

# Using databases for exploring research questions

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LAB MEETING 11/30/2020

# Data, Databases, and Research Questions: Overview

- ▶ What type of the data do you want to collect?
  - ▶ Qualitative data (images, list of species, species origin, plant life form, insect life cycle, species occurrence, etc.)
  - ▶ Quantitative data (body length, wing size, stylet length, leaf thickness, trichome density, leaf area, etc.)
  - ▶ Combination of both?
- ▶ What research (or other) questions do you want to investigate?
  - ▶ Collecting measurements
  - ▶ Species identification
  - ▶ Conducting review, meta-analysis, etc.
  - ▶ Something else?

# Today's talk: Outline

- ▶ Examples of available public databases
- ▶ Data you could extract
- ▶ Questions you might be interested in

- ▶ Plant databases
- ▶ Various species (including plants and insects)
- ▶ Specific insect databases





# USDA plants database

► <https://plants.sc.egov.usda.gov/java/>

Common name  
Scientific name

The screenshot shows the USDA PLANTS Database homepage. At the top, there are logos for USDA, United States Department of Agriculture, Natural Resources Conservation Service (NRCS), and the PLANTS Database. Below the header is a banner featuring various plant images. The main content area includes a search bar with 'Name Search' selected, a 'Go' button, and dropdown options for 'Scientific Name', 'State Search', 'Advanced Search', and 'Search Help'. To the right of the search bar, a message says 'You are here: Home/'. Below this is a section titled 'Plant of the Week' featuring a purple passionflower image and the text 'purple passionflower *Passiflora incarnata* L.'. A link says 'Click on the photo for a full plant profile.' Further down is a 'Spotlights' section with a small image and the text '2016 National Wetland Plant List'. To the right, a sidebar titled 'I Want To...' lists various options like 'See a list of the plants in my state', 'Learn about the wetland plants in my region', and 'Download data or posters'. The bottom of the sidebar has a decorative pattern.



# USDA plants database

You are here: Home / Plant Profile

**Miscanthus sinensis Andersson**  
Chinese silvergrass

**GENERAL** **IMAGES** **SYNONYMS** **CLASSIFICATION** **LEGAL STATUS** **WETLAND** **RELATED LINKS**

**Show All**

**General Information**

**Symbol:** MISI  
**Group:** Monocot  
**Family:** Poaceae  
**Duration:** Perennial  
**Growth Habit:** Graminoid  
**Native Status:** CAN I L48 I

**Characteristics**

**Data Source and Documentation**

**Related Tools**

**IMAGES**

click on a thumbnail to view an image, or see all the *Miscanthus* thumbnails at the Plants Gallery

The screenshot shows the USDA PLANTS database interface for the species *Miscanthus sinensis*. The top navigation bar includes links for General, Images, Synonyms, Classification, Legal Status, Wetland, and Related Links, along with a 'Show All' button. The main content area displays the plant's name, common name (Chinese silvergrass), and a detailed 'General Information' section. This section lists the symbol (MISI), group (Monocot), family (Poaceae), duration (Perennial), growth habit (Graminoid), and native status (CAN I, L48 I). Below this is a 'Characteristics' section and a 'Data Source and Documentation' section. On the left, there is a sidebar with various search and download options, including a 'Name Search' field, a 'Search' button, and sections for PLANTS Topics, Image Gallery, Download, and Related Tools. At the bottom, there is a 'IMAGES' section with several thumbnail images of the plant.

- ▶ Plant origin
- ▶ Species distribution
- ▶ Life form
- ▶ Taxonomy
- ▶ Images
- ▶ Other characteristics



# The Invasive Plant Atlas of the US

- ▶ <https://www.invasiveplantatlas.org/>

Life form  
All species

Invasive Plant Atlas  
of the United States

Home | About

Google Custom Search

Home Aquatics Grasses Herbs/Fors Shrubs/Subshrubs Trees Vines All Species Images Parks Sources

Life form

All species

Grasses

Adobe Flash Player is blocked

Contribute Plant Distribution Data to **EDDMapS**  
Early Detection & Distribution Mapping System

