 58, 158

Natural enemies: Unknown in Japan but known in other countries as follows;

Bochartia sp. (Acarina) in India 160

Chelisoches morio (Fabricius) (Dermap., Chelisochidae) in Hawaii 150, 158

Zelus renardii Kolenati (Heterop., Reduviidae) in Hawaii 150, 158

Cyrtorhinus lividipennis Reuter (Heterop., Miridae) in Hawaii 150, 158

Cyrtorhinus mundulus (Breddin) (Heterop., Miridae) in Hawaii 150, 158

Coccinella septempunctata Linné (Col., Coccinellidae) in India 160

Coelophora inaequalis (Fabricius) (Col., Coccinellidae) in Hawaii 150, 158

Menochilus (*Chilomenes*) *sexmaculatus* (Fabricius) (Col., Coccinellidae) in India 160

Anagrus flaveolus Waterhouse (Hym., Mymaridae) in Haiti, Trinidad 9, 149, and Mauritius 153

Anagrus frequens Perkins (Hym., Mymaridae) in Hawaii 149, 158

Anagrus sp. (Hym., Mymaridae) in Hawaii 149

Paranagrus optabilis Perkins (Hym., Mymaridae) in Hawaii 158 and Mauritius 153

Paranagrus osborni Fullaway (Hym., Mymaridae) in Hawaii and the Philippines 149, 158

Ootetrastichus beatus Perkins (Hym., Eulophidae) in Hawaii 149, 158

Ootetrastichus pallidipens Perkins (Hym., Eulophidae) in Mauritius 153

Ootetrastichus sp. (Hym., Eulophidae) in Hawaii 149

Haplogonatopus vitiensis Perkins (Hym., Dryinidae) in Hawaii 149, 158

Pheidole megacephala (Fabricius) (Hym., Formicidae) in Hawaii 150, 158

Mesogramma subannulatum Loew (Dip., Syrphidae) in Cuba 150

52. **Nilaparvata bakeri** (Muir) 30

トビイロウンカモドキ, トビイロモドキ

Distribution: Honshū 30; Shikoku 30; Kyūshū 30

Hosts:

Gramineae

Arthraxon hispidus (Thunb.) Makino 30

Digitaria adscendens (H. B. K.) Henr. 111

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 31, 111

Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 111
Isachne globosa (Thunb.) O. Kuntze 31, 33, 111
Leersia japonica Makino 31, 48, 109, 111, 147
Leersia sayanuka Ohwi 30, 111, 114
Oryza sativa Linn. 31, 111
Poa annua Linn. 111

Plants on which adults were collected:

Commelinaceae
Aneilema keisak Hassk. 111
Commelina communis Linn. 111

Gramineae
Arthraxon hispidus (Thunb.) Makino 111
Echinochloa crus-galli (Linn.) Beauv. 68
Leersia japonica Makino 109*
Oryza sativa Linn. 68, 127
Poa annua Linn. 111
Setaria glauca (Linn.) Beauv. 111

Juncaceae
Juncus effusus Linn. var. *decipiens* Buchen. 111

Labiatae
Mosla dianthera (Hamilt.) Maxim. 111

Polygonaceae
Polygonum thunbergii Sieb. et Zucc. 111

Ranunculacea
Ranunculus quelpaertensis (Léveillé) Nakai 111

Plants in which eggs were discovered in the field:

Commelinaceae
Aneilema keisak Hassk. 67
Commelina communis Linn. 67

Gramineae
Arthraxon hispidus (Thunb.) Makino 67
Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 67
Isachne globosa (Thunb.) O. Kuntze 67, 111
Leersia japonica Makino 109, 111, 147
Microstegium vimineum (Trinius) A. Camus var. *polystachyum* (Fr. et Sav.) Ohwi 67

* Adults, nymphs, and eggs were collected.

Setaria glauca (Linn.) Beauv. 67

Juncaceae

Juncus effusus Linn. var. *decipiens* Buchen. 67

Labiatae

Mosla dianthera (Hamilt.) Maxim. 67

Polygonaceae

Polygonum thunbergii Sieb. et Zucc. 67

Ranunculaceae

Ranunculus quelpaertensis (Léveillé) Nakai 67

Plants on which 1st-instar nymphs were reared to adults under experimental conditions:

Gramineae

Leersia japonica Makino 109

Leersia sayanuka Ohwi 67

Oryza sativa Linn. 30

Triticum aestivum Linn. 67

Natural enemies:

Anagrus flaveolus Waterhouse (Hym., Mymaridae) 111, 157

Japania andoi Ishii (Hym., Trichogrammatidae) 157

53. **Nilaparvata lugens** (Stål) 30

=*Liburnia oryzae*

=*Nilaparvata oryzae*

ダンゴヒゲマル, コバネウンカ, ダンゴヨコバヘ, アキウンカ, トビイロウンカ

Distribution: Hokkaidō 30, 48; Honshū 30, 48; Izu Is. (Mikura-jima) 128; Shikoku 30, 48; Kyūshū 30, 48; Tane-ga-shima 161; Yaku-shima 30; Amami-ōshima 30; Ryūkyū Is. (Ishigaki-jima 5, 144; Miyako-jima 5, 144; Okinawa 5, 144; Tokashiki-jima 144)

Hosts:

Caryophyllaceae

Stellaria alsine Grimm var. *undulata* (Thunb.) Ohwi 31

Commelinaceae

Commelina communis Linn. in China 79

Cyperaceae

Carex thunbergii Steud. 31

Carex sp. in China 79

Cyperus rotundus Linn. 31

Gramineae

Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 31

Agrostis clavata Trinius in China 79
Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 31
Arthraxon hispidus (Thunb.) Makino in China 79
Cynodon dactylon (Linn.) Pers. 31
Digitaria adscendens (H. B. K.) Henr. 31, 79*
Echinochloa crus-galli (Linn.) Beauv. in China 79
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 30, 31, 62, 111
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 31
Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 31, 62
Eleusine coracana (Linn.) Gaertn. in India 169
Eleusine indica (Linn.) Gaertn. 31
Glyceria acutiflora Torr. 31
Glyceria depauperata Ohwi in China 79
Leersia hexandra (Linn.) Swartz. in China 79 and India 169
Leersia sayanuka Ohwi 111
Oryza sativa Linn.**
Poa acroleuca Steud. 30, 31
Poa annua Linn. 31, 111
Poa nipponica Koidz. 30, 31
Poa sphondylodes Trinius 31
Saccharum officinarum Linn. 48, 144 and in India 169
Zea mays Linn. in India 169
Zizania latifolia Turcz. 22***, 30, 31, 48

Plants on which adults were collected:

Commelinaceae

Aneilema keisak Hassk. 111

Gramineae

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 98
Digitaria adscendens (H. B. K.) Henr. 146
Digitaria violascens Link 111
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 111
Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 111
Glyceria acutiflora Torr. 98
Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 146
Isachne globosa (Thunb.) O. Kuntze 24

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* In China.
** Many references.
*** In Formosa.

Leersia japonica Makino 111, 146, 147
Microstegium japonicum (Miq.) Koidz. 111, 146, 147
Miscanthus sinensis Anderss. 146, 147
Oryza sativa Linn.*
Phalaris arundinacea Linn. 98
Sasa veitchii (Carr.) Rehd. 146, 147
Setaria glauca (Linn.) Beauv. 147
Setaria italica Beauv. in Formosa 91
Triticum aestivum Linn. 64, 65, 147
Zizania latifolia Turcz. 111, 146, 147, 155
Zoysia japonica Steud. 111, 146

Plants attacked:

Gramineae
Saccharum officinarum Linn. 5
Setaria italica Beauv. in Formosa 91
Triticum aestivum Linn. 64, 65

Plants in which eggs were discovered in the field:

Commelinaceae
Aneilema keisak Hassk. 137**

Cyperaceae
Cyperus difformis Linn. 137**
Eleocharis acicularis (Linn.) Roem. et Schult. var. *longiseta* Svenson 137**

Gramineae
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 67
Oryza sativa Linn.*
Triticum aestivum Linn. 64, 65

Pontederiaceae
Monochoria vaginalis (Burm. fil.) Presl var. *plantaginea* (Roxb.) Solms-Laub. 137

Plants on which 1st-instar nymphs were reared to adults under experimental conditions:

Caryophyllaceae
Stellaria alsine Grimm var. *undulata* (Thunb.) Ohwi 64, 65, 111, 137

Cyperaceae
Carex thunbergii Steud. 137
Cyperus rotundus Linn. 64, 65, 111, 137

* Many references.
** The plants were shown in unpublished data, cited indirectly from 137.

Gramineae

Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 64, 65, 111, 137

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 64, 65, 111, 135, 137

Cynodon dactylon (Linn.) Pers. 64, 65, 111, 137

Digitaria adscendens (H. B. K.) Henr. 111

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 70, 71, 111, 137

Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 111

Eleusine indica (Linn.) Gaertn. 111

Eragrostis ferruginea (Thunb.) Beauv. 111

Glyceria acutiflora Torr. 134, 135, 136, 137

Hordeum vulgare Linn. emend. Lamarck 24*

Isachne globosa (Thunb.) O. Kuntze 24*

Leersia japonica Makino 71, 77, 111, 147

Leersia sayanuka Ohwi 71

Oryza alta Swallen 71

Oryza eichingeri Peter 71

Oryza glaberrima Steud. 71

Oryza latifolia Desv. 71

Oryza minuta Presl 71

Oryza officinalis Wall. 71

Oryza perennis Moench 71

Oryza ridleyi Hook. 71

Oryza sativa Linn.**

Oryza sativa Linn. var. *spontanea* Roschev. 71

Oryza stapfii Roschev. 71

Pennisetum alopecuroides (Linn.) Spreng. 111

Poa acroleuca Steud. 137

Poa annua Linn. 43, 64, 65, 77, 93, 94, 111, 134, 135, 137

Poa nipponica Koidz. 137

Poa sphondylodes Trinius 111, 137

Setaria viridis (Linn.) Beauv. 111

Sporobolus indicus (Linn.) R. Br., sensu lato 111

Triticum aestivum Linn. 24*

Zizania latifolia Turcz. 35, 43, 137

Zoysia japonica Steud. 111

Transmission of plant disease: Unknown in Japan but a vector of grassy stunt

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* Any nymphal stadium was not denoted at the beginning of rearing

** Many references.

of rice in the Philippines 82, 121

Natural enemies:

Agamermis unka Kaburaki et Imamura (Nemathelminthes) 66

Coccinella (*Harmonia*) *arcuata* Fabricius (Col., Coccinellidae) in India 167

Hippodamia tredecimpunctata Linné (Col., Coccinellidae) in China 79

Elenchinus japonicus Esaki et Hashimoto (Strep., Elenchidae) 157

Anagrus flaveolus Waterhouse (Hym., Mymaridae) 111, 157

Anaphes sp. (Hym., Mymaridae) in Formosa 149

Aphelinoidea sp. (Hym., Trichogrammatidae) in Formosa 149

Japania andoi Ishii (Hym., Trichogrammatidae) 157

Trichogramma sp. (Hym., Trichogrammatidae) in Formosa 149

Echthrodelphax bicolor Esaki et Hashimoto (Hym., Dryinidae) 157

Haplogonatopus japonicus Esaki et Hashimoto (Hym., Dryinidae) 157

Pseudogonatopus flavifemur Esaki et Hashimoto (Hym., Dryinidae) 157

54. **Nilaparvata muiri** China 30

ニセトビイロウンカ, ニセトビウンカ

Distribution: Hokkaidō 111; Honshū 30, 111; Shikoku 30; Kyūshū 30, 111

Hosts:

Gramineae

Digitaria adscendens (H. B. K.) Henr. 111

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 111

Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 31, 62, 111

Isachne globosa (Thunb.) O. Kuntze 31, 62, 111

Leersia japonica Makino 30, 31, 62, 114

Leersia sayanuka Ohwi 31, 62, 109, 111

Oryza sativa Linn. 31, 62, 111

Phalaris arundinacea Linn. 111

Plants on which adults were collected:

Gramineae

Digitaria adscendens (H. B. K.) Henr. 111

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 111

Leersia japonica Makino 114

Leersia sayanuka Ohwi 109, 111

Oryza sativa Linn. 68

Phalaris arundinacea Linn. 111

Plants in which eggs were discovered in the field:

Gramineae

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 67
Leersia japonica Makino 107, 111, 114
Leersia sayanuka Ohwi 67, 109, 111
Phalaris arundinacea Linn. 107, 111

Juncaceae

Juncus effusus Linn. var. *decipiens* Buchen. 67

Plants on which 1st-instar nymphs were reared to adults under experimental conditions:

Gramineae

Leersia japonica Makino 111
Leersia sayanuka Ohwi 109
Oryza sativa Linn. 30

55. **Zuleica nipponica** Matsumura et Ishihara 48, 88

ニホンウンカ

Distribution: Honshū 48; Kyūshū 48

Hosts:

Gramineae

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 111
Zizania latifolia Turcz. 48, 62, 69, 109, 111

Plants on which adults were collected (excl. the host plants mentioned above):

Gramineae

Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 111
Oryza sativa Linn. 68, 111

Plant on which 1st-instar nymphs were reared to adults under experimental conditions:

Gramineae

Zizania latifolia Turcz. 91

Natural enemy:

Proctotrupoid (Hym., Scelionidae) 9

56. **Chloriona arakawai** Matsumura* 48

C. tosaensis?

Distribution: Shikoku 48

Host:

Gramineae

* Ishihara (1949, p. 32) has some doubt as to whether *C. tosaensis* is independent of *C. arakawai*.

Phragmites communis Trinius 48

57. **Chloriona japonica** Matsumura 48
ヨシウンカ
Distribution: Hokkaidō 48; Honshū 48; Kyūshū 48
Host:
Gramineae
Phragmites communis Trinius 48, 62

58. **Chloriona shikokuana** Matsumura 48
シコクヨシウンカ
Distribution: Honshū 48; Shikoku 48
Host:
Gramineae
Phragmites communis Trinius 48

59. **Chloriona tateyamana** Matsumura 48
タテヤマヨシウンカ
Distribution: Honshū 48, 111; Kyūshū 111
Hosts:
Gramineae
Phragmites communis Trinius 48, 109, 111
Phragmites japonica Steud. 31
Plant on which adults were collected (excl. the host plants mentioned above):
Typhaceae
Typha laxmanni Lap. in Primorskaya province, U.S.S.R. 151

60. **Chloriona tosaensis** Matsumura* 48
C. arakawai ?
Distribution: Shikoku 48
Host:
Gramineae
Phragmites communis Trinius 48

61. **Yanunka miscanthi** Ishihara 52
カヤウンカ
Distribution: Honshū (Hiroshima-ken) 54, 57; Shikoku 52, 57; Kyūshū (Fuku-

* Ishihara (1949, p. 32) has some doubt as to whether *C. tosaensis* is independent of *C. arakawai*.

oka-ken) 162; Fukue-jima 162

Host:

Gramineae

Miscanthus sinensis Anderss. 52, 57

62. **Delphax pulchellus** (Curtis) 48, 72

=*Cicada crassicornis* Panzer

=*Delphax crassicornis*

=*Araeopus crassicornis*

〔ヒゲブトウンカ〕

Distribution: Hokkaidō 48; Honshū 48; Kyūshū 48

Host: Unknown.

63. **Delphacodes* agropyri** Ishihara 48

カモジグサウンカ

Distribution: Honshū 48

Host:

Gramineae

Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 48

64. **Delphacodes dogensis** Ishihara 52

Distribution: Shikoku 52

Host: Unknown.

65. **Delphacodes fukuokae** Ishihara 48

フクオカウンカ

Distribution: Kyūshū 48

Host: Unknown

66. **Delphacodes nigerrima** Ishihara 48

クロウンカ

Distribution: Honshū 48

Host:

Commelinaceae

Aneilema keisak Hassk. 48.

67. **Delphacodes nigriella** Ishihara 53

Distribution: South Kyūshū 53

Host: Unknown.

* See the explanatory notes shown in Chapter II as to the generic name.

68. **Delphacodes nigrigena** Matsumura et Ishihara 48
ホオグロウンカ
Distribution: Hokkaidō (Obihiro) 111; Honshū 31, 111; Kyūshū 48, 111
Host:
Gramineae
Poa sphondylodes Trinius 31*

69. **Falcotoya lyraeformis** (Matsumura) 18, 48
=*Liburnia lyraeformis*
=*Delphacodes lyraeformis*
=*Calligypona lyraeformis*
タテゴトウンカ
Distribution: Honshū 48, 52, 57; Shikoku 52, 57; Kyūshū 48, 52, 57
Hosts:
Gramineae
Eragrostis multicaulis Steud. 31
Leersia sayanuka Ohwi 111
Oryza sativa Linn. 31
Pennisetum alopecuroides (Linn.) Spreng. 31, 62, 111
Poa sphondylodes Trinius 31
Zoysia japonica Steud. 31, 62, 111

70. **Harmalia albicollis** (Motschulsky)** 18
=*Delphacodes albicollis*
=*Toya albicollis*
〔ウスイロトビウンカ〕
Distribution: Japan? 10**
Host: Unknown.

71. **Harmalia sameshimai** (Matsumura et Ishihara) 18, 48
=*Kakuna sameshimai*
=*Delphacodes sameshimai*
サメシマウンカ

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* Probably a host plant.
** The present authors have some doubt as to Esaki's identification as to this species and its distributional record in Japan. According to Vilbaste (1968, p. 37), on the other hand, the distribution of *Toya albicollis* is not clear because *T. albicollis* has sometimes been confused with *T. propinqua*, and *Delphacodes shirozui* is probably a synonym of *T. albicollis*. According to Fennah (1956a, p. 122), however, *D. shirozui* is a synonym of *D. propinqua*. Then, three these species and their distributions will have to be reexamined.

Distribution: Honshū (Fukuyama 42; Ishikawa-ken 111; Kanagawa-ken 111; Toyama-ken 111; Yamagata-ken 31, 111); Kyūshū 48, 111

Hosts:

Gramineae

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 111

Isachne globosa (Thunb.) O. Kuntze 31, 62, 109, 111

Leersia sayanuka Ohwi 111, 114

Phalaris arundinacea Linn. 111

Poa acroleuca Steud. 31*

Poa annua Linn. 111

Setaria glauca (Linn.) Beauv. 111

Plant attacked:

Gramineae

Oryza sativa Linn. 111

Plant in which eggs were discovered in the field (excl. the host plants mentioned above):

Gramineae

Glyceria depauperata Ohwi var. *infirma* (Ohwi) Ohwi 111

Plant on which 1st-instar nymphs were reared to adults under experimental conditions (excl. the host plants mentioned above):

Gramineae

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 111

Natural enemies:

Anagrus flaveolus Waterhouse (Hym., Mymaridae) 111, 157

Japania andoi Ishii (Hym., Trichogrammatidae) 111, 157

72. **Javesella obscurella** (Boheman) 72, 80

= *Delphax obscurella*

= *Liburnia obscurella*

= *Delphacodes obscurella*

= *Calligypona obscurella*

Distribution: Honshū (Fukuyama) ? 38, 42

Host: Unknown in Japan.

