Disseminating information on leafhopper and planthopper vectors of plant disease

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National Museum of Wales, Cardiff, UK

Project objectives

To provide a comprehensive and accessible guide to the vector species of phytoplasma, bacteria and virus diseases

3 year project

Supported by The Leverhulme Trust

Order Hemiptera

(Feeding using piercing and sucking mouth parts)

Sternorrhyncha

(whiteflies, scale insects, aphids, psyllids)

Heteroptera

(True bugs)

Auchenorrhyncha

Leafhoppers and planthoppers, spittlebugs etc

AUCHENORRHYNCHA

Planthoppers: Fulgoroidea: 21 families

10,000 species?

Leafhoppers & treehoppers: Membracoidea – Cicadellidae & Membracidae

40,000 species?

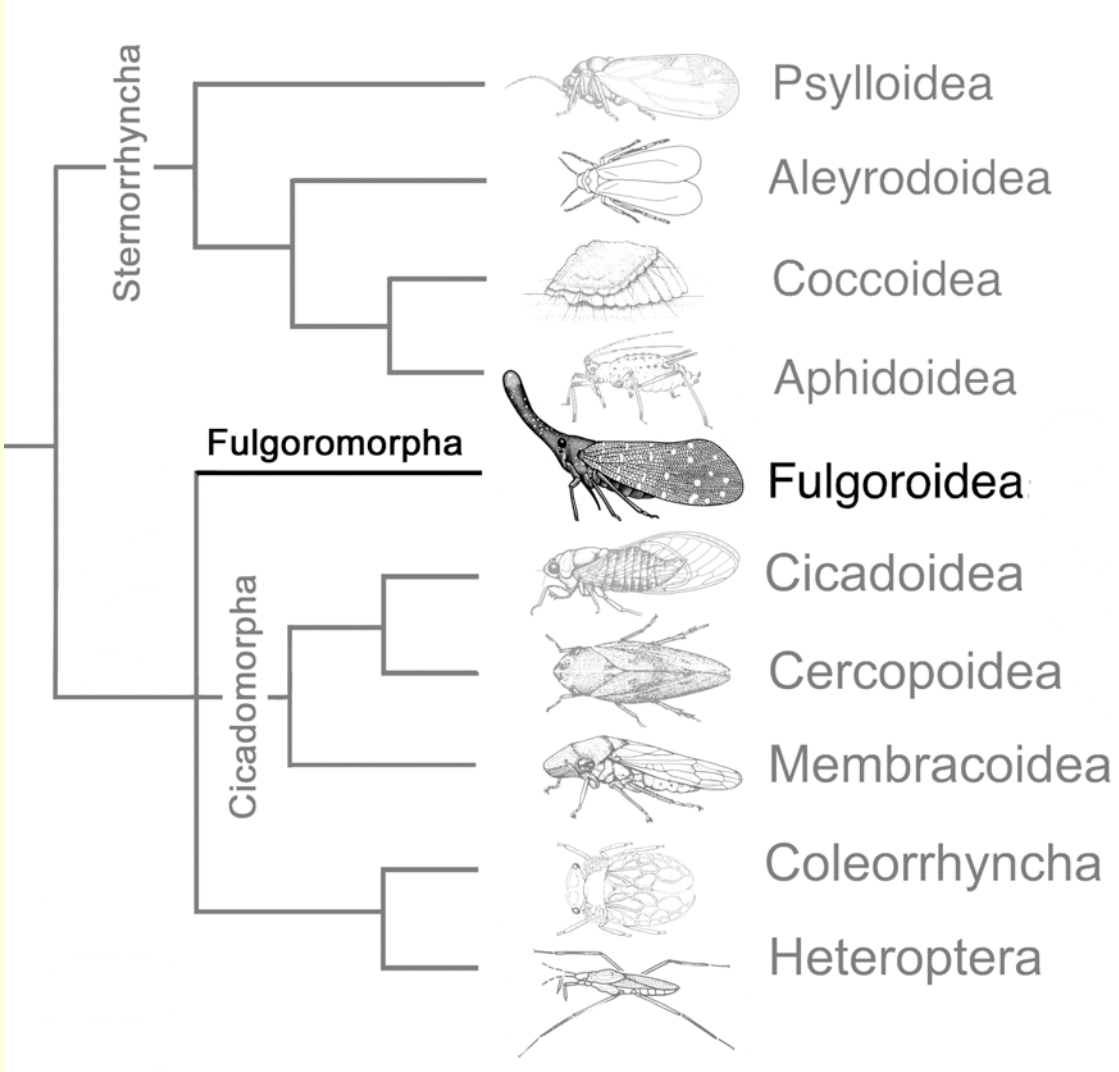
Spittlebugs: Cercopoidea - 4 families

4,000 species?