Contribute Pictures of Invasive Plants to **BUGWOOD**  
Image Database System

Non-native invasive species are organisms that have been introduced by humans either purposely or by accident and that have become serious environmental pests. One reason for their success as pests is that they are typically introduced without the array of associated natural controls (herbivores, parasites, pathogens, predators) that occur in their native range. In addition to

Invasive Species News

Check out our new EDDMapS maps website!  
Tallowtree Spread Increased by Hurricanes  
Cooperative Extension Advisor needed in



# The Invasive Plant Atlas of the US

[Invasive Plant Atlas  
of the United States](http://www.invasiveplantatlas.org)

**Grasses and Grasslike Plants**

Grasses and Grasslike Plants, known as Graminoids includes grasses (Poaceae), sedges (Cyperaceae), rushes (Juncaceae), arrow-grasses (Juncaginaceae), and quillworts (Isoetidae). The following species have been reported to be invasive in natural areas in the U.S. Species native to the U.S. are included when they are invasive in areas well outside their known natural ranges, as a result of human activities. For more information on each species, including the listing sources, images, and distribution maps, click on the species.

**238 Species**

Subject Name	Scientific Name	Family	U.S. Nativity
purplegrass	Achnatherum brachychaetum (Godr.) Barkworth	Poaceae	Exotic
Indian ricegrass	Achnatherum hymenoides (Roemer & J.A. Schultes) Barkworth	Poaceae	Native
jointed goatgrass	Aegilops cylindrica Host	Poaceae	Exotic
ovate goatgrass	Aegilops geniculata Roth	Poaceae	Exotic
barb goatgrass	Aegilops triuncialis L.	Poaceae	Exotic
crested wheatgrass	Agropyron cristatum (L.) Gaertn.	Poaceae	Exotic
desert wheatgrass	Agropyron desertorum (Fisch. ex Link) J.A. Schultes	Poaceae	Exotic
Siberian wheatgrass	Agropyron fragile (Roth) P. Candary	Poaceae	Exotic
Pacific bentgrass	Agrostis avenacea J.F. Gmel.	Poaceae	Exotic
velvet bentgrass	Agrostis canina L.	Poaceae	Native
colonial bentgrass	Agrostis capillaris L.	Poaceae	Exotic
redtop	Agrostis gigantea Roth	Poaceae	Exotic
creeping bentgrass	Agrostis stolonifera L.	Poaceae	Exotic
silver hairgrass	Aira caryophyllea L.	Poaceae	Exotic
creeping meadow foxtail	Alopecurus arundinaceus Poir.	Poaceae	Exotic
water foxtail	Alopecurus geniculatus L.	Poaceae	Exotic
slender meadow foxtail	Alopecurus myosuroides Huds.	Poaceae	Exotic
meadow foxtail	Alopecurus pratensis Linnaeus	Poaceae	Exotic
European beachgrass	Ammophila arenaria (L.) Link	Poaceae	Exotic
broomedge bluestem	Andropogon virginicus L.	Poaceae	Native
sweet vernalgrass	Anthoxanthum odoratum L.	Poaceae	Exotic
sweet vernalgrass	Anthoxanthum odoratum ssp. odoratum L.	Poaceae	Exotic
tall oatgrass	Arrhenatherum elatius (L.) Beauvois ex J.B. Presl	Poaceae	Exotic
tall oatgrass	Arrhenatherum elatius var. elatius (L.) P. Beauvois	Poaceae	Exotic

[Invasive Plant Atlas  
of the United States](http://www.invasiveplantatlas.org)

**cheatgrass**  
*Bromus tectorum* L.

**USDA PLANTS Symbol:** BRTE  
**U.S. Nativity:** Exotic  
**Habit:** Grass or Grasslike

**Jump to:** Resources | Images | Distribution Maps | Sources

**Taxonomic Rank:** Liliopsida: Cyperales: Poaceae  
**Synonym(s):** downy brome, early chess, military grass, thatch bromegrass  
**Native Range:** Africa, temp. & trop. Asia, Europe (GRIN);