Transmission of plant diseases: Vector of oat sterile dwarf virus and European wheat striate mosaic virus in Europe 96

73. **Javesella pellucida** (Fabricius) 72, 80

= *Delphax pellucida*

* Probably a host plant.

=*Liburnia pellucida*
=*Delphacodes pellucida*
=*Calligypona pellucida*
タカネウンカ, キミウンカ
Distribution: Hokkaidō 47, 111; Honshū (Mt. Kiso-ontake, Mt. Norikura)*
Hosts: Unknown in Japan but known in Europe as follows 96;

Caryophyllaceae
Stellaria media (Linn.) Villars

Gramineae
Agropyron repens (Linn.) Beauv.
Agrostis alba Linn.
Agrostis tenuis Sibth.
Alopecurus geniculatus Linn.
Alopecurus pratensis Linn.
Arrhenatherum elatius (Linn.) Presl
Avena sativa Linn.
Bromus inermis Leyss.
Dactylis glomerata Linn.
Deschampsia caespitosa (Linn.) Beauv.
Festuca elatior Linn.
Festuca rubra Linn.
Holcus lanatus Linn.
Hordeum vulgare Linn. emend. Lamarck
Lolium perenne Linn.
Phalaris arundinacea Linn.
Phleum pratense Linn.
Poa annua Linn.
Poa pratensis Linn.
Secale cereale Linn.
Triticum aestivum Linn.

Juncaceae
Luzula multiflora Lejeune

Plants on which adults were collected (excl. the host plants mentioned above), but doubtful host plants 96:

Cyperaceae
Carex sp.
Eriophorum sp.

* Hasegawa, H. (1954) *Ontake-tyôsa-tyûkanhôkoku*, p. 4, Mimeographed, and personal communication to the former of the present authors in 1969. See Mochida & Kisimoto (1970, 1971).

Plants on which some nymphs were found after overwintering, but doubtful host plants 96:

Labiatae

Galeopsis bifida Boenn.

Onagraceae

Epilobium angustifolium Linn.

Ranunculaceae

Ranunculus repens Linn.

Plants in which eggs were discovered in the field (excl. the host plants mentioned above) 96*:

Gramineae

Agrostis stolonifera Linn.

Anthoxanthum odoratum Linn.

Avena fatua Linn.

Avena strigosa Schreb.

Calamagrostis langsdorffii (Link) Trinius

Festuca pacifica Piper

Hordeum distichon Linn. emend. Lamarck

Transmission of plant diseases: Vector of oat sterile dwarf virus, European wheat striate mosaic virus, maize rough dwarf virus, and aster yellows in Europe 96

Natural enemies: Unknown in Japan but known in Europe as follows 96;

Achorolophus gracilipes (Kramer) (Acarina)

Trombidium sp. (Acarina)

Tyrophagus putrescentiae (Schrank) (Acarina)

Dicymbium nigrum (Blackwall) (Araneina)

Linyphia pusilla Sundevall (Araneina)

Meioneta rurestirus (C. L. Koch) (Araneina)

Bugs (Heterop.)

Elenchus tenuicornis (Kirby) (Strep., Elenchidae)

Anagrus atomus (Linné) (Hym., Mymaridae)

Mesopolobus aequus (Walker) (Hym., Pteromalidae)

Mesopolobus graminum (Hårdh) (Hym., Pteromaridae)

Panstenon oxylus (Walker) (Hym., Pteromalidae)

Dicondylus lindbergi Heikinheimo (Hym., Dryinidae)

Pipunculus semifumosus (Kowarz) (Dip., Pipunculidae)

Pipunculids (Dip., Pipunculidae)

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* See an additional reference 170 on p. 817.

74. **Laodelphax striatellus** (Fallén) 14, 48
= *Delphacodes striatella*
= *Calligypona striatella*
ハネナガヒゲマルヨコバヘ, コクロヨコバヘ, ヒメクロヨコバイ, ヒメトビウンカ
Distribution: South Kuriles (Kunashiri-tō) 56, 78; Hokkaidō 48; Honshū 48; Shikoku 48; Kyūshū 48; Tane-ga-shima 161; Ryūkyū Is. (Iriomote-jima 144; Ishigaki-jima 144; Miyako-jima 144; Okinawa 144) 5, 48
Hosts:
Gramineae
Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 31, 62, 109, 111
Agrostis clavata Trinius var. *nukabo* Ohwi 111
Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 31, 62, 111
Digitaria adscendens (H. B. K.) Henr. 31, 62, 111
Digitaria violascens Link 31, 62, 111
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 31, 62, 109, 111
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 109
Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 31, 62, 111
Hordeum vulgare Linn. emend. Lamarck 48, 62, 111
Lolium multiflorum Lamarck 111
Oryza sativa Linn.*
Panicum miliaceum Linn. 62, 111
Pennisetum alopecuroides (Linn.) Spreng. 31, 62, 111
Phalaris arundinacea Linn. 111
Phleum paniculatum Huds. 31, 62, 111
Poa annua Linn. 111
Saccharum officinarum Linn. 48, 144
Setaria glauca (Linn.) Beauv. 31, 111
Setaria italica Beauv. 31, 62, 111
Setaria viridis (Linn.) Beauv. 31
Sorghum vulgare Pers. 48
Triticum aestivum Linn. 31, 48, 62, 111
Plants on which adults were collected (excl. the host plants mentioned above):
Gramineae
Beckmannia syzigachne (Steud.) Fernald 37**
Coix lacryma-jobi Linn. 37**

* Many references.
** Nymphs were also found on such plants in the field.

Zea mays Linn. 37*
Zizania latifolia Turcz. 37*, 155

Plants attacked:

Gramineae

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 142
Arrhenatherum elatius (Linn.) Presl 118
Dactylis glomerata Linn. 45, 118
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 76, 142
Festuca arundinacea Schreb. 118
Lolium multiflorum Lamarck 118
Lolium perenne Linn. 118
Oryza sativa Linn.**
Panicum miliaceum Linn. 142
Saccharum officinarum Linn. 5
Setalia italica Beauv. 142
Zea mays Linn. 76, 142
Zizania latifolia Turcz. 142

Leguminosae

Medicago sativa Linn. 118
Trifolium hybridum Linn. 118
Trifolium pratense Linn. 118
Trifolium repens Linn. 45, 118

Plants in which eggs were discovered in the field:

Cyperaceae

Carex sp. 111

Gramineae

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 20
Hordeum vulgare Linn. emend. Lamarck 156
Oryza sativa Linn.**
Poa annua Linn. 20, 137
Triticum aestivum Linn. 156

Plants on which 1st-instar nymphs were reared to adults under experimental conditions:

Gramineae

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 37, 94, 109
Beckmannia syzigachne (Steud.) Fernald 37

---

* Nymphs were also found on such plants in the field.
** Many references.

Digitaria adscendens (H. B. K.) Henr. 94
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 94
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 37
Hemarthria sibirica (Gandog.) Ohwi 109
Hordeum vulgare Linn. emend. Lamarck 37, 101
Lolium multiflorum Lamarck 94
Oryza sativa Linn*.
Panicum miliaceum Linn. 37, 101
Phalaris arundinacea Linn. 37
Poa annua Linn. 37, 101
Saccharum officinarum Linn. 37, 101
Setaria italica Beauv. 37, 101
Triticum aestivum Linn. 94
Zea mays Linn. 37, 101
Zizania latifolia Turcz. 37

Transmission of plant diseases: Vector of black-streaked dwarf 75; stripe 74; northern cereal mosaic virus in Japan 63, Siberian oat mosaic (=zakuklivanie or oat pseudorosette) in U. S. S. R. 83; and maize rough dwarf (=nanismo ruvido) virus in Europe 26, 27

Natural enemies:

Agamermis unka Kaburaki et Imamura (Nemathelminthes) 117
Lycosa psedoannulata (Bösenberg et Strand) (Araneina) 73
Oedothorax insecticeps Bösenberg et Strand (Araneina) 73
Nabis ferus Linné (Heterop., Nabidae) 157
Elenchinus japonicus Esaki et Hashimoto (Strep., Elenchidae) 157
Anagrus nr. *flaveolus* Waterhouse (Hym., Mymaridae) 120
Echthrodelphax bicolor Esaki et Hashimoto (Hym., Dryinidae) 157
Haplogonatopus atratus Esaki et Hashimoto (Hym., Dryinidae) 157
Haplogonatopus japonicus Esaki et Hashimoto (Hym., Dryinidae) 157
Paragonatopus fulgori (Nakagawa) (Hym., Dryinidae) 157
Vespula lewisii (Cameron) (Hym. Vespidae) 157

75. Metadelphax propinqua (Fieber)** 12, 48
=*Delphacodes propinqua*
=*Toya propinqua*
=*Delphacodes shirozui* Ishihara
〔ウスイロウンカ〕, 〔ウスイロトビウンカ〕, ウストビウンカ, シロウズウンカ

* Many references.
** See the footnote to *Harmalia albicollis* on p. 767.

Distribution: Hokkaidō 111; Honshū 31, 48, 111; Shikoku 52; Kyūshū 48, 52, 111; Bonin Is. (Chichi-jima 103) 48

Hosts:

Gramineae

Cynodon dactylon (Linn.) Pers. 109, 111

Digitaria violascens Link 31, 62, 111

Echinochloa crus-galli (Linn.) Beauv. 48

Miscanthus sinensis Anderss. 111

Oryza sativa Linn. 31, 48

Poa annua Linn. 111

Saccharum officinarum Linn. 31, 48

Setaria italica Beauv. 48

Zoysia japonica Steud. 31*, 62, 111

Plants attacked in Formosa 91:

Gramineae

Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius

Oryza sativa Linn.

Saccharum officinarum Linn.

Setaria italica Beauv.

76. **Muellerianella fairmairei** (Perris) 31, 151

=*Delphax fairmairei*

=*Delphacodes fairmairei*

ナカノウンカ

Distribution: Hokkaidō 111; Honshū 31, 111

Hosts:

Gramineae

Arthraxon hispidus (Thunb.) Makino 31, 111

Digitaria adscendens (H. B. K.) Henr. 111

Isachne globosa (Thunb.) O. Kuntze 111

Leersia japonica Makino 31, 111

Oplismenus undulatifolius (Ard.) Roem. et Schult. var. *japonicus* (Steud.) Koidz. 31

Oryza sativa Linn. 21, 31

Phalaris arundinacea Linn. 111

Setaria viridis (Linn.) Beauv. 111

Plant in which eggs were discovered in the field in Britain 97**:

Rosaceae

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* Probably a host plant.

** See an additional reference 170 on p. 817.

Rubus fruticosus Linn.

Transmission of plant disease: Vector of northern cereal mosaic 58, 61

Natural enemies: Unknown in Japan but known in Britain:

Elenchus tenuicornis (Kirby) (Strep., Elenchidae) 32

Anagrus incarnatus (Hal.) (Hym., Mymaridae) 97

Pipunculus semifumosus (Kowarz) (Dip., Pipunculidae) 124

77. **Muirodelphax exiguus** (Boheman) 48, 72

= *Delphax exigua*

= *Delphacodes exigua*

チビウンカ

Distribution: Honshū 48, 111: Kyūshū 111

Host:

Gramineae

Zoysia japonica Steud. 62, 111

78. **Muirodelphax matsuyamensis** (Ishihara) 52

= *Delphacodes matsuyamensis*

マツヤマチビウンカ

Distribution: Honshū 31, 111; Shikoku 52

Hosts:

Gramineae

Agrostis clavata Trinius var. *nukabo* Ohwi 111

Zoysia japonica Steud. 31, 111

Zoysia tenuifolia Willd. 31

79. **Paradelphacodes paludosus** (Flor) 31, 48, 72, 151

= *Delphax paludosa*

= *Liburnia yezoana*, Matsumura (1900) Ent. Nachr., **26**: 265.

= *Delphacodes pellucida*, Esaki & Ishihara (1943) Rept. leaf-hoppers & natural enemies., **13**: 29~31.

= *Delphacodes kuwaharai*, Ishihara (1949) Sci. Rept. Matsuyama Agr. Coll., **2**: 58.

= *Delphacodes paludosa*

エゾトビウンカ, クワハラウンカ

Distribution: Hokkaidō 52, 111: Honshū 48, 52, 111: Shikoku 52: Kyūshū 111

Hosts:

Cyperaceae

Carex sp. 111

Gramineae

Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi

31, 62, 111

Dactylis glomerata Linn. 111

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 31, 62, 111

Oryza sativa Linn. 111

Phalaris arundinacea Linn. 31, 62, 111

Poa annua Linn. 111

Sporobolus indicus (Linn.) R. Br., sensu lato 31, 111, 114

Triticum aestivum Linn. 31, 62, 111

Zizania latifolia Turcz. 155

Liliaceae

Reineckea carnea (Andr.) Kunth 31

Polygonaceae

Polygonum thunbergii Sieb. et Zucc. 31, 48*

Umbelliferae

Oenanthe javanica (Blume) DC. 31, 111, 114

Plant on which adults were collected in the field:

Polygonaceae

Polygonum thunbergii Sieb. et Zucc. 48*

Plant on which one nymph was collected in the field:

Gramineae

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 119

Plant in which eggs were discovered in the field (excl. the host plants mentioned above):

Gramineae

Miscanthus sinensis Anderss. 111

Plants on which 1st-instar nymphs were reared to adults under experimental conditions (excl. the host plants mentioned above):

Gramineae

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 111

Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 111

Miscanthus sinensis Anderss. 111

80. **Ribautodelphax collina** (Boheman) 31, 152

= *Delphax collina*

= *Liburnia collina*

= *Delphacodes collina*

クロヒゲウンカ

Distribution: Honshū (Yamagata-ken) 31, 111

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* Doubtfully a host plant.

Host:

Gramineae

Arthraxon hispidus (Thunb.) Makino 31*

81. **Terthron albovittatus** (Matsumura) 17, 48

= *Dicranotropis albovittata*

= *Liburnia albovittata*

= *Sogata albovittata*

= *Delphacodes albovittata*

タテヒトスジウンカ，セスジトビウンカ（セスヂトビウンカ），シロスジトビウンカ（シロスヂトビウンカ），シロスジウンカ（シロスヂウンカ），セスジウンカ（セスヂウンカ）

Distribution: Hokkaidō 111: Honshū 48, 111: Shikoku 48: Kyūshū 48, 111: Ryūkyū Is. (Okinawa) 144

Hosts:

Cyperaceae

Cyperus serotinus Rottb. 31

Gramineae

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 67

Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 31

Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 31, 111

Leersia sayanuka Ohwi 111

Miscanthus sinensis Anderss. 111

Oplismenus undulatifolius (Ard.) Roem. et Schult. var. *japonicus* (Steud.) Koidz. 31

Oryza sativa Linn. 31, 48

Paspalum thunbergii Kunth 109, 111

Pennisetum alopecuroides (Linn.) Spreng. 111

Poa acroleuca Steud. 31

Setaria viridis (Linn.) Beauv. 111

Zoysia japonica Steud. 48*, 111

Plants attacked:

Gramineae

Dactylis glomerata Linn. 45, 118

Eragrostis curvula (Schrad.) Neers. 118

Plants in which eggs were discovered in the field (excl. the host plants mentioned above):

---

* Probably a host plant.

Gramineae

Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 134

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 134

Glyceria acutiflora Torr. 134

Poa nipponica Koidz. 134

Leguminosae

Astragalus sinicus Linn. 134

Transmission of plant diseases: Vector of stripe 163; and northern cereal mosaic virus 163

82. **Unkanodes albifascia*** (Matsumura) 48, 151

=*Liburnia albifascia*

=*Delphax albifascia*

=*Delphacodes albifascia*

=*Ribautodelphax albifascia*

シロオビウンカ

Distribution: Hokkaidō 60; Honshū 42, 48, 111; Kyūshū 111, 162; Tsushima-jima 162

Hosts:

Cyperaceae

Carex dimorpholepis Steud. 109, 111

Gramineae

Arthraxon hispidus (Thunb.) Makino 62, 111

Dactylis glomerata Linn. 60

Festuca arundinacea Schreb. 60

Isachne globosa (Thunb.) O. Kuntze 111

Phleum pratense Linn. 60

Poa pratensis Linn. 60

Summer hosts:

Gramineae

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 41

Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 41

Oryza sativa Linn. 41

Sorghum vulgare Pers. 41

Winter hosts:

* According to Hasegawa, H. (personal communication in September 1970), the species belongs to *Unkanodes* better than *Ribautodelphax*.

Gramineae

Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 41

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 41

Avena fatua Linn. 41

Avena sativa Linn. 41

Beckmannia syzigachne (Steud.) Fernald 41

Dactylis glomerata Linn. 41

Hordeum distichon Linn. emend. Lamarck 41

Hordeum vulgare Linn. emend. Lamarck 41

Lolium multiflorum Lamarck 41

Phalaris arundinacea Linn. 41

Phleum pratense Linn. 41

Poa annua Linn. 41

Polypogon fugax Steud. 41

Secale cereale Linn. 41

Triticum aestivum Linn. 41

Plants on which 1st-instar nymphs were reared to adults under experimental conditions:

Gramineae

Setaria viridis (Linn.) Beauv. 133

Triticum aestivum Linn. 131, 133

Transmission of plant diseases: Vector of northern cereal mosaic 59, 60, 133; stripe 39, 41, 132; and black-streaked dwarf virus 40, 132

83. **Unkanodes hakonensis** (Matsumura) *13, 48

=*Unkana hakonensis*

=*Unkanella hakonensis*

=*Hosunka hakonensis*

ハコネホソウンカ

Distribution: Hokkaidō 48, 57; Honshū 48, 57; Shikoku 57; Kyūshū 48, 57

Host:

Gramineae

Miscanthus sinensis Anderss. 31, 62, 111

Plants in which eggs were discovered in the field (excl. the host plant mentioned above):

Gramineae

Isachne globosa (Thunb.) O. Kuntze 111

Lythraceae

Lythrum anceps (Koehne) Makino 111

Plant on which 1st-instar nymphs were reared to adults under experimental conditions (excl. the host plant mentioned above):

Gramineae

Isachne globosa (Thunb.) O. Kuntze 111

84. **Unkanodes sapporona** (Matsumura) 13, 48

=*Uukana sapporona*

=*Unkanella sapporona*

=*Delphacodes sapporona*

=*Unkanodes sapporonus*

サッポロトビウンカ

Distribution: Hokkaidō 48, 111; Honshū 111; Kyūshū 48, 111

Hosts:

Gramineae

Arundinella hirta (Thunb.) C. Tanaka 109, 111

Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 31, 111

Ischaemum anthephoroides (Steud.) Miq. 31

Miscanthus sinensis Anderss. 31, 111

Plant on which adults were collected (excl. the host plants mentioned above):

Gramineae

Dactylis glomerata Linn. 111

Plant attacked (excl. the host plants mentioned above):

Gramineae

Oryza sativa Linn. in India 168

Plants on which 1st-instar nymphs were reared to adults under experimental conditions (excl. the host plants mentioned above):

Gramineae

Lolium multiflorum Lamarck 131

Triticum aestivum Linn. 131

Transmission of plant diseases: Vector of black-streaked dwarf 131; stripe 131; and northern mosaic virus 133.