Cicadas: Cicadoidea

2,000 species?

Hemiptera Cladogram



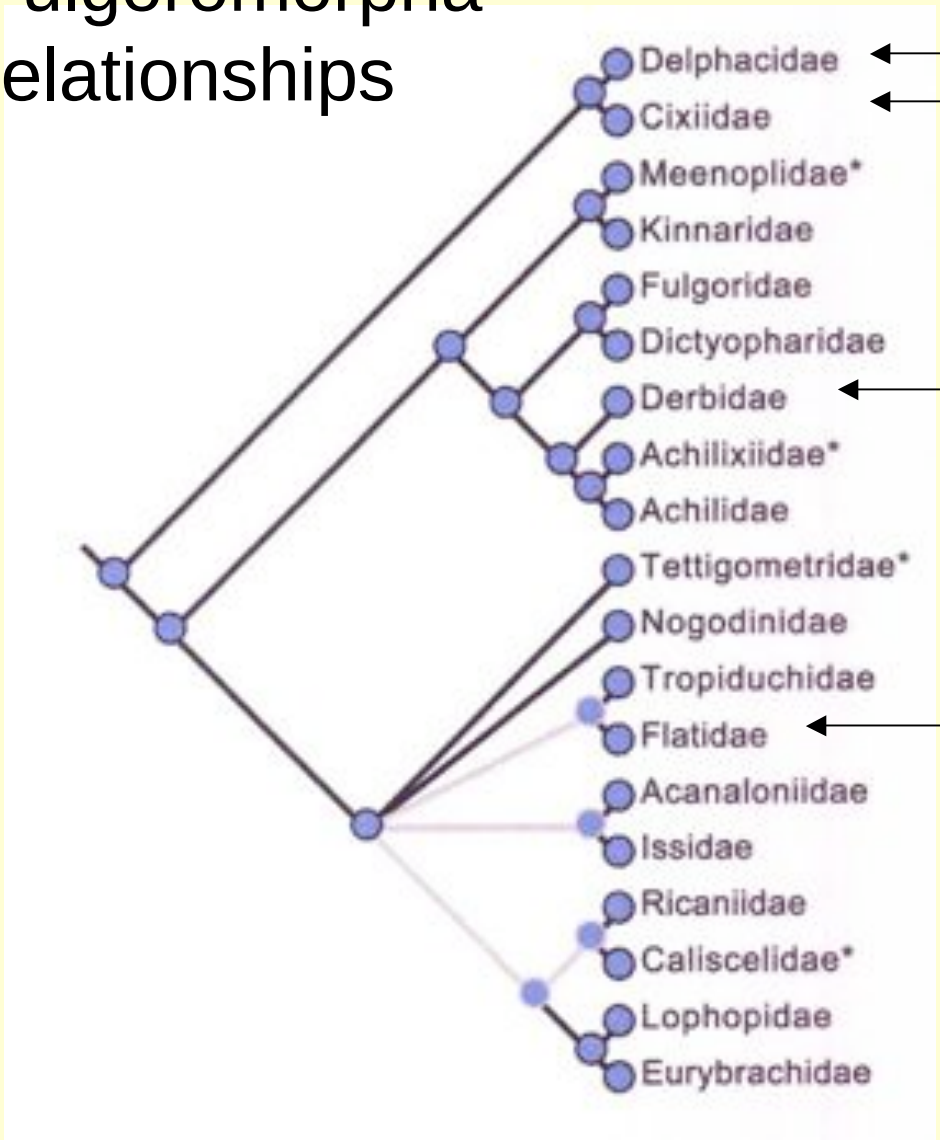
vectors

vectors

vectors

vectors

Fulgoromorpha relationships