**Appearance**  
*Bromus tectorum* is an erect-stemmed annual grass that grows to about 8-25 in. (20-70 cm) in height.  
**Foliage**  
The leaf sheaths and blades are covered with soft short hairs. The leaves are 0.08-0.16 in. (2-4 mm) wide and up to 8 in. (20 cm) long. Its ligules are 0.04-0.1 in. (1-2.5 mm) long.  
**Flowers**  
The panicles measure 2-7.75 in. (5-20 cm) long, have numerous branches, retain an open quality and are generally nodding. The panicles bear from 3 to 8 drooping spikelets, each spikelet is 0.8-1.4 in. (2-3.5 cm) long. The glumes are awl-shaped. The lemmas are narrowly lanceolate, 0.04-0.08 in. (1-1.5 mm) wide, toothed, and sometimes hairy. They have slender, straight awns that are 0.40-0.67 in. (10-17 mm) long. Flowering occurs from May to June.  
**Fruit**  
The seeds can germinate in the fall or in the spring; fall germination is generally more common. *B. tectorum* has a fibrous root system is finely divided. When a seed germinates in the fall, the developing root system is able to expand over the winter, giving the plant an increased ability to exploit available water and nutrients in the spring.  
**Ecology & Threat**  
*Bromus tectorum* has the ability to draw down soil moisture and nutrients to very low levels, making it difficult for other species to compete. An increased cycle of fires favors annual species at the expense of many perennials. Due to its tendency to mature early and then dry out, it gains a competitive advantage through the promotion of fire. It is an agricultural, nursery and orchard pest.

**Identification, Biology, Control and Management Resources**

**Element Stewardship Abstract** - The Nature Conservancy  
**Weed of the Week** - USDA Forest Service  
**Weed Field Guide** - USDA Forest Service

**Selected Images from Invasive.org** [View All Images at Invasive.org](#)

**Feature(s);** Liguile  
Steve Dewey, Utah State University, Bugwood.org  
[Additional Resolution & Image Usage](#)

**Plant(s);**  
Steve Dewey, Utah State University, Bugwood.org  
[Additional Resolution & Image Usage](#)

**Plant(s);**  
Chris Evans, University of Illinois, Bugwood.org  
[Additional Resolution & Image Usage](#)

**Feature(s); Liguile**  
Fred Pfeifer, University of Missouri, Bugwood.org  
[Additional Resolution & Image Usage](#)

**Feature(s); Liguile**  
Steve Dewey, Utah State University, Bugwood.org  
[Additional Resolution & Image Usage](#)

**Pestilence;**  
Chris Evans, University of Illinois, Bugwood.org  
[Additional Resolution & Image Usage](#)

**Plant(s); habit**  
Leslie J. Mehrhoff, University of Connecticut, Bugwood.org  
[Additional Resolution & Image Usage](#)

**Infestation;**  
Steve Dewey, Utah State University, Bugwood.org  
[Additional Resolution & Image Usage](#)

- ▶ Appearance
- ▶ Native range
- ▶ Flowers/seeds size
- ▶ Ecological threat



# TRY Plant Database

► <https://www.try-db.org/TryWeb/Home.php>

Quantitative plant traits

Woody and non-woody plants

Data need to be requested (easy and quick)

Data are in txt-format: can be opened in Excel (if data are not too large) or in Linux (if data are too large)



# TRY Plant Database

The screenshot shows the TRY Plant Database homepage. At the top, there's a banner with a fern frond and the text "TRY Plant Trait Database". Below the banner is a navigation bar with links: Home, About TRY, Data Portal, Feedback, and Registration. Under "Explore Data", there are links for Explore Data, Request Data, Contribute Data, Request PI Center (Request PIs only), and Dataset Custodian Center (Dataset Custodians only). A red arrow points to the "Data Portal" link. The main content area is titled "Data Portal". It has three sections: "Explore the TRY database" (with a "Data Explorer" button), "Request data and manage your requests" (with "TRY Database" and "TRY File Archive" buttons), and "Contribute data and manage your contributions" (with "Contribute Data" and "Dataset Cust. Cntr." buttons). Each button has a small description in parentheses below it. At the bottom, there are logos for DIVERSITAS, IGBP, futuRearth, iDiv, Max Planck Institute for Biogeochemistry, CLIMAT, FRB, and bioDISCOVERY.