85. **Sogata* yanoi** Ishihara 52

Distribution: Shikoku 52

Host: Unknown.

86. **Sogatella elegantissima** (Ishihara) 15, 52

=*Delphacodes elegantissima*

* See the explanatory notes shown in Chapter II as to the generic name.

Distribution: Shikoku 52: Kyūshū 111
Host: Unknown.

87. **Sogatella formosella** (Matsumura) 12, 48
=*Unkana formosella*
=*Unkanella formosella*
=*Sogata formosella*
=*Chloriona* (*Sogatella*) *formosella*
Distribution: Kyūshū 111
Host: Unknown.

88. **Sogatella furcifera** (Horváth) 15, 48
=*Delphax furcifera*
=*Sogata furcifera*
=*Liburnia furcifera*
=*Chloriona furcifera*
=*Chloriona* (*Sogatella*) *furcifera*
ヒケマルヨコバヒ，カバイロヨコバイ，トビウンカ，セシロウンカ，セジロウンカ，ナツウンカ
Distribution: South Kurile Is. 56, 78; Hokkaidō 48; Honshū 48; Izu Is. (Mikura-jima) 128; Shikoku 48; Kyūshū 48; Tane-ga-shima 161; Ryūkyū Is. (Iheya-jima 144; Iriomote-jima 5, 95, 144; Ishigaki-jima 5, 144; Izena-jima 144; Kume-jima 5, 144; Minami-daitō-jima 143; Miyako-jima 144; Okinawa 5, 144; Tokashiki-jima 144; Yonakuni-jima 5; Zamami-jima 144) 48
Hosts:
Cyperaceae
Carex fernaldiana Léveillé et Vaniot 108, 111
Cyperus microiria Steud. 108, 111
Cyperus rotundus Linn. 31, 108, 111
Gramineae
Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 31, 108, 111
Agrostis flaccida Hack. 31
Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 108, 111
Beckmannia syzigachne (Steud.) Fernald 31
Digitaria adscendens (H. B. K.) Henr. 31, 62, 108, 111
Digitaria violascens Link 108, 111
Echinochloa colonum (Linn.) Link in India 169
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 62, 108, 111, 138
Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 62, 108, 111, 138

Eleusine coracana (Linn.) Gaertn. in India 169
Eleusine indica (Linn.) Gaertn. 31
Eragrostis ferruginea (Thunb.) Beauv. 31
Hemarthria sibirica (Gandog.) Ohwi 31
Isachne globosa (Thunb.) O. Kuntze 31
Leersia hexandra (Linn.) Swartz. in India 169
Leersia japonica Makino 108, 111
Leersia sayanuka Ohwi 31, 108, 111
Miscanthus sinensis Anderss. 108
Oryza sativa Linn.*
Paspalum thunbergii Kunth 108, 111
Pennisetum alopecuroides (Linn.) Spreng. 31
Phalaris arundinacea Linn. 108, 111
Poa acroleuca Steud. 31
Poa annua Linn. 31, 108, 111
Poa nipponica Koidz. 31
Saccharum officinarum Linn. 48, 144 and in India 169
Setaria glauca (Linn.) Beauv. 127**
Setaria italica Beauv. 31
Setaria viridis (Linn.) Beauv. 31
Setaria viridis (Linn.) Beauv. var. *pachystachys* (Fr. et Sav.) Makino et Nemoto 108, 111
Sorghum vulgare Pers. in India 169
Spodiopogon depauperatus Hack. 31
Sporobolus indicus (Linn.) R. Br., sensu lato 31
Triticum aestivum Linn. in India 169
Zea mays Linn. in India 169
Zizania latifolia Turcz. 31, 48, 111

Plants on which adults were collected:

Cyperaceae
Carex sp. 111
Cyperus rotundus Linn. in India 3

Equisetaceae
Equisetum arvense Linn. 111

Gramineae
Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 65, 111
Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 111, 119
Arthraxon hispidus (Thunb.) Makino 111
Arundo donax Linn. 147

* Many references.
** Probably a host plant.

Beckmannia syzigachne (Steud.) Fernald 98
Cynodon dactylon (Linn.) Pers. 3*, 147**
Dactylis glomerata Linn. 111
Digitaria adscendens (H. B. K.) Henr. 147
Digitaria violascens Link 147
Echinochloa colonum (Linn.) Link in India 3
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 62, 106, 111**, 147
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 111**
Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 62
Eleusine indica (Linn.) Gaertn. 111, 147
Eragrostis ferruginea (Thunb.) Beauv. 111
Hordeum vulgare Linn. emend. Lamarck 23
Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 65, 111, 146, 147
Isachne globosa (Thunb.) O. Kuntze 111
Leersia japonica Makino 111**, 146, 147**
Leersia sayanuka Ohwi 111
Microstegium japonicum (Miq.) Koidz. 111, 147
Miscanthus sinensis Anderss. 111, 146, 147
Oryza sativa Linn.***
Paspalum distichum Linn. 111
Phleum pratense Linn. 111
Phragmites communis Trinius 24
Poa annua Linn. 111
Setaria glauca (Linn.) Beauv. 111
Setaria italica Beauv. 147
Setaria viridis (Linn.) Beauv. 147
Triticum aestivum Linn. 24, 64, 65, 111, 147
Zea mays Linn. in India 3
Zizania latifolia Turcz. 111
Zoysia japonica Steud. 111**

Juncaceae
Juncus effusus Linn. var. *decipiens* Buchen. 111

Polygonaceae
Polygonum thunbergii Sieb. et Zucc. 111

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* In India.
** Nymphs were also collected.
*** Many references.

Plants attacked:

Gramineae

Dactylis glomerata Linn. 45

Oryza sativa Linn.*

Saccharum officinarum Linn. 5, 91**

Setaria italica Beauv. 76

Plants in which eggs were discovered in the field:

Commelinaceae

Aneilema keisak Hassk. 137

Cyperaceae

Bulbostylis barbata (Rottb.) Kunth 108, 111

Carex thunbergii Steud. 108, 111

Cyperus difformis Linn. 108, 111, 137***

Cyperus globosus All. 108, 111

Cyperus iria Linn. 137***

Cyperus microiria Steud. 108, 111

Cyperus orthostachyus Fr. et Sav. 108, 111

Cyperus rotundus Linn. 108, 111

Cyperus serotinus Rottb. 108, 111

Fimbristylis diphylloides Makino 137***

Scirpus juncoides Roxb. 108, 111

Gramineae

Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 108, 111

Agrostis alba Linn. 108, 111

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 108, 111

Arundinaria pygmaea (Miq.) Mitford var. *glabra* (Makino) Ohwi 108, 111

Briza maxima Linn. 108, 111

Digitaria adscendens (H. B. K.) Henr. 108, 111

Digitaria violascens Link 108, 111

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 65, 108, 111

Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 108, 111, 138

Eragrostis ferruginea (Thunb.) Beauv. 108, 111

Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et

* Many references.
** In Formosa.
*** The plants were shown in unpublished data, cited indirectly from 137.

Schinz 108, 111

Leersia japonica Makino 108, 111

Leersia sayanuka Ohwi 108, 111

Miscanthus sinensis Anderss. 108, 111

Oryza sativa Linn.*

Paspalum distichum Linn. 111

Paspalum thunbergii Kunth 108, 111

Phalaris arundinacea Linn. 108, 111

Poa annua Linn. 108, 111

Setaria glauca (Linn.) Beauv. 108, 111

Setaria viridis (Linn.) Beauv. var. *pachystachys* (Fr. et Sav.) Makino et Nemoto 108, 111

Triticum aestivum Linn. 64, 65, 111

Zizania latifolia Turcz. 108, 111

Zoysia japonica Steud. 108, 111

Juncaceae

Juncus beringensis Buchen. 111

Pontederiaceae

Monochoria vaginalis (Burm. fil.) Presl var. *plantaginea* (Roxb.) Solms-Laub. 137**

Umbelliferae

Oenanthe javanica (Blume) DC. 137**

Plants on which 1st-instar nymphs were reared to adults under experimental conditions:

Cyperaceae

Cyperus brevifolius (Rottb.) Hassk. var. *leiolepis* (Fr. et Sav.) T. Koyama 127

Fimbristylis dichotoma (Linn.) Vahl 127

Gramineae

Agropyron repens (Linn.) Beauv. 127

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 70, 93, 94, 104, 111, 135, 136, 137

Arthraxon hispidus (Thunb.) Makino 127

Coix lacryma-jobi Linn. 24***

Cynodon dactylon (Linn.) Pers. 111

Digitaria adscendens (H. B. K.) Henr. 70, 104, 111, 127

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* Many references.

** The plants were shown in unpublished data, cited indirectly from 137.

*** Any nymphal stadium was not denoted at the beginning of rearing.

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 70, 93, 94, 104, 111, 137
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 111
Eleusine indica (Linn.) Gaertn. 111
Eragrostis ferruginea (Thunb.) Beauv. 111
Glyceria acutiflora Torr. 135, 136, 137
Hemarthria sibirica (Gandog.) Ohwi 111
Hordeum vulgare Linn. emend. Lamarck 24*
Isachne globosa (Thunb.) O. Kuntze 24*
Leersia japonica Makino 111, 147
Microstegium japonicum (Miq.) Koidz. 111, 127
Miscanthus sinensis Anderss. 127
Oryza sativa Linn.**
Pennisetum alopecuroides (Linn.) Spreng. 127
Phalaris arundinacea Linn. 127
Phragmites communis Trinius 24*, 127
Poa acroleuca Steud. 137
Poa annua Linn. 93, 94, 111, 135, 136, 137
Poa nipponica Koidz. 137
Setaria viridis (Linn.) Beauv. 70
Sporobolus indicus (Linn.) R. Br., sensu lato 111
Triticum aestivum Linn. 24*, 64, 65, 111
Zizania latifolia Turcz. 36, 100, 104
Zoysia japonica Steud. 127

Natural enemies:

Agamermis unka Kaburaki et Imamura (Nemathelminthes) 66
Microvelia douglasi Scott (Heterop., Veliidae) 157
Nabis ferus Linné (Heterop., Nabidae) 157
Cyrtorhinus lividipennis vitiensis Usinger (Heterop., Miridae) in Fiji 34
Ophonus sinicus Hope (Col., Carabidae) 157
Coccinella (*Harmonia*) *arcuata* Fabricius (Col., Coccinellidae) in India 167
Menochilus (*Chilomenes*) *sexmaculatus* (F.) (Col., Coccinellidae) in India 166
Paedrus fuscipes Curtis (Col., Staphylinidae) 157
Elenchinus japonicus Esaki et Hashimoto (Strep., Elenchidae) 157
Lymaenon sp. (Hym., Mymaridae) in India 3
Paranagrus optabilis Perkins (Hym., Mymaridae) in Malaya 149
Pteromalid (Hym., Pteromalidae) in India 166

* Any nymphal stadium was not denoted at the beginning of rearing.
** Many references.

Oligosita sp. (Hym., Trichogrammatidae) in Malaya 149
Echthrodelphax bicolor Esaki et Hashimoto (Hym., Dryinidae) 157
Haplogonatopus japonicus Esaki et Hashimoto (Hym., Dryinidae) 157
Haplogonatopus sp. (Hym., Dryinidae) in Malaya 149
Pachygonatopus sp. (Hym., Dryinidae) in India 164
Paragonatopus fulgori (Nakagawa) (Hym., Dryinidae) 157
Pseudogonatopus hospes Perkins (Hym., Dryinidae) in Malaya 7, 149
Diodontus sp. (Hym., Sphecidae) in Malaya 150.
Psen (*Mimumesa*) *atratinus sameshimai* Yasumatsu (Hym., Sphecidae) 157
Vespula lewisii (Cameron) (Hym., Vespidae) 157

89. Sogatella kolophon (Kirkaldy) 15
=*Delphax kolophon*
=*Megamelus kolophon*
=*Sogata furcifera* var. *kolophon*
=*Chloriona* (*Sogatella*) *kolophon*
Distribution: Bonin Is. 12, 103
Hosts: Unknown in Japan but known in Fiji as follows:
Gramineae
Axonopus compressus (Swartz) Beauv. 34
Echinochloa crus-galli (Linn.) Beauv. 115
Eleusine indica (Linn.) Gaertn 34, 115
Oryza sativa Linn. 34, 115
Panicum purpurascens Raddi
Natural enemies: Unknown in Japan but known in Fiji as follows 115:
Cyrtorhinus vitiensis Usinger (Heterop., Miridae)
Elenchus sp. (Strep., Elenchidae)
Anagrus sp. (Hym., Mymaridae)
Oligosita sp. (Hym., Trichogrammatidae)
Haplogonatopus sp. (Hym., Dryinidae)

90. Sogatella kyusyuensis (Matsumura et Ishihara) 15, 48
=*Sogata kyusyuensis*
=*Chloriona* (*Sogatella*) *kyusyuensis*
キュウシュウウンカ
Distribution: Kyūshū 48
Host: Unknown.

91. **Sogatella longifurcifera** (Esaki et Ishihara) 8, 15, 48
=*Delphacodes longifurcifera*
=*Sogata longifurcifera*
セジロウンカモドキ
Distribution: Hokkaidō 111; Honshū 111; Kyūshū 48, 111
Hosts:
Gramineae
Digitaria adscendens (H. B. K.) Henr. 111
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 31, 62, 111
Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 31, 62, 111
Leersia sayanuka Ohwi 111
Oryza sativa Linn. 31, 48, 62, 68, 111
Phalaris arundinacea Linn. 111
Poa annua Linn. 111
Setaria italica Beauv. 31
Zea mays Linn. 31
Plants on which adults were collected (excl. the host plants mentioned above):
Gramineae
Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 111
Digitaria violascens Link 147
Zizania latifolia Turcz. 111

92. **Sogatella panicicola** (Ishihara) 48, 151
=*Delphacodes panicicola*
ヒエウンカ
Distribution: Hokkaidō 111; Honshū 48, 111; Shikoku 52; Kyūshū 111
Hosts:
Gramineae
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 31, 48, 109
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 111
Oryza sativa Linn. 111

93. **Sogatella sirokata** (Matsumura et Ishihara) 13, 48
=*Sogata sirokata*
=*Chloriona* (*Sogatella*) *sirokata*
シロカタウンカ
Distribution: Hokkaidō 111; Honshū 48, 111; Kyūshū 48, 88, 111

Hosts:

Gramineae

Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 31, 62

Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 111

Oryza sativa Linn. 31, 48, 62, 111

Phragmites communis Trinius 31

Polygonaceae

Polygonum thunbergii Sieb. et Zucc. 31, 62, 109, 111

94. Sogatella terryi (Muir) 21, 48, 99

= *Delphacodes terryi*

ハイキビウンカ

Distribution: Honshū (Fukuyama 42; Yamagata-ken 111); Kyūshū 48, 111; Ryūkyū Is. (Okinawa) 144

Host:

Gramineae

Panicum repens Linn. 48, 111, 144*

Plants on which adults were collected (excl. the host plant mentioned above):

Gramineae

Miscanthus sinensis Anderss. 107**, 111**

Oryza sativa Linn. 127

Plant attacked:

Gramineae

Oryza sativa Linn. 111

Plants on which 1st-instar nymphs were reared to adults under experimental conditions (excl. the host plant mentioned above):

Gramineae

Oryza sativa Linn. 111

Poa annua Linn. 111

B. Undetermined species collected in Japan

(1) *Stiroma* sp., Nasu et al. (1965) p. 10.

Distribution: Hokkaidō (Tokachi-mitsumata)

Host: Unknown.

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* Doubtfully a host plant.

** Nymphs were also collected.

(2) *Phyllodinus* sp., Ishihara (1966) p. 34; Kuwayama (1967) p. 59.
Distribution: Southern Kurile Is. (Etorofu-tō)
Host: Unknown.

(3) *Stenocranus* sp., Hasegawa (1957) p. 12.
Distribution: Honshū (Yamagata-ken)
Host: Unknown.

(4) *Dicranotropis* sp., Nasu et al. (1965) p. 16.
Distribution: Honshū (Toyama-ken)
Host: Unknown.

(5) *Dicranotropis* sp., Hirao (1969) p. 6.
Distribution: Honshū (Fukuyama)
Host: Unknown.

(6) *Nilaparvata* sp., Nasu (1960) pp. 3~4; Suenaga & Mochida (1966) p. 1.
Distribution: Honshū (Fukuyama) 42; Kyūshū (Chikugo) 110, 139
Host:
Gramineae
Leersia sayanuka Ohwi 139

(7) *Zuleica* sp., Nasu et al. (1965) p. 22.
Distribution: Kyūshū (Chikugo)
Host: Unknown.

(8) *Chloriona* sp., Nasu et al. (1965) p. 22.
Distribution: Kyūshū (Fukuoka-ken)
Host: Unknown.

(9) *Delphacodes** sp., Ishihara (1952 a) p. 36.
Distribution: Honshū (Oze)
Host: Unknown.

(10) *Delphacodes* sp. A, Hasegawa (1957) p. 6 & p. 10; Nasu et al. (1965) p. 11.
ハグロウンカ
Distribution: Honshū (Yamagata-ken)

* See the explanatory notes shown in Chapter II as to the generic name.

Host: Unknown.

(11) *Delphacodes* sp. B, Hasegawa (1957) p. 6 & p. 10: Nasu et al. (1965) p. 11.
キヒゲウンカ
Distribution: Honshū (Yamagata-ken)
Hosts:
Gramineae
Agrostis clavata Trinius var. *nukabo* Ohwi 111
Miscanthus sinensis Anderss. 111

(12) *Delphacodes* sp-1, Nasu et al. (1965) p. 18.
Distribution: Honshū (Ishikawa-ken)
Plant on which the species was collected:
Gramineae
Pennisetum alopecuroides (Linn.) Spreng. 111

(13) *Delphacodes* sp-2, Nasu et al. (1965) p. 18.
Distribution: Honshū (Ishikawa-ken)
Plant on which the species was collected:
Cyperaceae
Carex sp. 111

(14) *Delphacodes* sp-3, Nasu et al. (1965) p. 18.
Distribution: Honshū (Ishikawa-ken)
Plant on which one brachypterous male adult was collected:
Gramineae
Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi 111

(15) *Delphacodes* sp., Nasu et al. (1965) p. 10.
Distribution: Hokkaidō (Kawanishi, Obihiro)
Host: Unknown.

(16) *Delphacodes* sp., Nasu et al. (1965) p. 22.
Distribution: Kyūshū (Fukuoka-ken)
Host: Unknown.

(17) *Metadelphax* sp., Hirao (1969) p. 6.
〔=*Delphacodes* sp., Hirao (1967) p. 2.〕
Distribution: Honshū (Fukuyama)

Host: Unknown.