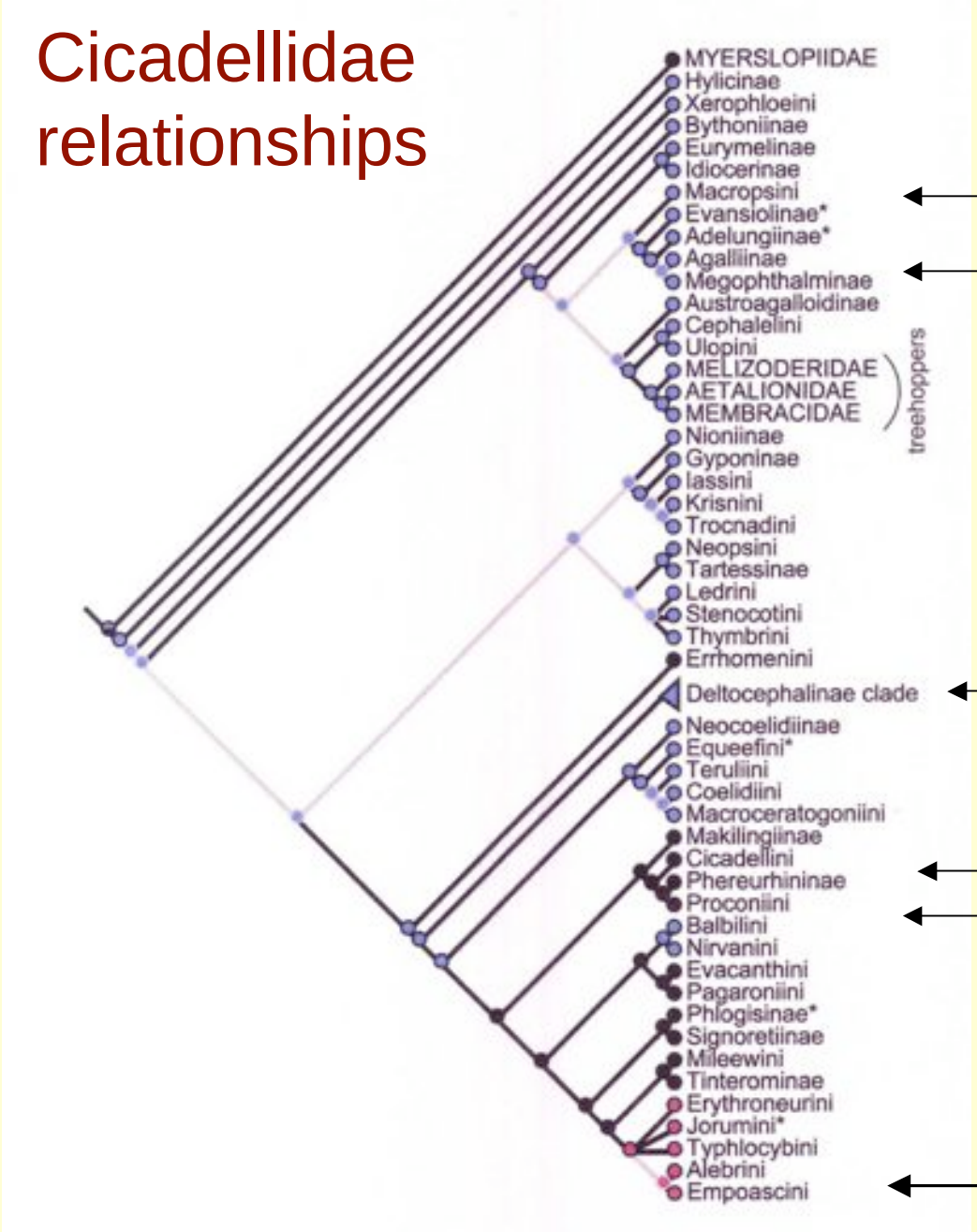


Vector species

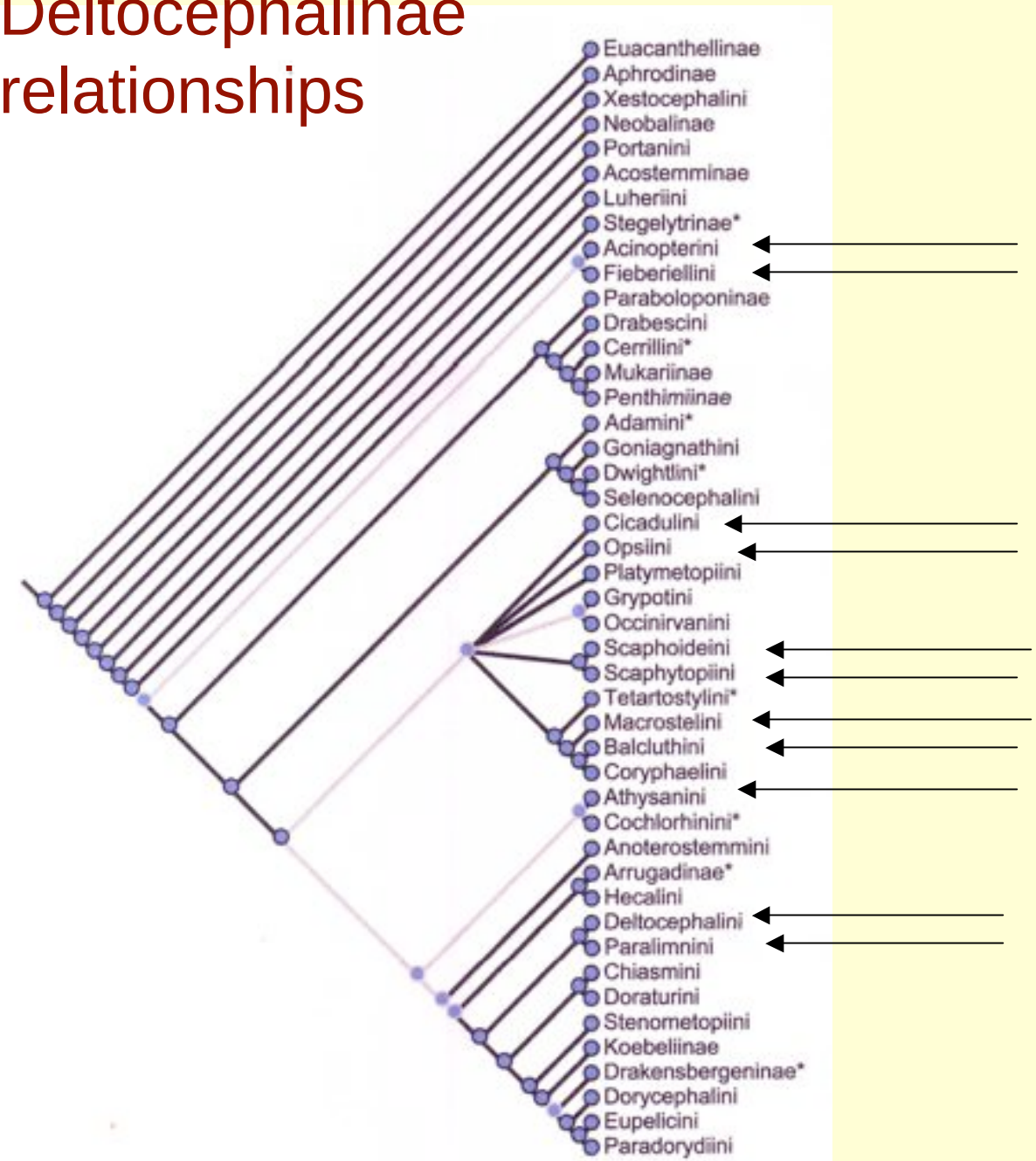
Vector species (1)

Vector species? (1)

Cicadellidae relationships