**Data Portal**

Explore the TRY database

Request data and manage your requests

Contribute data and manage your contributions

**Data Explorer**

**TRY Database**

**TRY File Archive**

**Contribute Data**

**Dataset Cust. Cntr.**

**File Pickup**

**File Owner Cntr.**

Request PI Center  
(Request PIs only)

Dataset Custodian Center  
(Dataset Custodians only)

(File Requesters only)

(Custodians only)

(File Owners only)

Disclaimer Page calls: 213031 Gerhard Boenisch, Jens Kattge, created 2012-04-27, modified 2018-05-08

- ▶ Exploring data
- ▶ Requesting data



# TRY Plant Database

## ► Exploring data

**TRY Plant Trait Database**

Home    About TRY    Data Portal    Feedback    Registration

Explore Data    Get Data    Contribute Data    Request PI Center (Request PIs only)    Dataset Custodian Center (Dataset Custodians only)

**Data Explorer**

The Data Explorer enables you to search the TRY database and provides information about the content of the TRY database with respect to traits, species, original datasets and regions. Trait values are available at Get Data.

**Information by Trait**

Trait table     Detailed information for 1 trait     Species table for several traits

**Information by Species**

The accepted species list contains about 100,000 entries. Therefore, it does not make sense to view the entire list in your browser. However, you can download the species list by right clicking the link and choosing 'Save target as ...' from the popup menu.

You can also view the accepted species list partially by first character:      Detailed information for 1 species. Please select the first character of the species of interest:

Traits table for several species

**Information by Traits and Species**

**Information by Dataset**

**Information by Region**

This website is based on database version 5.0 from 2019-03-26, and Data Explorer version 5.7 from 2019-03-26.

**Frequently Asked Questions**

What is the hard- and software of the data explorer?  
How has the data explorer been tested?  
Why is the data explorer not as Google?  
What is the difference between measurement and observation?  
What database is the Data Explorer based on?

Disclaimer    Page calls: 137695    Gerhard Boenisch, Jens Kattge, created 2011-07-27, modified 2017-10-16

**TRY Plant Trait Database**

Home    About TRY    Data Portal    Feedback    Registration

Explore Data    Get Data    Contribute Data    Request PI Center (Request PIs only)    Dataset Custodian Center (Dataset Custodians only)

Only number of measurements etc. presented - no trait values

**Data Explorer**

**Trait Table**

Download table     Search Trait      Advanced Trait Search

Table fields:  
ObsNum: Number of Observations  
ObsGRNum: Number of geo-referenced Observations  
PublNum: Number of public Observations  
AccSpecies: Num: Number of Accepted Species  
Definition: Link to trait definition.  
Construction: Participate in constructing a trait definition.

Now includes all data from the database.

TraitID	Trait	ObsNum	ObsGRNum	AccSpecies	Definition
2957	Bark calcium (Ca) content per bark dry mass	30	30	5	Under Construction
617	Bark carbon (C) content per bark dry mass	772	534	275	Definition
829	Bark carbon (C) isotope signature (delta 13C)	13	13	1	Under Construction
830	Bark carbon/nitrogen (C/N) ratio	13	13	1	Under Construction
2958	Bark copper (Cu) content per bark dry mass	30	30	5	Under Construction
831	Bark crystals	3593	2747	1644	Under Construction
248	Bark density (bark dry mass per bark volume)	737	737	274	Definition
2959	Bark iron (Fe) content per bark dry mass	30	30	5	Under Construction
2961	Bark magnesium (Mg) content per bark dry mass	30	30	5	Under Construction
2962	Bark manganese (Mn) content per bark dry mass	30	30	5	Under Construction
618	Bark nitrogen (N) content per bark dry mass	742	742	45	Definition
832	Bark nitrogen (N) isotope signature (delta 15N)	13	13	1	Under Construction
833	Bark persistence (deciduous, persistent)	3460	3460	1069	Under Construction
619	Bark phosphorus (P) content per bark dry mass	455	455	31	Definition
2960	Bark potassium (K) content per bark dry mass	30	30	5	Under Construction
834	Bark sclereids arrangement	3874	3010	1844	Under Construction