(18) *Sogatella* sp., Hirao (1967) p. 2; Hirao (1969) p. 6.
Distribution: Honshū (Fukuyama)
Host: Unknown.

(19) Gn. ? sp. ? -A, Hirao (1969) p. 6.
Distribution: Honshū (Fukuyama)
Host: Unknown.

(20) Gn. ? sp. ? -B, Hirao (1969) p. 6.
Distribution: Honshū (Fukuyama)
Host: Unknown.

IV. Host plant — planthopper list

The arabic figures indicate the specific numbers of planthoppers shown in Chapter III. The arabic figure without any capital letter parenthesized indicates that the plant is a host of the planthopper. The parenthesized capital letters given behind arabic figures indicate as follows:

A ····· plant attacked
C ····· plant on which adult(s) were collected
E ····· plant in which egg(s) were discovered in the field
N ····· plant on which nymph(s) were collected
S ····· summer host
R ····· plant on which 1st-instar nymphs were reared to adults under experimental conditions
W ····· winter host
? ····· see Chapter II on p. 740

A. Pteridophyta

Polypodiaceae
Onoclea sensibilis Linn. ····· 6
Pteridis sp. =? *Pteris* sp. ····· 1
Equisetaceae
Equisetum arvense Linn. ····· 27, 88(C)

B. Angiospermae

a. Monocotyledoneae

Typhaceae
Typha laxmanni Lap. ····· 21(C), 59(C)
Gramineae
Agropyron repens (Linn.) Beauv. ····· 73, 88(R)
Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi ····· 28(?), 53, 53(R), 55(C), 63, 74, 79, 82(W), 81(E), 88, 88(C), 88(E), (14)(C)
Agrostis alba Linn. ····· 73, 88(E)
Agrostis clavata Trinius ····· 53
Agrostis clavata Trinius var. *nukabo* Ohwi ····· 46, 74, 78, (11)
Agrostis flaccida Hack. ····· 88
Agrostis stolonifera Linn. ····· 73(E)
Agrostis tenuis Sibth. ····· 73
Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi ····· 53, 53(C), 53(R), 71(R), 74, 74(A), 74(E), 74(R), 79(N), 79(R), 81(E), 82(W), 88, 88(C), 88(E), 88(R), 91(C)
Alopecurus geniculatus Linn. ····· 73

88(C), 88(E), 88(R)
Zoysia tenuifolia Willd. 78
Cyperaceae
Bulbostylis barbata (Rottb.) Kunth ....88(E)
Carex dimorpholepis Steud. 82
Carex fernaldiana Léveillé et Vaniot 88
Carex limosa Linn. 39
Carex thunbergii Steud. ....53, 53(R), 88(E)
*Carex** sp. or spp. ....32, 38, 40, 53, 73(C), 74(E), 79, 88(C), (13)(C)
Cyperus brevifolius (Rottb.) Hassk. var. *leiolepis* (Fr. et Sav.) T. Koyama ....88(R)
Cyperus difformis Linn. ....53(E), 88(E)
Cyperus globosus All. ....88(E)
Cyperus iria Linn. ....88(E)
Cyperus microiria Steud. ....88, 88(E)
Cyperus orthostachyus Fr. et Sav. ....88(E)
Cyperus rotundus Linn. ....28(?), 53, 53(R), 88, 88(C), 88(E)
Cyperus serotinus Rottb. ....81, 88(E)
Eleocharis acicularis (Linn.) Roem. et Schult. var. *longiseta* Svenson ....53(E)
Eriophorum sp. ....73(C)
Fimbristylis dichotoma (Linn.) Vahl ....88(R)
Fimbristylis diphylloides Makino ....88(E)
Scirpus juncoides Roxb. ....88(E)
Araceae
Colocasia esculenta Schott 41
Colocasia esculenta Schott f. *aquatica* Makino 41
Commelinaceae
Aneilema keisak Hassk. ....52(C), 52(E), 53(C), 53(E), 66, 88(E)
Commelina communis Linn. ....52(C), 52(E), 53
Pontederiaceae
Monochoria vaginalis (Burm. fil.) Presl var. *plantaginea* (Roxb.) Solms-Laub. ....53(E), 88(E)
Juncaceae*
Juncus beringensis Buchen. ....88(E)
Juncus effusus Linn. var. *decipiens* Buchen. ....52(C), 52(E), 54(E), 88(C)
Luzula multiflora Lejeune 73
Liliaceae
Reineckea carnea (Andr.) Kunth 79
Amaryllidaceae
Crinum asiaticum Linn. var. *japonicum* Baker 1

b. Dicotyledoneae

Polygonaceae
Polygonum thunbergii Sieb. et Zucc. ....52(C), 52(E), 79, 79(C), 88(C), 93
Caryophyllaceae
Stellaria alsine Grimm var. *undulata* (Thunb.) Ohwi ....53, 53(R)
Stellaria media (Linn.) Villars 73
Ranunculaceae
Ranunculus quelpaertensis (Léveillé) Nakai ....52(C), 52(E)

* See an additional reference 170 on p. 817.

Ranunculus repens Linn. ·····73(N)
Leguminosae
Astragalus sinicus Linn. ·····81(E)
Medicago sativa Linn. ·····74(A)
Trifolium hybridum Linn. ·····74(A)
Trifolium pratense Linn. ·····74(A)
Trifolium repens Linn. ·····74(A)
Rosaceae
Rubus fruticosus Linn. ·····76(E)
Lythraceae
Lythrum anceps (Koehne) Makino·····83(E)
Onagraceae
Epilobium angustifolium Linn. ·····73(N)
Umbelliferae
Oenanthe javanica (Blume) DC. ·····79, 88(E)
Labiatae
Galeopsis bifida Boenn. ·····73(N)
Mosla dianthera (Hamilt.) Maxim. ·····52(C), 52(E)

V. Plant virus — host range — vector list

A. Known host plants of black-streaked dwarf virus:

Gramineae

Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 130; L
Alopecurus japonicus Steud. 130; L
Avena sativa Linn. 130; L
Beckmannia syzigachne (Steud.) Fernald 130; L
Cynosurus cristatus Linn. 130; L
Digitaria adscendens (H. B. K.) Henr. 130; L
Digitaria violascens Link 130; L
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 130; L
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 130; L
Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi 130; L
Eragrostis multicaulis Steud. 130; L
Glyceria acutiflora Torr. 130; L
Hordeum vulgare Linn. emend. Lamarck 130; L
Lolium multiflorum Lamarck 130, 131; L, Us
Lolium perenne Linn. 130; L
Oryza sativa Linn 40, 75*, 131; L, Ua, Us
Panicum miliaceum Linn. 130; L
Phleum pratense Linn. 130; L
Poa annua Linn. 130; L

* Many references to the vector, *Laodelphax striatellus*.

Secale cereale Linn. 130; L
Setaria italica Beauv. 130; L
Setaria viridis (Linn.) Beauv. 130; L
Trisetum bifidum (Thunb.) Ohwi 130; L
Triticum aestivum Linn. 130, 131, 132; L, Ua, Us
Zea mays Linn. 130; L

Vectors:
L: *Laodelphax striatellus* (Fallén) 75, 130
Ua: *Unkanodes albifascia* (Matsumura) 40, 132
Us: *Unkanodes sapporona* (Matsumura) 131

B. Known host plants of northern mosaic virus:

Gramineae
Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 63; L
Alopecurus japonicus Steud. 129; L
Alopecurus pratensis Linn. 63; L
Anthoxanthum odoratum Linn. 129; L
Avena barbata Brot. 63; L
Avena byzantina K. Koch 63; L
Avena sativa Linn. 60, 61, 63; L. M. Ua
Avena strigosa Schreb. 63; L
Beckmannia syzigachne (Steud.) Fernald 129; L
Calamagrostis epigeios Roth var. *densiflora* Ledeb. 63; L
Cynosurus cristatus Linn. 129; L
Digitaria adscendens (H. B. K.) Henr. 129; L
Digitaria violascens Link 129; L
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 63; L
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 63; L
Eragrostis multicaulis Steud. 129; L
Festuca elatior Linn. 63; L
Holcus lanatus Linn. 63; L
Hordeum vulgare Linn. emend. Lamarck 63; L
Lolium multiflorum Lamarck 63; L
Lolium perenne Linn. 63; L
Panicum bisulcatum Thunb. 63; L
Panicum miliaceum Linn. 63; L
Poa annua Linn. 60, 63; L, Ua
Secale cereale Linn. 63; L

Setaria italica Beauv. 63; L
Setaria viridis (Linn.) Beauv. 63; L
Triticum aestivum Linn. 63, 131, 133, 163; L, T, Us

Vectors:
L: *Laodelphax striatellus* (Fallén) 63
M: *Muellerianella fairmairei* (Perris) 61
T: *Terthron albovittatus* (Matsumura) 163
Ua: *Unkanodes albifascia* (Matsumura) 59, 60
Us: *Unkanodes sapporona* (Matsumura) 131, 133

C. Known host plants of stripe virus:

Gramineae

Agrostis alba Linn. 81; ?
Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi 130, 154; L
Alopecurus japonicus Steud. 130, 154; L
Avena fatua Linn. 81; ?
Avena sativa Linn. 130, 154; L
Beckmannia syzigachne (Steud.) Fernald 130, 154; L
Briza minor Linn. 154; L
Bromus catharticus Vahl 154, L
Cynodon dactylon (Linn.) Pers. 154; L
Cynosurus cristatus Linn. 130; L
Dactylis glomerata Linn. 81; ?
Digitaria adscendens (H. B. K.) Henr. 2, 130, 154; L
Digitaria violascens Link 2, 130, 154; L
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* 130; L
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius 130, 154; L
Eragrostis multicaulis Steud. 2, 130, 154; L
Glyceria acutiflora Torr. 154; L
Hordeum vulgare Linn. emend. Lamarck 130, 154; L
Imperata cylindrica (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz 81; ?
Leersia sayanuka Ohwi 154; L
Lolium multiflorum Lamarck 130, 154; L
Lolium perenne Linn. 130; L
Oryza sativa Linn. 39, 74*, 131; L, Ua, Us
Panicum miliaceum Linn. 130, 154; L

* Many references to the vector, *Laodelphax striatellus.*

Pennisetum alopecuroides (Linn.) Spreng. 81; ?
Phleum pratense Linn. 130, 154; L
Secale cereale Linn. 130, 154; L
Setaria italica Beauv. 2, 130, 154; L
Setaria viridis (Linn.) Beauv. 130, 154; L
Sorghum halepense Pers. 154; L
Sorghum sudanense (Piper) Stapf. 154; L
Trisetum bifidum (Thunb.) Ohwi 154; L
Triticum aestivum Linn. 1, 39, 131, 132, 154, 163; L, T. Ua, Us
Zea mays Linn. 130, 154; L
Zoysia japonica Steud. 74; L

Vectors:
L: *Laodelphax striatellus* (Fallén) 1, 2, 74, 130, 154
T: *Terthron albovittatus* (Matsumura) 163
Ua: *Unkanodes albifascia* (Matsumura) 39, 41, 132
Us: *Unkanodes sapporona* (Matsumura) 131
?: Ling (1967) did not denote the name(s) of the vector(s), and the present authors could not find any other reference to them.

VI. Discussion and summary

Planthoppers and their host plants

There are 41 genera and 20 undetermined and 94 determined species, including four species, *Harmalia albicollis, Javesella obscurella, Metadelphax propinqua, and Stenocranus minutus* which further research is needed on, in the Delphacidae in Japan. The host plants of 66 determined species belonging to 36 genera are known. Those of the rest or 28 determined species are not. Either, there are no species belonging to five genera, *Delphax, Hosunka, Nycheuma, Sardia,* and *Sogata* of which any host plants are recorded.

The genera of planthoppers and their host plants are tabulated in Table 1. The genera of planthoppers of which host plants belong to only gramineous, only cyperaceous, plants except the both gramineous and cyperaceous, and others (two or more groups of pteridophytous, gramineous, cyperaceous, other monocotyledonous and dicotyledonous plants) are 19 (52.8), 2 (5.6), 2 (5.6), and 13 (36.0 %) in number, respectively. Some host plants of planthoppers in 32 genera (88.8 %) belong to the Gramineae. The host plants of planthoppers in only four genera (11.2 %) do to other families; *Ugyops* on pteridophytous and amaryllidaceous,

Table 1. Japanese planthoppers and their host plants. +, host plant(s); ±, egg-laying, feeding or attacking plant(s), adults (and nymphs) were collected on the plant(s) in the field, or lst-instar nymphs were reared to adults under experimental conditions.

	Planthopper genera & number of species in each genus		Pteri-dophyta	Angiospermae					
				Monocotyledoneae					
				Gramineae**					
				G. I	G. II	G. III	G. IV	G. V	G. VI
Group A	*Ugyops*	(1)	+	·	·	·	·	·	·
	Purohita	(2)	·	+	·	·	·	·	·
	Eurysa	(1)	·	+	·	·	·	·	+
	Saccharosydnc	(1)	·	·	·	+	·	·	·
	Euides	(2)	·	·	·	·	+	·	·
	Kakuna	(2)	·	·	·	·	+	·	·
	Chloriona	(5)	·	·	·	·	+	·	·
	Himeunka	(1)	·	·	·	·	·	·	+
	Yanunka	(1)	·	·	·	·	·	·	+
	Kelisia	(1)	·	·	·	·	·	·	·
	Megamelus	(1)	·	·	·	·	·	·	·
	Tarophagus	(1)	·	·	·	·	·	·	·
Group B	*Dicranotropis*	(4)	·	·	+	·	·	·	+
	Zulcica	(1)	·	·	·	+	·	+	·
	Tropidocephala	(3)	·	·	·	+	·	+	±
	Muellerianella	(1)	·	·	+	+	·	+	+
	Ribautodelphax & *Unkanodes*	(1 & 3)	·	·	+	+	·	+	+
	Laodelphax	(1)	·	·	+	+	·	+	+
	Delphacodes	(6+4*)	·	·	+	+	·	+	+
	Harmalia	(2)	·	·	+	+	·	+	·
	Javesella	(2)	·	·	+	+	·	·	·
	Muirodelphax	(2)	·	·	+	·	+	·	·
	Cemus	(2)	·	·	·	·	+	+	+
	Hirozuunka	(1)	·	·	·	±	+	+	+
	Falcotoya	(1)	·	·	·	+	+	+	·
	Metadelphax	(1)	·	·	·	+	+	+	+
	Perkinsiella	(4)	·	·	·	+	+	±	+
	Peregrinus	(1)	·	·	·	+	+	+	+
	Nagara „	(1)	·	·	·	±	+	·	+
Group C	*Terauchiana*	(2)	+	·	·	+	+	·	+
	Stenocranus	(17)	+	·	+	+	+	·	±
	Terthron	(1)	·	·	±	+	+	+	+
	Paradelphacodes	(1)	·	·	+	+	+	+	±
	Nilaparvata	(3+1*)	·	±	+	+	+	+	+
	Sogatella	(9)	±	±	+	+	+	+	+
	Sardia	(1)							
	Hosunka	(1)							
	Nycheuma	(1)							
	Delphax	(1)							
	Sogata	(1)							

Table 1—Continued

Cyperaceae*** G. I	Cyperaceae*** G. II	Other families	Dicotyledoneae
•	•	+	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	±	•
•	•	±	•
•	•	•	•
•	•	•	•
•	+	•	•
•	+	•	•
•	•	+	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	±	±
•	+	•	±
•	±	•	±
•	+	+	•
•	•	•	•
•	•	+	+
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
•	•	•	•
+	+	•	•
+	•	•	±
•	+	+	+
+	+	+	+
+	+	±	+

* The number of undetermined species is referred here.

** Gramineous plants were grouped as follows:

G. I
Arundinaria
Bambusa
Chimobambusa
Phyllostachys
Sasa
Semiarundinaria
Shibataea
Sinobambusa

G. II
Achnatherum
Agrostis
Alopecurus
Anthoxanthum
Arrhenatherum
Avena
Beckmannia
Calamagrostis
Cinna
Deschampsia
Helicotrichon
Hierochloa
Holcus
Koeleria
Milium
Orthoraphium
Phalaris
Phleum
Polypogon
Trisetum

G. III
Agropyron
Asperella
Aulacolepis
Brachypodium
Briza
Bromus
Brylkinia
Chikusichloa
Dactylis
Elymus
Festuca
Glyceria
Hordeum
Leersia
Lolium
Lophatherum
Melica
Oryza
Poa
Puccinella
Schizachne
Secale
Torreyochloa
Triticum
Zizania

G. IV
Arundo
Chloris
Coelachne
Cynodon
Diarrhena
Diplachne
Eleusine
Eragrostis
Hakonechloa
Kengia
Leptochloa
Lepturus
Moliniopsis
Muhlenbergia
Phaenosperma
Phragmites
Spolobolus
Tripogon
Zoysia

G. V
Arundinella
Axonopus
Brachiaria
Digitaria
Echinochloa
Eriochloa
Isachne
Oplismenus
Panicum
Paspalum
Pennisetum
Pseudoraphis
Sacciolepis
Setaria
Sphinifex

G. VI
Andropogon
Arthraxon
Bothriochloa
Coix
Cymbopogon
Dimeria
Eccoilopus
Eulalia
Hemarthria
Imperata
Ischaemum
Microstegium
Miscanthus
Phacelurus
Pogonatherum
Saccharum
Sorghum
Spodiopogon
Themeda
Zea

*** Cyperaceous plants were grouped as follows:

G. I
Bulbostylis
Carpha
Cladium
Cyperus
Eleocharis
Eriophorum
Fimbristylis
Fuirena
Lipocarpha
Machaerina
Rhynchospora
Schoenus
Scirpus
Scleria

G. II
Carex
Kobresia

both *Kelisia* and *Megamelus* only on cyperaceous, and *Tarophagus* only on araceous plants.

There are many plants belonging to the both Gramineae and Cyperaceae in Japan. The former and the latter are tentatively divided into six and two groups by such taxa as subfamily and tribe respectively in order to examine the relationship between planthoppers and their host plants (see the notes of Table 1). As a result, planthopper genera fall into three main groups: Group A consists of 12 genera, *Ugyops* to *Tarophagus*. The host plants of planthopper(s) in each genus of this group are comparatively narrowly limited in the range of their species: As mentioned previously, *Ugyops* on Pteridophyta and Amaryllidaceae, both *Kelisia* and *Megamelus* only on Cyperaceae G. II, and *Tarophagus* only on Araceae. Group B consists of 18 genera, *Dicranotrops* to *Nagara*. Planthoppers in 12 genera of this group feed on only Gramineae G. II～VI, and those in other six genera, *Laodelphax*, *Ribautodelphax*, *Unkanodes*, *Delphacodes*, *Javesella*, and *Muellerianella*, feed on the Gramineae and other families. Group C consists of four genera, *Terthron* to *Sogatella*. Their host plants include various kinds of species such as Pteridophyta to Angiospermae (Monocotyledoneae and Dicotyledoneae). Both *Nilaparvata* and *Sogatella* are tentatively kept in this group. As mentioned in "Host and oviposition plants" of Chapter II, however, the host plants of both *N. lugens* and *S. furcifera* listed here may include some doubtful or false hosts on the four main islands of Japan. Therefore, the both genera may be transferred from this group to other(s) according to further exact researches in future. Both genera, *Terauchiana* and *Stenocranus*, seem to belong to either Group B or C. However, both of them feed on also pteridophytous plants. Which is different from the genera in Group B and C. There are 22 (23.4%) Japanese determined species of planthoppers attacking, feeding on, or collected on *Oryza sativa*.