Deltocephalinae relationships



Phytoplasma Vectors

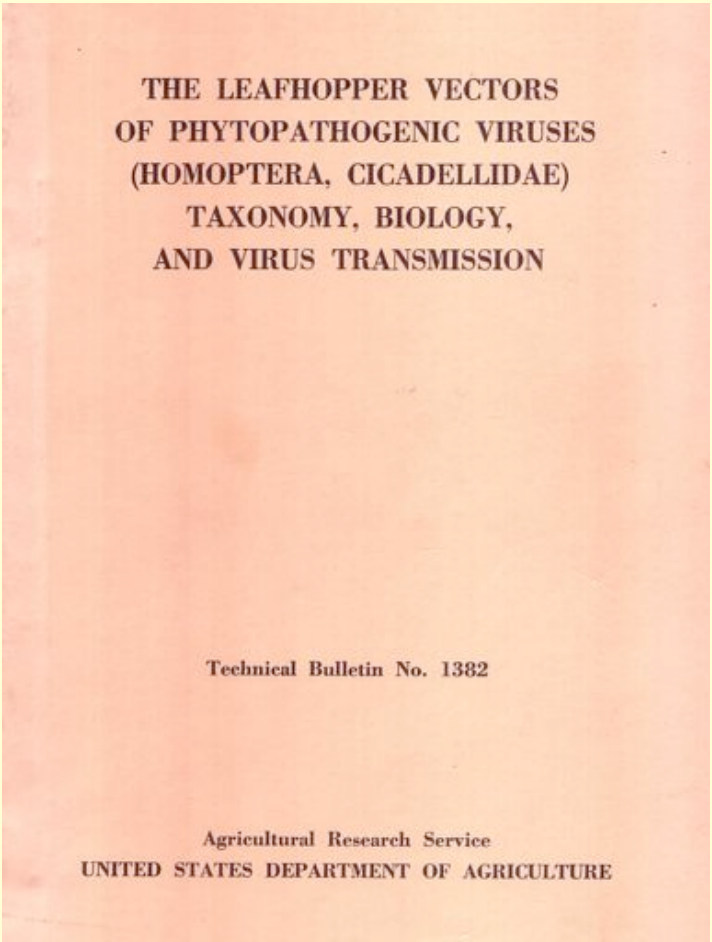
Around 200 Auchenorrhyncha species known as vectors