Phylogenic positions of some species within the Delphacidae are given by Metcalf (1943), Ishihara (1949), and Wagner (1963). Though the relationship between planthopper species and their host plants is examined phylogenetically, any general and marked tendency is not shown in the Japanese species.

Vectors and their host plants

Up to the present there are three planthopper-borne plant virus diseases and their vectors in Japan; *Laodelphax striatellus*, *Muellerianella fairmairei*, *Terthron albovittatus*, *Unkanodes albifascia*, and *Unkanodes sapporona*. Table 2 shows the kinds of plant pathogens, their host plants, and their planthopper vectors. It is recorded that some plants can become the hosts of plant virus(es) by transmissive tests in laboratory. However, the importance of some of such plants as virus source in the field is not known yet. About a half of the plants recorded as hosts of plant pathogens are not known as the host plants of the vector, *L. striatellus*,

at present. The relationship between the host plants of plant pathogen(s) and their vector(s) will be necessarily examined in connection with whether the host plants of plant pathogen(s) are important as the host, or feeding and egg-laying plants of the vector(s) in the open air, or not.

As known as the vectors of plant diseases in other countries, five species, *Javesella obscurella*, *J. pellucida*, *Nilaparvata lugens*, *Peregrinus maidis*, and *Perkinsiella saccharicida*, are distributed but not the vectors in Japan.

Table 2. The numbers of the host plant species of plant pathogens and of their planthopper vectors in Japan.

Kinds of pathogens	(a)* No. of host plant species of each pathogen	(b) No. of host plant species of each vector among (a)	Vectors**
Black-streaked dwarf virus	25	14	L
	2	2	Ua
	3	0	Us
Northern cereal mosaic virus	28	12	L
	1	0	M
	1	0	T
	2	2	Ua
	1	0	Us
Stripe virus	30	12	L
	1	0	T
	2	2	Ua
	2	0	Us
	5		?***

* All the host plant species belong to the Gramineae.
** L; *Laodelphax striatellus*, M; *Muellerianella fairmairei*, T; *Terthron albovittatus*, Ua; *Unkanodes albifascia*, Us; *Unkanodes sapporona*
*** See the symbols for vectors on p. 801.

Natural enemies

Table 3 shows the natural enemies of Japanese planthoppers. Twenty determined and one undetermined species belonging to 20 genera and 72 determined and 20 undetermined species belonging to 56 genera are recorded as the natural enemies excluding some vertebrates in Japan and in other countries, respectively. Two of the determined species are recorded commonly both in Japan and in other countries as natural enemies. There are a nematode, 4 mites, 13 spiders, and about 93 insects. Hymenopterous insects are most in the number of species. Though there are some observations of spiders found in rice fields in Japan, few papers deal with spiders as the natural enemies of planthopper species identified. No mite and pipunculid are recorded as the enemies of planthoppers in Japan.

Table 3. Japanese planthoppers and their natural enemies.

Natural enemies							Genera of planthoppers attacked
Phylum	Class	Order	Family	Genus	No. of species*		
					in Japan	in other countries	
Nemathelminthes	Nematoda	Trichosyringata	Mermithidae	*Agamermis*	1		*Laodelphax, Nilaparvata, Sogatella*
Arthropoda	Arachnida	Acarina		*Achorolophus*		1	*Javesella*
〃	〃	〃		*Bochartia*		1	*Peregrinus*
〃	〃	〃		*Trombidium*		1	*Javesella*
〃	〃	〃		*Tyrophagus*		1	*Javesella*
〃	〃	Araneina		*Adrastidea*		1	*Perkinsiella*
〃	〃	〃		*Bavia*		1	*Perkinsiella*
〃	〃	〃		*Dicymbium*		1	*Javesella*
〃	〃	〃		*Hasarius*		1	*Perkinsiella*
〃	〃	〃		*Heteropoda*		1	*Perkinsiella*
〃	〃	〃		*Linyphia*		1	*Javesella*
〃	〃	〃		*Lycosa*	1		*Laodelphax*
〃	〃	〃		*Meioneta*		1	*Javesella*
〃	〃	〃		*Mollica*		1	*Perkinsiella*
〃	〃	〃		*Oedothorax*	1		*Laodelphax*
〃	〃	〃		*Pagiopalus*		1	*Perkinsiella*
〃	〃	〃		*Plexippus*		1	*Perkinsiella*
〃	〃	〃		*Tetragnatha*		1	*Perkinsiella*
〃	Insecta	Orthop.	Tettigonidae	*Conocephalus*		1	*Perkinsiella*
〃	〃	Dermap.	Anisolabidae	*Anisolabis*		1	*Perkinsiella*
〃	〃	〃	Chelisochidae	*Chelisoches*		1	*Peregrinus, Perkinsiella*
〃	〃	Heterop.	Pentatomidae	*Oechalia*		1	*Perkinsiella*
〃	〃	〃	Veliidae	*Microvelia*	1		*Sogatella*
〃	〃	〃	Reduviidae	*Zelus*		1	*Peregrinus, Perkinsiella*
〃	〃	〃	Nabidae	*Nabis*	1	2	*Laodelphax, Perkinsiella, Sogatella*
〃	〃	〃	Anthocoridae	*Orius*		1	*Perkinsiella*
〃	〃	〃	〃	*Physopleurella*		1	*Perkinsiella*
〃	〃	〃	Miridae	*Cyrtorhinus*		4	*Peregrinus, Perkinsiella, Sogatella, Tarophagus*
〃	〃	〃	〃	*Tytthus*	1		*Dicranotropis*
〃	〃	Neurop.	Chrysopidae	*Anomalochrysa*		4	*Perkinsiella*
〃	〃	〃	〃	*Chrysopa*		2+(1)	*Perkinsiella*

Table 3—Continued

Natural enemies							Genera of planthoppers attacked
Phylum	Class	Order	Family	Genus	No. of species* in Japan	No. of species* in other countries	
Arthropoda	Insecta	Coleop.	Carabidae	*Ophonus*	1		*Sogatella*
〃	〃	〃	Staphylinidae	*Paedrus*	1		*Sogatella*
〃	〃	〃	Coccinellidae	*Coccinella*		2	*Nilaparvata, Peregrinus, Sogatella*
〃	〃	〃	〃	*Coelophora*		1	*Peregrinus, Perkinsiella*
〃	〃	〃	〃	*Hippodamia*		1	*Nilaparvata*
〃	〃	〃	〃	*Menochilus*		1	*Peregrinus, Sogatella*
〃	〃	Strepsip.	Elenchidae	*Elenchinus*	1		*Laodelphax, Nilaparvata, Sogatella*
〃	〃	〃	〃	*Elenchus*		2+(1)	*Dicranotropis, Javesella, Muellerianella, Sogatella*
〃	〃	〃	〃	*Stenocranophilus*		1	*Perkinsiella*
〃	〃	〃	Halictophagidae	*Muirixenos*		2	*Dicranotropis, Perkinsiella*
〃	〃	Hymenop.	Mymaridae	*Anagrus* & *Paranagrus*	〔2〕	5+(3)+〔2〕	*Dicranotropis, Harmalia, Hirozuunka, Javesella, Laodelphax, Muellerianella, Nagara, Nilaparvata, Peregrinus, Perkinsiella, Sogatella, Stenocranus*
〃	〃	〃	〃	*Anaphes*		(1)	*Nilaparvata*
〃	〃	〃	〃	*Lymaenon*		(1)	*Sogatella*
〃	〃	〃	Pteromalidae	*Mesopolobus*		2	*Javesella*
〃	〃	〃	〃	*Panstenon*		1	*Javesella*
〃	〃	〃	〃	?		(1)	*Sogatella*
〃	〃	〃	Eulophidae	*Ootetrastichus*		4+(2)	*Dicranotropis, Peregrinus, Perkinsiella, Tarophagus*
〃	〃	〃	Trichogrammatidae	*Aphelinoidea*		(1)	*Nilaparvata*
〃	〃	〃	〃	*Japania*	1		*Harmalia, Nilaparvata*
〃	〃	〃	〃	*Oligosita*		(2)	*Sogatella*
〃	〃	〃	〃	*Trichogramma*		(1)	*Nilaparvata*
〃	〃	〃	Scelionidae	?	(1)		*Zuleica*
〃	〃	〃	Dryinidae	*Dicondylus*		1	*Javesella*
〃	〃	〃	〃	*Echthodelphax*	1	1	*Laodelphax, Nilaparvata, Perkinsiella, Sogatella*
〃	〃	〃	〃	*Haplogonatopus*	2	1+(2)	*Laodelphax, Nilaparvata, Peregrinus, Perkinsiella, Sogatella, Tarophagus*

Table 3—Continued

Natural enemies							Genera of planthoppers attacked
Phylum	Class	Order	Family	Genus	No. of species* in Japan	No. of species* in other countries	
Arthropoda	Insecta	Hymenop.	Dryinidae	*Pachygonatopus*		(1)	*Sogatella*
〃	〃	〃	〃	*Paragonatopus*	1		*Laodelphax, Sogatella*
〃	〃	〃	〃	*Pseudogonatopoides*		1	*Dicranotropis, Perkinsiella*
〃	〃	〃	〃	*Pseudogonatopus*	1	2	*Nilaparvata, Perkinsiella, Sogatella*
〃	〃	〃	Formicidae	*Pheidole*		1	*Peregrinus, Perkinsiella*
〃	〃	〃	Sphecidae	*Diodontus*		(1)	*Sogatella*
〃	〃	〃	〃	*Nesomimesa*		1	*Perkinsiella*
〃	〃	〃	〃	*Psen*	1		*Sogatella*
〃	〃	〃	〃	*Psenulus*	1		*Tropidocephala*
〃	〃	〃	Vespidae	*Vespula*	1		*Laodelphax, Sogatella*
〃	〃	Dip.	Syrphidae	*Mesogramma*		1	*Peregrinus*
〃	〃	〃	Pipunculidae	*Dorilas*		1	*Dicranotropis, Perkinsiella*
〃	〃	〃	〃	*Pipunculus*		4+(2)	*Javesella, Muellerianella, Perkinsiella*
Total					18+(1)+[2]	70+(20)+[2]	
					90+(21)		

* The figures parenthesized indicate the number of undetermined species. The figures between brackets indicate the number of species being commonly distributed in both Japan and other countries and regarded as natural enemies.

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Plants in which eggs were discovered in the field in Britain 170:

Cyperaceae

Carex flacca Schreb. ····· *M. notula* (p. 753)

Juncaceae

Juncus conglomeratus Linn. ····· *M. fairmairei* (p. 774)

Juncus effusus Linn. ····· *J. pellucida* (p. 770)
& *M. fairmairei* (p. 774)

Juncus inflexus Linn. ····· *M. fairmairei* (p. 774)

Juncus maritimus Lam. ····· *M. fairmairei* (p. 774)

和 文 要 旨

わが国は北は北海道から南は琉球諸島に及び高山地帯を含めると寒帯から亜熱帯に至る豊富な植物相にめぐまれている．わが国のウンカ科の昆虫に関する本格的な分類学的研究は MATSUMURA (1900) に始まり，faunistic な仕事は今日まで幾人かの研究者によって新種の記載を含めてかなり進められてきた．一方，ヨーロッパのウンカ類はよく調べられているが，ヨーロッパと日本の間の地帯ではウンカに関する調査研究はヨーロッパや日本ほど進んでなくて長い間空白地帯として残されてきた．しかしこの10年くらいの間にそれらの空白地帯にモンゴリア・チェコスロバキア・ドイツなどの探検隊が派遣され，あるいはソ連の科学者達によってその地帯のウンカ類についても調査が進み，多くの新種新属あるいは未記録種が記された．したがって日本のウンカ類もそれらの研究と比較して今後検討されなければならない状態にあるのではないかと思われる．

わが国におけるウンカ類の農業害虫としてのこれまでの研究は大きく分けて2つの方向——ウィルス病とその媒介虫との関係と，日本の最大農産物である米すなわち稲の加害虫としてのセジロウンカ・トビイロウンカに関連する研究——になるであろう．前者は主として植物病理学者によって，後者は農林省の指定（大分農試）・委託（九大）試験として，続いて病害虫発生予察事業の一環として農林省あるいは都道府県農試で研究されてきた．後者については約40年に及ぶ広範な研究にもかかわりなく，今もって両種ウンカの越冬は明確にされていない*．しかしこれらの研究のおかげでセジロウンカ・トビイロウンカを含めてわが国のウンカ類の寄主植物や越冬態などに関する知見は著しく増した．

そこでここではわが国に分布するウンカの各種類につき，その国内の分布・寄主植物・被加害植物・野外での産卵植物・生育（一令から飼育して成虫羽化まで可能な）植物・ウィルス病の媒介性・天敵（ただし寄生菌・細菌は除く），ウンカによって媒介されるウィルス病の寄主範囲などの知見をまとめて応用昆虫学者や植物病理学者の参考に供したい．

凡 例

1. ウンカの種類（属名）の配列は METCALF (1943) に従った．それ以降の新属は分けられる以前のもとの属の近くあるいは系統学的にみてもっとも近いと思われる属の近くに置いた．各属内の種小名 trivial names の配列はアルファベット順とした．

2. WAGNER (1963), FENNAH (1963 a, b), VILBASTE (1968) などにより従来の *Delphacodes* や *Sogata* などの属がいくつかの新属に分けられたが，日本ではすべての種類についてその所属する新属が決定しているわけではない．したがって分類学者によってまだその所属する属名が再検討されていない種については，もとの属名をそのまま使用した．従来の *Delphacodes* が分けられて作られた新属名の配列は便宜的にアルファベット順とした（種類番号の 69～81）．

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* 1967, 1968, 1969 年夏潮岬南方約 500 *km* の南方定点観測船上および 1969 年初夏東支那海海上で多くのセジロウンカ・トビイロウンカが採集され，国外越冬飛来を裏付ける有力な証拠が示された（朝比奈・鶴岡 (1968) 南方定点観測船に飛来した昆虫・第2報・昆虫，36: 190～202; 三田 (1968) 南方定点観測船での害虫移動調査・農林省病害虫発予特報，23: 2～6; 持田・岸本(1970) 東支那海海上における 1969 年初夏の飛来昆虫の調査——特にセジロウンカ・トビイロウンカの飛来をめぐって——。九農試 15 pp. +10 tables, 謄写版）．

3. 植物の学名は原則として大井 (1965) によった．しかしそれに載つていないものは館岡 (1959)，牧野ら (1961)，根本 (1936)，CORNER & WATANABE (1969) などによった．植物名の記録が不完全な文献（例，「栽培したイネとヒエ」—*Echinochloa crus-galli* var. *crus-galli* なのか var. *oryzicola* なのか var. *frumentacea* なのか不明）で正しい植物名を判断できないものは除いた．

4. 同一研究者またはその共同研究者による2つの報告の中に不明瞭か明らかに誤植あるいは矛盾する記録がみられる場合がある．たとえば二宮・竹沢 (1956, p. 255) はニセトビウンカについて「アシカキの茎稈に産下された卵態で越冬し……」と記し，竹沢（奈須ら，1965, p. 113）では「サヤヌカグサの茎稈に産下された卵態で越冬する。」とし以下全く同じ文章になっている．これは両者とも正しいのかそれともどちらか一方だけが正しいのか不明瞭で，しかたなく両者ともこの目録に入れた． また仲野ら (1957, p. 13) はセジロウンカの野外において判明した寄主植物を示したが，同様に示した後の報告（奈須ら，1965, p. 25）ではアゼガヤがアゼガヤツリにウシクグがウシクサになっている．これは前後の文章から判断していずれもアゼガヤツリとウシクグとした．これらのような例はほかにもあり，前者のような時はいずれも両方の植物名をこの目録に載せた．

5. 寄主植物 host plant の定義・内容はここに引用した文献の著者によって非常にことなっている場合がみうけられる，たとえばセジロウンカについて，ある研究者は野外においてその植物上で成虫を採集したからその植物を寄主植物とみなし，ある研究者は冬期わが国で普通野外でセジロウンカが冬草に産卵生育しているような現象は認められていないのに試験管内である冬草に産卵させそれから成虫を実験的に羽化させることに成功した事実にもとづきその冬草を寄主植物と記している．日本本土の普通の環境下で冬期あれだけ熱心に多くの人達が長年探したのにセジロウンカが，特別な場所での少数例を除き，認められていない事実からして，たとえ実験室内で産卵させた冬草で成虫を羽化させることができてもその冬草を寄主植物として挙げることについては現著者らははなはだ疑問に思う．「寄主植物になる可能性がある」とでも記すのであればまだ許せるが，現著者らは野外でウンカが少なくとも1世代をその植物上で過ごしている場合にのみその植物をそのウンカの「寄主植物」と定義したい．したがって仲野・花岡 (1956) が単一の植物を屋外で鉢植えしその上にウンカ成虫を放飼して次世代成虫の出現を観察するという方法は他の方法に比較して寄主植物の探索に有効であると思われる．しかしいずれにしろ多くの既往の文献から現著者らが上に定義した「寄主植物」をよりわけることは不可能に近いので，ここでは一応文献に記されたとおり寄主植物としてそのような植物もリストに掲げた．

6. 文献に「ある1種（または数種）の植物の叢生地または群落より採集した」というふうに記されている場合（例，糸賀・酒井・堀切 (1956)，p. 116；二宮 (1963)；奈須ら (1965)，p. 63, p. 84）は，そのウンカがはたしてその叢生地あるいは群落を構成している植物を真に寄主植物としていたかどうかは，せめて産卵痕でも調べない限り疑問視される．したがってそのような場合は，たとえ文献には寄主植物と載つていても，このリストでは寄主植物とはみなさなかった．同様な理由で叢生地あるいは○○群落における sweeping による採集（例，水田内の sweeping によって捕えられたウンカ）結果もすべて除いた．

7. ウンカ類の越冬・寄主植物に関する研究はその中心であるセジロウンカ・トビイロウンカに関する研究が主として農林省および都道府県の農試において第2次大戦中から戦後の特殊環境下でなされたために，謄写印刷の形で発表されたものが多いが，それらも含めると膨大な文献量になる．しかし引用文献の範囲は原則として活版印刷のものに限った。また活版印刷された雑誌であってもその性質からして報告されたものが original な性格を全く持たないかあるいはうすいもの（例，植物防疫，農業及園芸，農業技術や農薬会社が出版する雑誌類）は原則として除いた．

8. ウンカの寄主植物に関する印刷物の中には，同一の著者名（ときには複数）によるほとんど同じ内容の研究成果が2つあるいはそれ以上の雑誌や報告書にのったり講演要旨や報告などの形をとって刊行物に出されたものがかなり多く，どれが original なのか不明なものがある．これらについては選択・判断の基準がないので．しかたなくすべてを引用した．日本植物病理学会報，応昆，九州農業研究などに載せられた講演要旨も引用した．

9. 寄主植物に関する文献の中には，どこまでが著者自身の結果でどれが他人の得た結果からの引用なのか判然としないものがある．判断のつかないものはしかたなしにすべてその著者の結果として引用した．

10. 文献は原則として日本国内で出版されたものに限ったが，必要な場合は参考までに外国の例も挙げその文献も記した．

11. ウンカの種名のところに挙げた文献は読者の同定に役立つもの，または有効な種名を示すものである．

12. 天敵に関する文献のうち，作物の害虫とみなされたウンカ類に対する昆虫性の天敵については YASUMATSU & WATANABE (1965) によった．それ以降およびそれ以外の文献は線虫，クモ類を含めてすべて記した．

13. 角括弧で囲われた和名は異物同名を示す．その他の記号の説明や論議など本文を参照されたい．

以上の観点と凡例にしたがってとりまとめた．それらを要約するとつぎのようである．

(1) ウンカの種類とその寄主植物

現在わが国には，未確定の20種を含めないで，41属94種（ただしこのうち *Harmalia albicollis*, *Javesella obscurella*, *Metadelphax propinqua*, *Stenocranus minutus* は再調査の必要がある）のウンカが分布している．36属に属する66種については寄主植物が明らかにされているが残りの28種については不明である．そして *Delphax*, *Hosunka*, *Nycheuma*, *Sardia*, *Sogata* 属のウンカの寄主植物も不明である．ウンカの属とその寄主植物の種類との関係は Table 1 に示される．ウンカの36属のうちイネ科のみ，カヤツリグサ科のみ，イネ科とカヤツリグサ科を除く植物のみ，その他をその寄主植物とするものはそれぞれ，19 (52.8%)，2 (5.6%)，2(5.6%)，13 (36.0%) である．すなわちイネ科植物を寄主植物に含むウンカの属は32 (88.8%) に達する．イネ科とカヤツリグサ科に属する植物の種類は非常に多いので，それらをそれぞれ6つと2つのグループに分けウンカの属と寄主植物の種類との関係をみた (Table 1)．その結果ウンカの属は3群に大別された．日本で記録されているウンカのうちイネを寄主または加害植物とするかあるいはイネ上で採集されたものは22種であった。

(2) 植物病媒介虫としてのウンカとその寄主植物

現在わが国では植物ウイルスの媒介虫としてヒメトビウンカ，ナカノウンカ，セスジウンカ，シロオビウンカ，サッポロトビウンカの5種が知られており，それによって媒介される植物の病気にはくろすじ萎縮，北地モザイック，縞葉枯の3種がある．植物の病気（ウィルス）の保毒植物になりうるものとして知られている植物のうちヒメトビウンカについては約半分がヒメトビウンカの寄主植物としては知られていないものである（Table 2）．

日本に分布しているウンカで外国では植物の病気の媒介虫として知られておりながら，わが国では媒介虫でないものに *Javesella obscurella*，キタウンカ，トビイロウンカ，トウモロコシウンカ，サトウウシウンカの5種がある．

(3) 天敵

日本産ウンカの天敵は Table 3 に示される．すなわち線虫1種，ダニ4種，クモ13種と昆虫類約93種である．そのうち20属約21種がわが国で，約56属約92種（ただし2種はわが国と共通にみつかっている）が外国で発見されている．

INDEX TO PLANTHOPPERS AND HOST PLANTS

A. Planthoppers

The arabic figures given behind the names of planthoppers do not indicate pages but the specific numbers of planthoppers given in Chapter III. Those parenthesized mean the undetermined species in Chapter III.

a. Scientific names — Japanese names — Specific number

b. Synonyms — Valid names of genera

c. Trivial names — Generic names

Synonyms are shown in *italics*.

d. Japanese names — Scientific names

アカシナガウンカ……*Stenocranus akashiensis* Matsumura
アキウンカ……*Nilaparvata lugens* (Stål)
イボイボウンカ……*Cemus nigropunctatus* (Motschulsky)
ウシウンカ……*Perkinsiella sinensis* Kirkaldy
〔ウスイロウンカ〕……*Dicranotropis muiri* (Kirkaldy) & *Metadelphax propinqua* (Fieber)
〔ウスイロトビウンカ〕……*Harmalia albicollis* (Motschulsky) & *Metadelphax propinqua* (Fieber)
ウススジボソウンカ〔(ウススヂボソウンカ)〕……*Stenocranus hokkaidoensis* Metcalf & *Stenocranus minutus* (Fabricius)
ウストビウンカ……*Metadelphax propinqua* (Fieber)
エサキウンカ……*Dicranotropis esakii* Ishihara
エゾトビウンカ……*Paradelphacodes paludosus* (Flor)
エゾナガウンカ……*Stenocranus matsumurai* Metcalf
オゼウンカ……*Megamelus notula* (Germar)
オゼナガウンカ……*Stenocranus ozenumensis* Ishihara
カバイロヨコバイ……*Sogatella furcifera* (Horváth)
カモジグサウンカ……*Delphacodes agropyri* Ishihara
カヤウンカ……*Yanunka miscanthi* Ishihara
キタウンカ……*Javesella pellucida* (Fabricius)
キヒゲウンカ……*Delphacodes* sp. B, Hasegawa (1957)
キュウシュウウンカ……*Sogatella kyusyuensis* (Matsumura et Ishihara)
クロウンカ……*Delphacodes nigerrima* Ishihara
クロコブウンカ……*Tropidocephala nigra* (Matsumura)
クロスジオオウンカ……*Euides speciosa* (Boheman)
クロバネテラウチウンカ……*Terauchiana nigripennis* Kato
クロヒゲウンカ……*Ribautodelphax collina* (Boheman)
クロフツノウンカ……*Perkinsiella saccharicida* Kirkaldy
クロモンヒラアシウンカ……*Cemus nigromaculosus* (Muir)
クワハラウンカ……*Paradelphacodes paludosus* (Flor)
クワヤマウンカ……*Kakuna kuwayamai* Matsumura
コクロヨコバヘ……*Laodelphax striatellus* (Fallén)
コバネウンカ……*Nilaparvata lugens* (Stål)
コブウンカ……*Tropidocephala brunnipennis* Signoret
ゴマフウンカ……*Cemus nigropunctatus* (Motschulsky)
ゴマフヒラアシウンカ……*Cemus nigropunctatus* (Motschulsky)
ザオウウンカ……*Kelisia guttula* (Germar)
サッポロウンカ……*Kakuna sapporonis* (Matsumura)
サッポロトビウンカ……*Unkanodes sapporona* (Matsumura)

サトウウシウンカ……*Perkinsiella saccharicida* Kirkaldy
サトウウスイロウンカ……*Dicranotropis muiri* (Kirkaldy)
サトウキビウンカ……*Perkinsiella saccharicida* Kirkaldy
サトウナガウンカ（サタウナガウンカ）……*Dicranotropis muiri* (Kirkaldy)
サトウノウシウンカ（サタウノウシウンカ）……*Perkinsiella saccharicida* Kirkaldy
サトウノウスイロウンカ（サタウノウスイロウンカ）…*Dicrantropis muiri* (Kirkaldy)
サトウノナガウンカ……*Dicranotropis muiri* (Kirkaldy)
サメシマウンカ……*Harmalia sameshimai* (Matsumura et Ishihara)
シコクヨシウンカ……*Chloriona shikokuana* Matsumura
シダスケバモドキ……*Ugyops vittatus* (Matsumura)
シロウズウンカ……*Metadelphax propinqua* (Fieber)
シロオビウンカ……*Unkanodes albifascia* (Matsumura)
シロカタウンカ……*Sogatella sirokata* (Matsumura et Ishihara)
シロスジウンカ（シロスヂウンカ）……*Terthron albovittatus* (Matsumura)
シロスジトビウンカ（シロスヂトビウンカ）……*Terthron albovittatus* (Matsumura)
スクモナガウンカ……*Stenocranus sukumonus* Matsumura
セシロウンカ……*Sogatella furcifera* (Horváth)
セジロウンカ……*Sogatella furcifera* (Horváth)
セジロウンカモドキ……*Sogatella longifurcifera* (Esaki et Ishihara)
セスジウンカ（セスヂウンカ）……*Terthron albovittatus* (Matsumura)
セスジトビウンカ（セスヂトビウンカ）……*Terthron albovittatus* (Matsumura)
セスジナガウンカ（セスヂナガウンカ）……*Stenocranus minutus* (Fabricius)
タイワンヒゲブトウンカ……*Purohita taiwanesis* Muir
タカサゴナガウンカ……*Stenocranus takasagonis* Matsumura
タカネウンカ……*Javesella pellucida* (Fabricius)
タケウンカ……*Eurysa nawaii* (Matsumura)
タケトビウンカ……*Eurysa nawaii* (Matsumura)
タケヒゲブトウンカ……*Purohita cervina* Distant
タテゴトウンカ……*Falcotoya lyraeformis* (Matsumura)
タテヒトスジウンカ……*Terthron albovittatus* (Matsumura)
タテヤマナガウンカ……*Stenocranus tateyamanus* Matsumura
タテヤマヨシウンカ……*Chloriona tateyamana* Matsumura
タマガワナガウンカ……*Stenocranus tamagawanus* Matsumura
タロイモウンカ……*Tarophagus proserpina* (Kirkaldy)
ダンゴヒゲマル……*Nilaparvata lugens* (Stål)
ダンゴヨコバヘ……*Nilaparvata lunges* (Stål)
チクゼンウンカ……*Dicranotropis tikuzenensis* Matsumura et Ishihara
チビウンカ……*Muirodelphax exiguus* (Boheman)
テラウチウンカ……*Terauchiana singularis* Matsumura
テラウチケヅメウンカ……*Terauchiana singularis* Matsumura
トウモロコシウンカ……*Peregrinus maidis* (Ashmead)
トビイロウンカ……*Nilaparvata lugens* (Stål)
トビイロウンカモドキ……*Nilaparvata bakeri* (Muir)
トビイロホソウンカ……*Hosunka testacea* (Matsumura)
トビイロモドキ……*Nilaparvata bakeri* (Muir)
トビウンカ……*Sogatella furcifera* (Horváth)
ナカノウンカ……*Muellerianella fairmairei* (Perris)

ナガラガワウンカ……*Nagara nagaragawana* (Matsumura)
ナツウンカ……*Sogatella furcifera* (Horváth)
ニイジマナガウンカ……*Stenocranus niisimai* Matsumura
ニセトビウンカ……*Nilaparvata muiri* China
ニセトビイロウンカ……*Nilaparvata muiri* China
ニセナガウンカ……*Stenocranus fallax* Matsumura
ニホンウンカ……*Zulcica nipponica* Matsumura et Ishihara
ハイキビウンカ……*Sogatella terryi* (Muir)
ハグロウンカ……*Delphacodes* sp. A, Hasegawa (1957)
ハコネホソウンカ……*Unkanodes hakonensis* (Matsumura)
ハネナガヒゲマルヨコバヘ……*Laodelphax striatellus* (Fallén)
ハリマナガウンカ……*Stenocranus harimensis* Matsumura
ヒエウンカ……*Sogatella panicicola* (Ishihara)
〔ヒゲブトウンカ〕……*Delphax pulchellus* (Curtis) & *Purohita cervina* Distant
ヒケマルヨコバヒ……*Sogatella furcifera* (Horváth)
ヒメウンカ……*Himeunka tateyamaella* (Matsumura)
ヒメコブウンカ……*Tropidocephala festiva* (Distant)
ヒメクロヨコバイ……*Laodelphax striatellus* (Fallén)
ヒメトビウンカ……*Laodelphax striatellus* (Fallén)
ヒロズウンカ……*Hirozuunka japonica* Matsumura et Ishihara
フクオカウンカ……*Delphacodes fukuokae* Ishihara
フタスジオオウンカ……*Euides bilineata* (Matsumura)
ホソナガウンカ……*Stenocranus elongatus* Matsumura
ホソミドリウンカ……*Saccharosydne procerus* (Matsumura)
ホオグロウンカ……*Delphacodes nigrigena* Matsumura et Ishihara
マツヤマチビウンカ……*Muirodelphax matsuyamensis* (Ishihara)
モンスケバウンカ……*Ugyops vittatus* (Matsumura)
モンスケバハゴロモ……*Ugyops vittatus* (Matsumura)
モンスケバモドキ……*Ugyops vittatus* (Matsumura)
ヤクシマウシウンカ……*Perkinsiella yakushimensis* Ishihara
ヤスマツナガウンカ……*Stenocranus yasumatsui* Ishihara
ヤリウンカ……*Sardia rostrata* Melichar
ヨシウンカ……*Chloriona japonica* Matsumura

B. Host plants

a. Scientific names (family names) — Japanese names

The family names are given by the abbreviations parenthesized as follows:

AMR ……Amaryllidaceae ヒガンバナ科
ARA ……Araceae サトイモ科
CMM ……Commelinaceae ツユクサ科
CPR ……Cyperaceae カヤツリグサ科
CRP ……Caryophyllaceae ナデシコ科
EQS ……Equisetaceae トクサ科
GRM ……Gramineae イネ科
JNC ……Juncaceae イグサ科
LAB ……Labiatae シソ科
LGM ……Leguminosae マメ科
LIL ……Liliaceae ユリ科
LTH ……Lythraceae ミソハギ科
ONG ……Onagraceae アカバナ科
PLG ……Polygonaceae タデ科
PLP ……Polypodiaceae ウラボシ科
PNT ……Pontederiaceae ミズアオイ科

RNN ……Ranunculaceae キンポウゲ科
ROS ……Rosaceae バラ科
TYP ……Typhaceae ガマ科
UMB ……Umbelliferae セリ科

Agropyron repens (Linn.) Beauv. (GRM) ……シバムギ, ヒメカモジグサ, クワック・グラス, コーチ・グラス
Agropyron tsukushiense (Honda) Ohwi var. *transiens* (Hack.) Ohwi (GRM) ……カモジグサ, ナツノチャヒキ
Agrostis alba Linn. (GRM) ……コヌカグサ, レッドトップ
Agrostis clavata Trinius (GRM) ……ヤマヌカボ
Agrostis clavata Trinius var. *nukabo* Ohwi (GRM) ……ヌカボ
Agrostis flaccida Hack. (GRM) ……ミヤマヌカボ
Agrostis stolonifera Linn. (GRM) ……
Agrostis tenuis Sibth. (GRM) ……コモン・ベントグラス, コロニアル・ベント
Alopecurus aequalis Sobol. var. *amurensis* (Komar.) Ohwi (GRM) ……スズメノテッポウ, スズメノマクラ, ヤリクサ
Alopecurus geniculatus Linn. (GRM) ……ウォーター・フォックステール
Alopecurus japonicus Steud. (GRM) ……セトガヤ
Alopecurus pratensis Linn. (GRM) ……オオスズメノテッポウ, メドウ・フォックステール
Amaryllidaceae ……ヒガンバナ科
Aneilema keisak Hassk. (CMM) ……イボクサ, イボトリクサ
Anthoxanthum odoratum Linn. (GRM) ……ハルガヤ, スィート・バーナルグラス
Araceae ……サトイモ科
Arrhenatherum elatius (Linn.) Presl (GRM) ……オオカニツリ, トール・オートグラス
Arthraxon hispidus (Thunb.) Makino (GRM) …コブナグサ, カイナ, カイナグサ, カリヤス, アシイ
Arundinaria chino (Fr. et Sav.) Makino (GRM) アズマネザサ, シナガワダケ, アズマシノ
Arundinaria pygmaea (Miq.) Mitford var. *glabra* (Makino) Ohwi (GRM) ……ネザサ
Arundinaria simonii (Carr.) Rivière (GRM) …メダケ, カワタケ
Arundinaria sp. (GRM) ……
Arundinella hirta (Thunb.) C. Tanaka (GRM) トダシバ, バレンシバ
Arundo donax Linn. (GRM) ……ダンチク, ヨシタケ
Astragalus sinicus Linn. (LGM) ……ゲンゲ, ゲンゲバナ, レンゲソウ
Avena barbata Brot. (GRM) ……
Avena byzantina K. Koch (GRM) ……
Avena fatua Linn. (GRM) ……カラスムギ, チャヒキグサ, ワイルド・オート
Avena sativa Linn. (GRM) ……エンバク, マカラスムギ, オートムギ
Avena strigosa Schreb. (GRM) ……スモール・オート, ブリスル・オート
Axonopus compressus (Swartz) Beauv. (GRM) …カーペット・グラス
Bambusa vulgaris Schrad. (GRM) ……タイサンチク
Beckmannia syzigachne (Steud.) Fernald (GRM) …〔ミノゴメ〕, カズノコグサ
Briza maxima Linn. (GRM) ……コバンソウ, タワラムギ
Briza minor Linn. (GRM) ……ヒメコバンソウ, スズガヤ
Bromus catharticus Vahl (GRM) ……イヌムギ, レスク・グラス
Bromus inermis Leyss. (GRM) ……コスズメノチャヒキ, ブローム・グラス, スムーズ・ブローム・グラス, オーンレス・ブローム・グラス
Bulbostylis barbata (Rottb.) Kunth (CPR) ……ハタガヤ
Calamagrostis epigeios Roth var. *densiflora* Ledeb. (GRM) ……ホソヤマアワ