But since there may be at least 700 phytoplasma and other diseases……

Many more vectors will be discovered

No comprehensive identification keys to vectors available

Leafhopper vectors of phytopathogenic viruses (Nielson 1968)


THE LEAFHOPPER VECTORS
OF PHYTOPATHOGENIC VIRUSES
(HOMOPTERA, CICADELLIDAE)
TAXONOMY, BIOLOGY,
AND VIRUS TRANSMISSION

Technical Bulletin No. 1382

Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

No whole insect figures

Many taxonomic changes in last 40 years

Only leafhoppers covered

Everything called a virus vector

First stage

Compile database of known diseases and vectors

Insect Name/ synonyms

Family

Subfamily

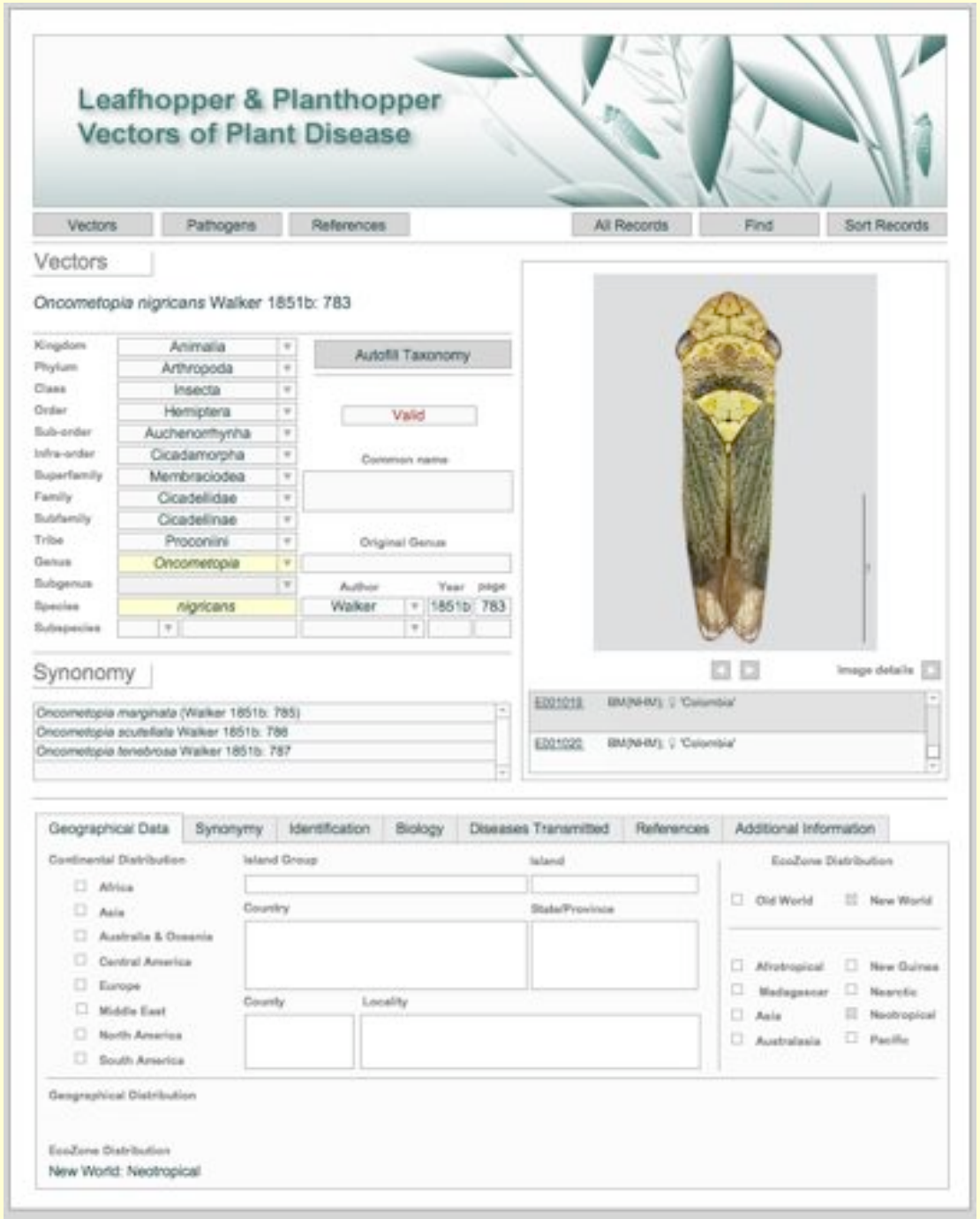
Tribe

Disease / reference

Host plants

Datasheets

- High quality digital images of adult insects + nymphs where available
- Taxonomical drawings of morphological features
- Biology
  - Host plants
- Pest status
- Taxonomy
- Identification
  - Similar species
- Distribution
- Bibliography


Leafhopper & Planthopper
Vectors of Plant Disease
Vectors
Pathogens
References
All Records
Find
Sort Records
Vectors
Oncometopia nigricans Walker 1851b: 783
Kingdom Animalia
Phylum Arthropoda
Class Insecta
Order Hemiptera
Sub-order Auchenorrhyncha
Infra-order Cicadamorpha
Superfamily Membracoidea
Family Cicadellidae
Subfamily Cicadellinae
Tribe Proconiini
Genus Oncometopia
Subgenus
Species nigricans
Subspecies
Autofill Taxonomy
Valid
Common name
Original Genus
Author Year page
Walker 1851b 783
Synonomy
Oncometopia marginata (Walker 1851b: 785)
Oncometopia acutellata Walker 1851b: 786
Oncometopia tenebrosa Walker 1851b: 787
Image details
Geographical Data
Synonymy
Identification
Biology
Diseases Transmitted
References
Additional Information
Continental Distribution
Africa
Asia
Australia & Oceania
Central America
Europe
Middle East
North America
South America
Island Group
Island
Country
State/Province
County
Locality
EcoZone Distribution
Old World
New World
Afrotropical
Madagascar
Asia
Australasia
New Guinea
Nearctic
Neotropical
Pacific
Geographical Distribution
EcoZone Distribution
New World: Neotropical