Calamagrostis langsdorffii (Link) Trinius (GRM) イワノガリヤス
Carex dimorpholepis Steud. (CPR)……アゼナルコスゲ
Carex fernaldiana Léveillé et Vaniot (CPR)……イトスゲ
Carex limosa Linn. (CPR) ……ヤチスゲ
Carex thunbergii Steud. (CPR) ……アゼスゲ
Carex spp. (CPR)……
Caryophyllaceae……ナデシコ科
Coix lacryma-jobi Linn. (GRM)……ジュズダマ，ズズゴ，トウムギ，ツシダマ，タマヅシ，ツス
Colocasia esculenta Schott (ARA) ……サトイモ，タロイモ
Colocasia esculenta Schott f. *aquatica* Makino (ARA) ……ミズイモ
Commelina communis Linn. (CMM) ……ツユクサ，アオバナ，カマツカ，ボウシバナ
Commelinaceae ……ツユクサ科
Crinum asiaticum Linn. var. *japonicum* Baker (AMR)……ハマオモト，ハマユウ
Cynodon dactylon (Linn.) Pers. (GRM)……ギョウギシバ，バーミューダ・グラス
Cynosurus cristatus Linn. (GRM) ……クレステッド・ドッグテール
Cyperaceae ……カヤツリグサ科
Cyperus brevifolius (Rottb.) Hassk. var. *leiolepis* (Fr. et Sav.) T. Koyama (CPR)…ヒメクグ
Cyperus difformis Linn. (CPR) ……タマガヤツリ
Cyperus globosus All. (CPR) ……アゼガヤツリ
Cyperus iria Linn. (CPR) ……コゴメガヤツリ，〔マスクサ〕
Cyperus microiria Steud. (CPR)……カヤツリグサ，〔マスクサ〕
Cyperus orthostachyus Fr. et Sav. (CPR) ……ウシクグ
Cyperus rotundus Linn. (CPR)……ハマスゲ，コウブシ
Cyperus serotinus Rottb. (CPR)……ミズガヤツリ，オオガヤツリ
Dactylis glomerata Linn. (GRM) ……カモガヤ，トリノアシガヤ，オーチャード・グラス
Deschampsia caespitosa (Linn.) Beauv. (GRM) ヒロハノコメススキ，タフテッド・ヘアー・グラス，ミヤマコメススキ
Digitaria adscendens (H. B. K.) Henr. (GRM)…メヒシバ，メシバ，〔ヂシバリ〕，ハタカリ
Digitaria violascens Link (GRM) ……アキメヒシバ
Echinochloa colonum (Linn.) Link (GRM)……ジャングルライス
Echinochloa crus-galli (Linn.) Beauv. (GRM)…バーンヤード・グラス
Echinochloa crus-galli (Linn.) Beauv. var. *crus-galli* (GRM) ……イヌビエ，ケイヌビエ，サルビエ，ノビエ
Echinochloa crus-galli (Linn.) Beauv. var. *frumentacea* Trinius (GRM) ……ヒエ
Echinochloa crus-galli (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi (GRM)……タイヌビエ
Eleocharis acicularis (Linn.) Roem. et Schult. var. *longiseta* Svenson (CPR)……マツバイ，コゲ，コウゲ
Eleusine coracana (Linn.) Gaertn. (GRM)……シコクビエ
Eleusine indica (Linn.) Gaertn. (GRM)……オヒシバ，チカラグサ，グース・グラス
Epilobium angustifolium Linn. (ONG)……ヤナギソウ，ヤナギラン
Equisetaceae ……トクサ科
Equisetum arvense Linn. (EQS) ……スギナ
Eragrostis curvula (Schrad.) Nees. (GRM) ……ウィーピング・ラブグラス
Eragrostis ferruginea (Thunb.) Beauv. (GRM) カゼクサ，〔ミチシバ〕
Eragrostis multicaulis Steud. (GRM) ……ニワホコリ
Eriochloa villosa (Thunb.) Kunth (GRM)……ナルコビエ，スズメノアワ
Eriophorum sp. (CPR) ……

Festuca arundinacea Schreb. (GRM) ……オニウシノケグサ，トール・フェスク
Festuca elatior Linn. (GRM) ……ヒロハノウシノケグサ，メドウ・フェスク
Festuca pacifica Piper (GRM) ……
Festuca rubra Linn. (GRM)……オオウシノケグサ，レッド・フェスク
Fimbristylis dichotoma (Linn.) Vahl (CPR) ……テンツキ
Fimbristylis diphylloides Makino (CPR) ……クロテンツキ
Galeopsis bifida Boenn. (LAB)……チシマオドリコソウ，イタチジソ
Glyceria acutiflora Torr. (GRM) ……ムツオレグサ，〔ミノゴメ〕，タムギ
Glyceria depauperata Ohwi (GRM)……ヒメウキガヤ
Glyceria depauperata Ohwi var. *infirma*
(Ohwi) Ohwi (GRM) ……ウキガヤ
Gramineae ……イネ科
Hemarthria sibirica (Gandog.) Ohwi (GRM)……ウシノシッペイ，バリン
Holcus lanatus Linn. (GRM) ……シラケガヤ，ベルベット・グラス
Hordeum distichon Linn. emend. Lamarck(GRM)…ニジョウオオムギ，ビールムギ
Hordeum vulgare Linn. emend. Lamarck(GRM)…オオムギ，ハダカムギ，カワムギ，フトムギ，カチカタ
Imperata cylindrica (Linn.) Beauv. var.
koenigii (Retz.) Durand et Schinz (GRM)…チガヤ，チ，フシゲチガヤ
Isachne globosa (Thunb.) O. Kuntze (GRM) …チゴザサ
Ischaemum anthephoroides (Steud.) Miq. (GRM)…ケカモノハシ，ヒザオリヒバ
Ischaemum aristatum Linn. var. *glaucum*
(Honda) T. Koyama (GRM) ……カモノハシ
Juncaceae ……イグサ科
Juncus beringensis Buchen. (JNC) ……ミヤマイ，タテヤマイ
Juncus effusus Linn. var. *decipiens*
Buchen. (JNC) ……イグサ，イ
Labiatae ……シソ科
Leersia hexandra (Linn.) Swartz. (GRM)……
Leersia japonica Makino (GRM)……アシカキ
Leersia sayanuka Ohwi (GRM) ……サヤヌカグサ
Leguminosae ……マメ科
Liliaceae ……ユリ科
Lolium multiflorum Lamarck (GRM) ……ネズミムギ，イタリアン・ライグラス
Lolium perenne Linn. (GRM)……ホソムギ，ペレニアル・ライグラス
Luzula multiflora Lejeune (JNC) ……ヤマスズメノヒエ，ヤマスズメノヤリ
Lythraceae ……ミソハギ科
Lythrum anceps (Koehne) Makino (LTH) ……ミソハギ
Medicago sativa Linn. (LGM) ……ルーサン，アルファルファ，ムラサキウマゴヤシ
Microstegium japonicum (Miq.) Koidz. (GRM)…ササガヤ
Microstegium vimineum (Trinius) A. Camus var.
polystachyum (Fr. et Sav.) Ohwi (GRM)…アシボソ
Miscanthus sinensis Anderss. (GRM) ……ススキ，カヤ
Monochoria vaginalis (Burm. fil.) Presl var.
plantaginea (Roxb.) Solms-Laub. (PNT) …コナギ，ササナギ，ミズナギ
Mosla dianthera (Hamilt.) Maxim. (LAB) ……ヒメジソ
Oenanthe javanica (Blume) DC. (UMB)……セリ
Onagraceae ……アカバナ科
Onoclea sensibilis Linn. (PLP) ……コウヤワラビ
Oplismenus undulatifolius (Ard.) Roem. et
Schult. var. *japonicus* (Steud.) Koidz. (GRM)…チヂミザサ，コチヂミザサ
Oryza alta Swallen (GRM) ……

Oryza eichingeri Peter (GRM) ……
Oryza glaberrima Steud. (GRM) ……
Oryza latifolia Desv. (GRM) ……
Oryza minuta Presl (GRM) ……
Oryza officinalis Wall. (GRM) ……
Oryza perennis Moench (GRM) ……
Oryza ridleyi Hook. (GRM) ……
Oryza sativa Linn. (GRM) ……イネ
Oryza sativa Linn. var. *spontanea* Roschev. (GRM) ……
Oryza stapfii Roschev. (GRM) ……
Panicum bisulcatum Thunb. (GRM) ……ヌカキビ
Panicum miliaceum Linn. (GRM) ……キビ，コキビ，キミ，プロソ，ブルーム・コーン・ミレット，ホグ・ミレット
Panicum purpurascens Raddi (GRM) ……パラ・グラス
Panicum repens Linn. (GRM) ……ハイキビ，トーペド・グラス
Paspalum distichum Linn. (GRM) ……キシュウスズメノヒエ，カリマタスズメノヒエ
Paspalum scrobiculatum Linn. (GRM) ……
Paspalum thunbergii Kunth (GRM) ……スズメノヒエ
Pennisetum alopecuroides (Linn.) Spreng. (GRM) ……チカラシバ，〔ミチシバ〕
Pennisetum glaucum (Linn.) R. Br. (GRM) ……パール・ミレット
Pennisetum purpureum Schumach (GRM) ……ネピア・グラス
Phalaris arundinacea Linn. (GRM) ……クサヨシ，リード・カナリー・グラス
Phleum paniculatum Huds. (GRM) ……アワガエリ
Phleum pratense Linn. (GRM) ……オオアワガエリ，チモシー・グラス
Phragmites communis Trinius (GRM) ……ヨシ，アシ，コモン・リード
Phragmites japonica Steud. (GRM) ……ツルヨシ，〔ヂシバリ〕
Phragmites sp. (GRM) ……
Phyllostachys bambusoides Sieb. et Zucc. (GRM) ……マダケ，ニガタケ
Poa acroleuca Steud. (GRM) ……ミゾイチゴツナギ
Poa annua Linn. (GRM) ……スズメノカタビラ，アニュアル・ブルーグラス
Poa nipponica Koidz. (GRM) ……カラスノカタビラ，オオイチゴツナギ
Poa pratensis Linn. (GRM) ……ナガハグサ，ケンタッキー・ブルーグラス
Poa sphondylodes Trinius (GRM) ……イチゴツナギ，ザラツキイチゴツナギ，カワライチゴツナギ
Polygonaceae ……タデ科
Polygonum thunbergii Sieb. et Zucc. (PLG) ……ミゾソバ，ウシノヒタイ
Polypodiaceae ……ウラボシ科
Polypogon fugax Steud. (GRM) ……ヒエガエリ
Pontederiaceae ……ミズアオイ科
Pteridis sp. = ? *Pteris* sp. (PLP) ……
Ranunculaceae ……キンポウゲ科
Ranunculus quelpaertensis (Léveillé) Nakai (RNN) ……キツネノボタン
Ranunculus repens Linn. (RNN) ……ハイキンポウゲ
Reineckea carnea (Andr.) Kunth (LIL) ……キチジョウソウ
Rosaceae ……バラ科
Rubus fruticosus Linn. (ROS) ……セイヨウヤブイチゴ
Saccharum officinarum Linn. (GRM) ……サトウキビ，カンショウ，カンショ，カンシャ
Sasa veitchii (Carr.) Rehd. (GRM) ……クマザサ，ヤキバザサ，ヘリトリザサ

Scirpus juncoides Roxb. (CPR) ……ホタルイ
Secale cereale Linn. (GRM)……ライムギ，クロムギ，ナツコムギ
Setaria glauca (Linn.) Beauv. (GRM) ……キンエノコロ
Setaria italica Beauv. (GRM)……アワ，オオアワ
Setaria viridis (Linn.) Beauv. (GRM)……エノコログサ，ネコジャラシ
Setaria viridis (Linn.) Beauv. var. *pachystachys*
(Fr. et Sav.) Makino et Nemoto (GRM) …ハマエノコロ
Sorghum halepense (Linn.) Pers. (GRM) ……ジョンソン・グラス
Sorghum sudanense (Piper) Stapf. (GRM)……スーダン・グラス
Sorghum vulgare Pers. (GRM) ……モロコシ，タカキビ，モロコシキビ
Spodiopogon depauperatus Hack. (GRM)……コアブラススキ，ミヤマアブラススキ
Sporobolus indicus (Linn.) R. Br.,
sensu lato (GRM)……ネズミノオ
Stellaria alsine Grimm var. *undulata* ……
(Thunb.) Ohwi (CRP) ……ノミノフスマ
Stellaria media (Linn.) Villars (CRP)……ハコベ，コハコベ，ハコベラ，アサシラゲ
Trifolium hybridum Linn. (LGM)……アルサイク・クローバー，タチオランダゲンゲ
Trifolium pratense Linn. (LGM) ……アカクローバー，アカツメクサ，ムラサキツメクサ，レッド・クローバー
Trifolium repens Linn. (LGM) ……シロクローバー，シロツメクサ，ツメクサ，オランダゲンゲ
Trisetum bifidum (Thunb.) Ohwi (GRM) ……カニツリグサ
Triticum aestivum Linn. (GRM) ……コムギ
Typha laxmanni Lap. (TYP) ……
Typhaceae ……ガマ科
Umbelliferae ……セリ科
Zea mays Linn. (GRM)……トウモロコシ，トウキビ，ナンバン
Zizania latifolia Turcz. (GRM)……マコモ，ハナガツミ
Zoysia japonica Steud. (GRM) ……シバ
Zoysia tenuifolia Willd. (GRM) ……コウライシバ，チョウセンシバ

b. Japanese names (family names) — Scientific names

アオバナ（ツユクサ科）……*Commelina communis* Linn.
アカクローバー（マメ科）……*Trifolium pratense* Linn.
アカツメクサ（マメ科）……*Trifolium pratense* Linn.
アカバナ科……Onagraceae
アキメヒシバ（イネ科）……*Digitaria violascens* Link
アサシラゲ（ナデシコ科）……*Stellaria media* (Linn.) Villars
アシ（イネ科）……*Phragmites communis* Trinius
アシイ（イネ科）……*Arthraxon hispidus* (Thunb.) Makino
アシカキ（イネ科）……*Leersia japonica* Makino
アシボソ（イネ科）……*Microstegium vimineum* (Trinius) A. Camus var. *polystachyum* (Fr. et Sav.) Ohwi
アズマシノ（イネ科）……*Arundinaria chino* (Fr. et Sav.) Makino
アズマネザサ（イネ科）……*Arundinaria chino* (Fr. et Sav.) Makino
アゼガヤツリ（カヤツリグサ科）……*Cyperus globosus* All.
アゼスゲ（カヤツリグサ科）……*Carex thunbergii* Steud.
アゼナルコスゲ（カヤツリグサ科）……*Carex dimorpholepis* Steud.
アニュアル・ブルーグラス（イネ科）…*Poa annua* Linn.
アルサイク・クローバー（マメ科）……*Trifolium hybridum* Linn.
アルファルファ（マメ科）……*Medicago sativa* Linn.

アワ（イネ科）……*Setaria italica* Beauv.
アワガエリ（イネ科）……*Phleum paniculatum* Huds.
イ（イグサ科）……*Juncus effusus* Linn. var. *decipiens* Buchen.
イグサ（イグサ科）……*Juncus effusus* Linn. var. *decipiens* Buchen.
イグサ科……Juncaceae
イタチジソ（シソ科）……*Galeopsis bifida* Boenn.
イタリアン・ライグラス（イネ科）……*Lolium multiflorum* Lamarck
イチゴツナギ（イネ科）……*Poa sphondylodes* Trinius
イトスゲ（カヤツリグサ科）……*Carex fernaldiana* Léveillé et Vaniot
イヌビエ（イネ科）……*Echinochloa crus-galli* (Linn.) Beauv. var. *crus-galli*
イヌムギ（イネ科）……*Bromus catharticus* Vahl
イネ（イネ科）……*Oryza sativa* Linn.
イネ科……Gramineae
イボクサ（ツユクサ科）……*Aneilema keisak* Hassk.
イボトリクサ（ツユクサ科）……*Aneilema keisak* Hassk.
イワノガリヤス（イネ科）……*Calamagrostis langsdorffii* (Link) Trinius
ウィーピング・ラブグラス（イネ科）…*Eragrostis curvula* (Schrad.) Nees.
ウォーター・フォックステール（イネ科）……*Alopecurus geniculatus* Linn.
ウキガヤ（イネ科）……*Glyceria depauperata* Ohwi var. *infirma* (Ohwi) Ohwi
ウシクグ（カヤツリグサ科）……*Cyperus orthostachyus* Fr. et Sav.
ウシノシッペイ（イネ科）……*Hemarthria sibirica* (Gandog.) Ohwi
ウミノヒタイ（タデ科）……*Polygonum thunbergii* Sieb. et Zucc.
ウラボシ科……Polypodiaceae
エノコログサ（イネ科）……*Setaria viridis* (Linn.) Beauv.
エンバク（イネ科）……*Avena sativa* Linn.
オオアワ（イネ科）……*Setaria italica* Beauv.
オオアワガエリ（イネ科）……*Phleum pratense* Linn.
オオイチゴツナギ（イネ科）……*Poa nipponica* Koidz.
オオウシノケグサ（イネ科）……*Festuca rubra* Linn.
オオカニツリ（イネ科）……*Arrhenatherum elatius* (Linn.) Presl
オオガヤツリ（カヤツリグサ科）……*Cyperus serotinus* Rottb.
オオスズメノテッポウ（イネ科）……*Alopecurus pratensis* Linn.
オーチャード・グラス（イネ科）……*Dactylis glomerata* Linn.
オートムギ（イネ科）……*Avena sativa* Linn.
オオムギ（イネ科）……*Hordeum vulgare* Linn. emend. Lamarck
オーンレス・ブローム・グラス（イネ科）……*Bromus inermis* Leyss.
オニウシノケグサ（イネ科）……*Festuca arundinacea* Schreb.
オヒシバ（イネ科）……*Eleusine indica* (Linn.) Gaertn.
オランダゲンゲ（マメ科）……*Trifolium repens* Linn.
カーペット・グラス（イネ科）……*Axonopus compressus* (Swartz) Beauv.
カイナ（イネ科）……*Arthraxon hispidus* (Thunb.) Makino
カイナグサ（イネ科）……*Arthraxon hispidus* (Thunb.) Makino
カズノコグサ（イネ科）……*Beckmannia syzigachne* (Steud.) Fernald
カゼクサ（イネ科）……*Eragrostis ferruginea* (Thunb.) Beauv.
カチカタ（イネ科）……*Hordeum vulgare* Linn. emend. Lamarck
カニツリグサ（イネ科）……*Trisetum bifidum* (Thunb.) Ohwi
ガマ科……Typhaceae
カマッカ（ツユクサ科）……*Commelina communis* Linn.
カモガヤ（イネ科）……*Dactylis glomerata* Linn.
カモジグサ（イネ科）……*Agropyron tsukushiense* (Honda) Ohwi var. *transiens* (Hack.) Ohwi

カモノハシ（イネ科）……*Ischaemum aristatum* Linn. var. *glaucum* (Honda) T. Koyama
カヤ（イネ科）……*Miscanthus sinensis* Anderss.
カヤツリグサ（カヤツリグサ科）……*Cyperus microiria* Steud.
カヤツリグサ科……Cyperaceae
カラスノカタビラ（イネ科）……*Poa nipponica* Koidz.
カラスムギ（イネ科）……*Avena fatua* Linn.
カリマタスズメノヒエ（イネ科）……*Paspalum distichum* Linn.
カリヤス（イネ科）……*Arthraxon hispidus* (Thunb.) Makino
カワタケ（イネ科）……*Arundinaria simonii* (Carr.) Rivière
カワムギ（イネ科）……*Hordeum vulgare* Linn. emend. Lamarck
カワライチゴツナギ（イネ科）……*Poa sphondylodes* Trinius
カンシャ（イネ科）……*Saccharum officinarum* Linn.
カンショ（イネ科）……*Saccharum officinarum* Linn.
カンショウ（イネ科）……*Saccharum officinarum* Linn.
キシュウスズメノヒエ（イネ科）……*Paspalum distichum* Linn.
キチジョウソウ（ユリ科）……*Reineckea carnea* (Andr.) Kunth
キツネノボタン（キンポウゲ科）……*Ranunculus quelpaertensis* (Léveillé) Nakai
キビ（イネ科）……*Panicum miliaceum* Linn.
キミ（イネ科）……*Panicum miliaceum* Linn.
ギョウギシバ（イネ科）……*Cynodon dactylon* (Linn.) Pers.
キンエノコロ（イネ科）……*Setaria glauca* (Linn.) Beauv.
キンポウゲ科……Ranunculaceae
グース・グラス（イネ科）……*Eleusine indica* (Linn.) Gaertn.
クサヨシ（イネ科）……*Phalaris arundinacea* Linn.
クマザサ（イネ科）……*Sasa veitchii* (Carr.) Rehd.
クレステッド・ドッグテール（イネ科）*Cynosurus cristatus* Linn.
クロテンツキ（カヤツリグサ科）……*Fimbristylis diphylloides* Makino
クロムギ（イネ科）……*Secale cereale* Linn.
クワック・グラス（イネ科）……*Agropyron repens* (Linn.) Beauv.
ケイヌビエ（イネ科）……*Echinochloa crus-galli* (Linn.) Beauv. var. *crus-galli*
ケカモノハシ（イネ科）……*Ischaemum anthephoroides* (Steud.) Miq.
ゲンゲ（マメ科）……*Astragalus sinicus* Linn.
ゲンゲバナ（マメ科）……*Astragalus sinicus* Linn.
ケンタッキー・ブルーグラス（イネ科）*Poa pratensis* Linn.
コアブラススキ（イネ科）……*Spodiopogon depauperatus* Hack.
コウゲ（カヤツリグサ科）……*Eleocharis acicularis* (Linn.) Roem. et Schult. var. *longiseta* Svenson
コウブシ（カヤツリグサ科）……*Cyperus rotundus* Linn.
コウヤワラビ（ウラボシ科）……*Onoclea sensibilis* Linn.
コウライシバ（イネ科）……*Zoysia tenuifolia* Willd.
コーチ・グラス（イネ科）……*Agropyron repens* (Linn.) Beauv.
コキビ（イネ科）……*Panicum miliaceum* Linn.
コゲ（カヤツリグサ科）……*Eleocharis acicularis* (Linn.) Roem. et Schult. var. *longiseta* Svenson
コゴメガヤツリ（カヤツリグサ科）……*Cyperus iria* Linn.
コスズメノチャヒキ（イネ科）……*Bromus inermis* Leyss.
コチヂミザサ（イネ科）……*Oplismenus undulatifolius* (Ard.) Roem. et Schult. var. *japonicus* (Steud.) Koidz.
コナギ（ミズアオイ科）……*Monochoria vaginalis* (Burm. fil.) Presl var. *plantaginea* (Roxb.) Solm-Laub.
コヌカグサ（イネ科）……*Agrostis alba* Linn.
コハコベ（ナデシコ科）……*Stellaria media* (Linn.) Villars

コバンソウ（イネ科）……*Briza maxima* Linn.
コブナグサ（イネ科）……*Arthraxon hispidus* (Thunb.) Makino
コムギ（イネ科）……*Triticum aestivum* Linn.
コモン・ベントグラス（イネ科）……*Agrostis tenuis* Sibth.
コモン・リード（イネ科）……*Phragmites communis* Trinius
コロニアル・ベント（イネ科）……*Agrostis tenuis* Sibth.
ササガヤ（ネイ科）……*Microstegium japonicum* (Miq.) Koidz.
ササナギ（ミズアオイ科）……*Monochoria vaginalis* (Burm. fil.) Presl var. *plantaginea* (Roxb.) Solm-Laub.
サトイモ（サトイモ科）……*Colocasia esculenta* Schott
サトイモ科……Araceae
サトウキビ（イネ科）……*Saccharum officinarum* Linn.
サヤヌカグサ（イネ科）……*Leersia sayanuka* Ohwi
ザラツキイチゴツナギ（イネ科）……*Poa sphondylodes* Trinius
サルビエ（イネ科）……*Echinochloa crus-galli* (Linn.) Beauv. var. *crus-galli*
シコクビエ（イネ科）……*Eleusine coracana* (Linn.) Gaertn.
シソ科……Labiatae
シナガワダケ（イネ科）……*Arundinaria chino* (Fr. et Sav.) Makino
シバ（イネ科）……*Zoysia japonica* Steud.
シバムギ（イネ科）……*Agropyron repens* (Linn.) Baeuv.
ジャングルライス（イネ科）……*Echinochloa colonum* (Linn.) Link
ジュズダマ（イネ科）……*Coix lacryma-jobi* Linn.
ジョンソン・グラス（イネ科）……*Sorghum halepense* (Linn.) Pers.
シラケガヤ（イネ科）……*Holcus lanatus* Linn.
シロクローバー（マメ科）……*Trifolium repens* Linn.
シロツメクサ（マメ科）……*Trifolium repens* Linn.
スィート・バーナルグラス（イネ科）…*Anthoxanthum odoratum* Linn.
スーダン・グラス（イネ科）……*Sorghum sudanense* (Piper) Stapf.
スギナ（トクサ科）……*Equisetum arvense* Linn.
スズガヤ（イネ科）……*Briza minor* Linn.
ススキ（イネ科）……*Miscanthus sinensis* Anderss.
ズズゴ（イネ科）……*Coix lacryma-jobi* Linn.
スズメノアワ（イネ科）……*Eriochloa villosa* (Thunb.) Kunth
スズメノカタビラ（イネ科）……*Poa annua* Linn.
スズメノテッポウ（イネ科）……*Alopecurus aequalis* Sobol. var. *amurensis* (Komar.) Ohwi
スズメノヒエ（イネ科）……*Paspalum thunbergii* Kunth
スズメノマクラ（イネ科）……*Alopecurus aequalis* Sobol. var. *amurensis* (Komar.) Ohwi
スムーズ・ブローム・グラス（イネ科）*Bromus inermis* Leyss.
スモール・オート（イネ科）……*Avena strigosa* Schreb.
セイヨウヤブイチゴ（バラ科）……*Rubus fruticosus* Linn.
セトガヤ（イネ科）……*Alopecurus japonicus* Steud.
セリ（セリ科）……*Oenanthe javanica* (Blume) DC.
セリ科……Umbelliferae
タイサンチク（イネ科）……*Bambusa vulgaris* Schrad.
タイヌビエ（イネ科）……*Echinochloa crus-galli* (Linn.) Beauv. var. *oryzicola* (Vasing.) Ohwi
タカキビ（イネ科）……*Sorghum vulgare* Pers.
タチオランダゲンゲ（マメ科）……*Trifolium hybridum* Linn.
タデ科……Polygonaceae
タテヤマイ（イグサ科）……*Juncus beringensis* Buchen.
タフテッド・ヘアー・グラス（イネ科）*Deschampsia caespitosa* (Linn.) Beauv.

タマガヤツリ（カヤツリグサ科）……*Cyperus difformis* Linn.
タマゾシ（イネ科）……*Coix lacryma-jobi* Linn.
タムギ（イネ科）……*Glyceria acutiflora* Torr.
タワラムギ（イネ科）……*Briza maxima* Linn.
タロイモ（サトイモ科）……*Colocasia esculenta* Schott
ダンチク（イネ科）……*Arundo donax* Linn.
チ（イネ科）……*Imperata cylindrica* (Linn.) Beauv. var *koenigii* (Retz.) Durand et Schinz
チガヤ（イネ科）……*Imperata cylindrica* (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz
チカラグサ（イネ科）……*Eleusine indica* (Linn.) Gaertn.
チカラシバ（イネ科）……*Pennisetum alopecuroides* (Linn.) Spreng.
チゴザサ（イネ科）……*Isachne globosa* (Thunb.) O. Kuntze
〔ヂシバリ〕（イネ科）……*Digitaria adscendens* (H. B. K.) Henr. & *Phragmites japonica* Steud.
チシマオドリコソウ（シソ科）……*Galeopsis bifida* Boenn.
チヂミザサ（イネ科）……*Oplismenus undulatifolius* (Ard.) Roem. et Schult. var. *japonicus* (Steud.) Koidz.
チモシー・グラス（イネ科）……*Phleum pratense* Linn.
チャヒキグサ（イネ科）……*Avena fatua* Linn.
チョウセンシバ（イネ科）……*Zoysia tenuifolia* Willd.
ツシダマ（イネ科）……*Coix lacryma-jobi* Linn.
ツス（イネ科）……*Coix lacryma-jobi* Linn.
ツメクサ（マメ科）……*Trifolium repens* Linn.
ツユクサ（ツユクサ科）……*Commelina communis* Linn.
ツユクサ科……Commelinaceae
ツルヨシ（イネ科）……*Phragmites japonica* Steud.
テンツキ（カヤツリグサ科）……*Fimbristylis dichotoma* (Linn.) Vahl
トウキビ（イネ科）……*Zea mays* Linn.
トウムギ（イネ科）……*Coix lacryma-jobi* Linn.
トウモロコシ（イネ科）……*Zea mays* Linn.
トーベド・グラス（イネ科）……*Panicum repens* Linn.
トール・オートグラス（イネ科）……*Arrhenatherum elatius* (Linn.) Presl
トール・フェスク（イネ科）……*Festuca arundinacea* Schreb.
トクサ科……Equisetaceae
トグシバ（イネ科）……*Arundinella hirta* (Thunb.) C. Tanaka
トリノアシガヤ（イネ科）……*Dactylis glomerata* Linn.
ナガハグサ（イネ科）……*Poa pratensis* Linn.
ナツコムギ（イネ科）……*Secale cereale* Linn.
ナツノチャヒキ（イネ科）……*Agropyron tsukushiense* (Honda) Ohwi var. *transiens* (Hack.) Ohwi
ナデシコ科……Caryophyllaceae
ナルコビエ（イネ科）……*Eriochloa villosa* (Thunb.) Kunth
ナンバン（イネ科）……*Zea mays* Linn.
ニガタケ（イネ科）……*Phyllostachys bambusoides* Sieb. et Zucc.
ニジョウオオムギ（イネ科）……*Hordeum distichon* Linn. emend. Lamarck
ニワホコリ（イネ科）……*Eragrostis multicaulis* Steud.
ヌカキビ（イネ科）……*Panicum bisulcatum* Thunb.
ヌカボ（イネ科）……*Agrostis clavata* Trinius var. *nukabo* Ohwi
ネコジャラシ（ナデシコ科）……*Setaria viridis* (Linn.) Beauv.
ネザサ（イネ科）……*Arundinaria pygmaea* (Miq.) Mitford var. *glabra* (Makino) Ohwi

ネズミノオ（イネ科）……*Sporobolus indicus* (Linn.) R. Br., sensu lato
ネズミムギ（イネ科）……*Lolium multiflorum* Lamarck
ネピア・グラス……*Pennisetum purpureum* Schumach
ノビエ（イネ科）……*Echinochloa crus-galli* (Linn.) Beauv. var. *crus-galli*
ノミノフスマ（ナデシコ科）……*Stellaria alsine* Grimm var. *undulata* (Thunb.) Ohwi
バーミューダ・グラス（イネ科）……*Cynodon dactylon* (Linn.) Pers.
パール・ミレット（イネ科）……*Pennisetum glaucum* (Linn.) R. Br.
バーンヤード・グラス（イネ科）……*Echinochloa crus-galli* (Linn.) Beauv.
ハイキビ（イネ科）……*Panicum repens* Linn.
ハイキンポウゲ（キンポウゲ科）……*Ranunculus repens* Linn.
ハコベ（ナデシコ科）……*Stellaria media* (Linn.) Villars
ハコベラ（ナデシコ科）……*Stellaria media* (Linn.) Villars
ハダカムギ（イネ科）……*Hordeum vulgare* Linn. emend. Lamarck
ハタガヤ（カヤツリグサ科）……*Bulbostylis barbata* (Rottb.) Kunth
ハタカリ（イネ科）……*Digitaria adscendens* (H. B. K.) Henr.
ハナガツミ（イネ科）……*Zizania latifolia* Turcz.
ハマエノコロ（イネ科）……*Setaria viridis* (Linn.) Beauv. var. *pachystachys* (Fr. et Sav.) Makino et Nemoto
ハマオモト（ヒガンバナ科）……*Crinum asiaticum* Linn. var. *japonicum* Baker
ハマスゲ（カヤツリグサ科）……*Cyperus rotundus* Linn.
ハマユウ（ヒガンバナ科）……*Crinum asiaticum* Linn. var. *japonicum* Baker
バラ科……Rosaceae
パラ・グラス（イネ科）……*Panicum purpurascens* Raddi
バリン（イネ科）……*Hemarthria sibirica* (Gandog.) Ohwi
ハルガヤ（イネ科）……*Anthoxanthum odoratum* Linn.
バレンシバ（イネ科）……*Arundinella hirta* (Thunb.) C. Tanaka
ビールムギ（イネ科）……*Hordeum distichon* Linn. emend. Lamarck
ヒエ（イネ科）……*Echinochloa crus-galli* (Linn.) Beauv. var. *frumentacea* Trinius
ヒエガエリ（イネ科）……*Polypogon fugax* Steud.
ヒガンバナ科……Amaryllidaceae
ヒザオリヒバ（イネ科）……*Ischaemum anthephoroides* (Steud.) Miq.
ヒメウキガヤ（イネ科）……*Glyceria depauperata* Ohwi
ヒメカモジグサ（イネ科）……*Agropyron repens* (Linn.) Beauv.
ヒメクグ（カヤツリグサ科）……*Cyperus brevifolius* (Rottb.) Hassk. var. *leiolepis* (Fr. et Sav.) T. Koyama
ヒメコバンソウ（イネ科）……*Briza minor* Linn.
ヒメジソ（シソ科）……*Mosla dianthera* (Hamilt.) Maxim.
ヒロハノウシノケグサ（イネ科）……*Festuca elatior* Linn.
ヒロハノコメススキ（イネ科）……*Deschampsia caespitosa* (Linn.) Beauv.
フシゲチガヤ（イネ科）……*Imperata cylindrica* (Linn.) Beauv. var. *koenigii* (Retz.) Durand et Schinz
フトムギ（イネ科）……*Hordeum vulgare* Linn. emend Lamarck
ブリスル・オート（イネ科）……*Avena strigosa* Schreb.
ブルーム・コーン・ミレット（イネ科）*Panicum miliaceum* Linn.
ブローム・グラス（イネ科）……*Bromus inermis* Leyss.
プロソ（イネ科）……*Panicum miliaceum* Linn.
ヘリトリザサ（イネ科）……*Sasa veitchii* (Carr.) Rehd.
ベルベット・グラス（イネ科）……*Holcus lanatus* Linn.
ペレニアル・ライグラス（イネ科）……*Lolium perenne* Linn.
ボウシバナ（ツユクサ科）……*Commelina communis* Linn.
ホグ・ミレット（イネ科）……*Panicum miliaceum* Linn.

ホソムギ（イネ科）……*Lolium perenne* Linn.
ホソヤマアワ（イネ科）……*Calamagrostis epigeios* Roth var. *densiflora* Ledeb.
ホタルイ（カヤツリグサ科）……*Scirpus juncoides* Roxb.
マカラスムギ（イネ科）……*Avena sativa* Linn.
マコモ（イネ科）……*Zizania latifolia* Turcz.
〔マスクサ〕（カヤツリグサ科）……*Cyperus iria* Linn. & *Cyperus microiria* Steud.
マダケ（イネ科）……*Phyllostachys bambusoides* Sieb. et Zucc.
マツバイ（カヤツリグサ科）……*Eleocharis acicularis* (Linn.) Roem. et Schult. var. *longiseta* Svenson
マメ科……Leguminosae
ミズアオイ科……Pontederiaceae
ミズイモ（サトイモ科）……*Colocasia esculenta* Schott f. *aquatica* Makino
ミズガヤツリ（カヤツリグサ科）……*Cyperus serotinus* Rottb.
ミズナギ（ミズアオイ科）……*Monochoria vaginalis* (Burm. fil.) Presl var. *plantaginea* (Roxb.) Solms-Laub.
ミゾイチゴツナギ（イネ科）……*Poa acroleuca* Steud.
ミゾソバ（タデ科）……*Polygonum thunbergii* Sieb. et Zucc.
ミソハギ（ミソハギ科）……*Lythrum anceps* (Koehne) Makino
ミソハギ科……Lythraceae
〔ミチシバ〕（イネ科）……*Eragrostis ferruginea* (Thunb.) Beauv. & *Pennisetum alopecuroides* (Linn.) Spreng.
〔ミノゴメ〕（イネ科）……*Beckmannia syzigachne* (Steud.) Fernald & *Glyceria acutiflora* Torr.
ミヤマアブラススキ（イネ科）……*Spodiopogon depauperatus* Hack.
ミヤマイ（イグサ科）……*Juncus beringensis* Buchen.
ミヤマコメススキ（イネ科）……*Deschampsia caespitosa* (Linn.) Beauv.
ミヤマヌカボ（イネ科）……*Agrostis flaccida* Hack.
ムツオレグサ（イネ科）……*Glyceria acutiflora* Torr.
ムラサキウマゴヤシ（マメ科）……*Medicago sativa* Linn.
ムラサキツメクサ（マメ科）……*Trifolium pratense* Linn.
メシバ（イネ科）……*Digitaria adscendens* (H. B. K.) Henr.
メダケ（イネ科）……*Arundinaria simonii* (Carr.) Rivière
メドウ・フェスク（イネ科）……*Festuca elatior* Linn.
メドウ・フォッステール（イネ科）……*Alopecurus pratensis* Linn.
メヒシバ（イネ科）……*Digitaria adscendens* (H. B. K.) Henr.
モロコシ（イネ科）……*Sorghum vulgare* Pers.
モロコシキビ（イネ科）……*Sorghum vulgare* Pers.
ヤキバザサ（イネ科）……*Sasa veitchii* (Carr.) Rehd.
ヤチスゲ（カヤツリグサ科）……*Carex limosa* Linn.
ヤナギソウ（アカバナ科）……*Epilobium angustifolium* Linn.
ヤナギラン（アカバナ科）……*Epilobium angustifolium* Linn.
ヤマスズメノヒエ（イグサ科）……*Luzula multiflora* Lejeune
ヤマスズメノヤリ（イグサ科）……*Luzula multiflora* Lejeune
ヤマヌカボ（イネ科）……*Agrostis clavata* Trinius
ヤリクサ（イネ科）……*Alopecurus aequalis* Sobol. var. *amurensis* (Komar.) Ohwi
ユリ科……Liliaceae
ヨシ（イネ科）……*Phragmites communis* Trinius
ヨシタケ（イネ科）……*Arundo donax* Linn.
ライムギ（イネ科）……*Secale cereale* Linn.
リード・カナリー・グラス（イネ科）…*Phalaris arundinacea* Linn.
ルーサン（マメ科）……*Medicago sativa* Linn.
レスク・グラス（イネ科）……*Bromus catharticus* Vahl

レッド・クローバー（マメ科）……*Trifolium pratense* Linn.
レッドトップ（イネ科）……*Agrostis alba* Linn.
レッド・フェスク（イネ科）……*Festuca rubra* Linn.
レンゲソウ（マメ科）……*Astragalus sinicus* Linn.
ワイルド・オート（イネ科）……*Avena fatua* Linn.