Leafhopper & Planthopper
Vectors of Plant Disease
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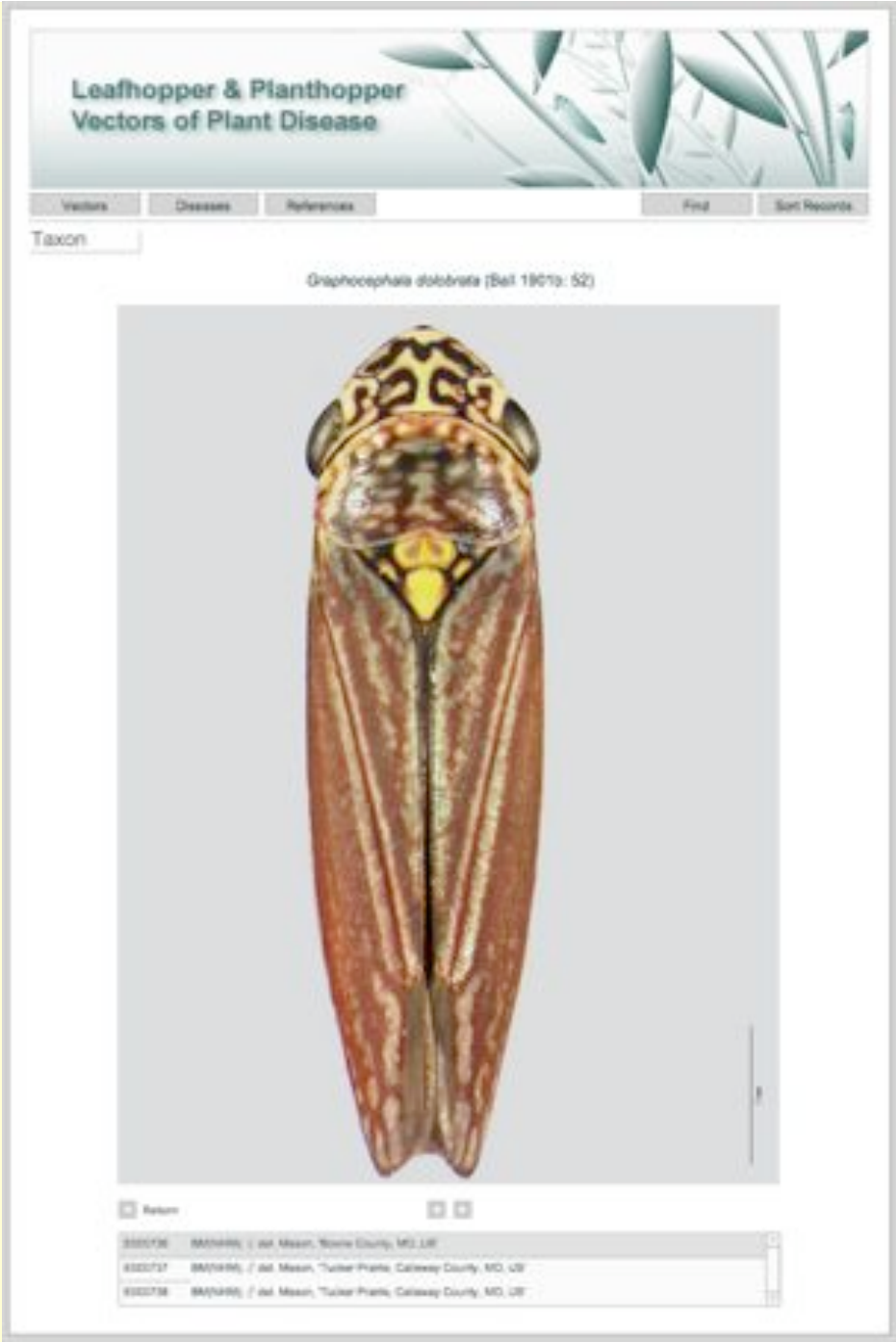
Oncometopia nigricans Walker 1851b: 783
Return


Leafhopper & Planthopper
Vectors of Plant Disease
Vectors
Diseases
References
Find
Sort Records
Taxon
Graphocephala dolobrata (Bell 1901b: 52)
Return

Leafhopper & Planthopper Vectors of Plant Disease

Vectors | Pathogens | References | All Records | Find | Sort Records

References

New Reference

Nielson, M. W. 1968b. *The leafhopper vectors of phytopathogenic viruses (Homoptera, Cicadellidae). Taxonomy, biology and virus transmission.* United States Department of Agriculture Technical Bulletin . 1382 386 pppp

Format: ◉ Book ○ Book Chapter ○ Journal Paper ○ Website

Author(s): Nielson, M. W.

Date: 1968b

Title: The leafhopper vectors of phytopathogenic viruses (Homoptera, Cicadellidae). Taxonomy, biology and virus transmission.

Journal / Publisher / Website: United States Department of Agriculture Technical Bulletin

Issue / edition:

URL:

Pages: 1382 386 pp

Accessed:

Cited Taxa

Pathogen		Vector Species	
	Clear	Acerotagallia calcaris Oman	Clear
	Clear	Agallia constricta Van Duzee	Clear
	Clear	Aphrodes albifrons (L)	Clear
	Clear		Clear

Leafhopper & Planthopper Vectors of Plant Disease

Vectors | Pathogens | References | All Records | Find | Sort Records

Pathogens

Maize stripe virus *Tenuivirus*

Type: ○ Xylella ◉ Virus ○ Phytoplasma ○ Spiroplasma

Kingdom: Virus
Class:
Order:
Family:
Genus: Tenuivirus
Species: Maize stripe virus

Common Name:

Acronym:

PhytoGroup:

Pathogen Vectors

Taxon	Citation
Peregrinus maidis	
Delete Entire Record	Clear Citation
Delete Entire Record	Clear Citation

Geographical Data | Host Plants | Biology | Links | References | Additional Information

Website should be online this summer 2010

Additions and information to include very welcome