# TRY Plant Database

## ► Requesting data

The screenshot shows the TRY Plant Trait Database homepage. At the top, there's a banner with a green 'TRY' logo and a blue background featuring a fern frond and a flower. Below the banner, the main navigation menu includes Home, About TRY, Data Portal, Feedback, and Registration. Under the registration section, there are links for Explore Data, Request Data, Contribute Data, Request PI Center (Request PIs only), and Dataset Custodian Center (Dataset Custodians only). The main content area is titled 'Request Data from the TRY Database'. It contains instructions for data requests, a list of steps for the process, and information about trait records. At the bottom, there are two prominent green buttons: 'Request by traits/species' and 'Request by dataset'. A red arrow points to the 'Request by traits/species' button. Another red arrow points to the 'Not recommended' section under the 'Request by dataset' button. The footer includes logos for various partners like iDiv, Max Planck Institute für Biogeochemistry, CLIMAT, FRB, and bioINBIOLOGY, along with a disclaimer and page call information.

## ► Example of the request:

### TRY Data Request 10895

Only public data were requested.

Title:

Host plant usage by the spotted lanternfly, *Lycorma delicatula*

Authors:

Alina Avanesyan (University of Maryland, Department of Entomology)

Olivia Shaffer (Frostburg State University, Frostburg MD)

William Lamp (University of Maryland, Dept of Entomol)

Trait List:

38, 3064, 24, 618, 2957, 617, 838, 837, 3404

Species List:

Description:

*Lycorma delicatula* is a highly invasive insect pest of fruit crops and trees in the eastern US. Nymphs and adults pose a significant economic threat to many woody tree species in MD including native and economically-important trees and woody plants. In this project we focus on exploring the basic behavioral, morphological, and physiological mechanisms which drive food plant selection of this invasive insect in its introduced range.



# The LEDA Traitbase

- ▶ [https://uol.de/en/lande  
co/research/leda/data  
-files/](https://uol.de/en/lande/co/research/leda/data-files/)

Downloadable datasets

The screenshot shows the homepage of the LEDA Traitbase. At the top, there's a navigation bar with links for University, Studies, Research, and International. Below that, it says "School V | Institute of Biology and Environmental Sciences Landscape Ecology". A navigation path "Navigation: [...] > Research > Projects > LEDA > Data Files" is shown. On the right, there's a logo for "IBU" (Institute of Biology and Environmental Sciences) featuring a stylized green leaf. The main content area has a green header with the text "The LEDA Traitbase". Below the header, there's a section titled "Data files" with a sub-section "Data Files". A red arrow points to the download links for "Bud bank seasonality" and "Bud vertical distribution", which are listed as "TXT(832 KB)" and "TXT(762 KB)" respectively.

Dataset	File Type	Size
Age of first flowering	TXT	(662 KB)
Branching	TXT	(716 KB)
Bud bank seasonality	TXT	(832 KB)
Bud vertical distribution	TXT	(762 KB)
Buoyancy	TXT	(44362 KB) !!! NEW !!!
Canopy height	TXT	(1079 KB)
Clonal growth organs	TXT	(768 KB)
Dispersal type	TXT	(833 KB)
Leaf distribution along the stem	TXT	(794 KB)
Leaf dry matter content	TXT	(1319 KB)
Leaf mass	TXT	(1379 KB)
Leaf size	TXT	(1272 KB)
Morphology of dispersal unit	TXT	(1154 KB)
Plant growth form	TXT	(447 KB)
Plant life span	TXT	(954 KB)
Releasing height	TXT	(500 KB)
Seed bank	TXT	(20977 KB)
Seed longevity	TXT	(12934 KB)



# R package: TR8: Extract traits data for plant species

- ▶ <https://cran.r-project.org/web/packages/TR8/vignettes/TR8.pdf>
- ▶ retrieves traits data for plant species from the following publicly available databases:
  - ▶ Biolflor <http://www.ufz.de/biolflor/index.jsp>
  - ▶ Ecological Flora of the British Isles <http://www.ecoflora.co.uk/>
  - ▶ LEDA traitbase <http://www.leda-traitbase.org/LEDAportal/>
  - ▶ Ellenberg values for Italian Flora
  - ▶ Flowering period for Italian Flora (data retrieved from <http://luirig.altervista.org/>)
  - ▶ Mycorrhizal intensity database
  - ▶ MycoFlor database
  - ▶ Catminat database
  - ▶ BROT



# R package: TR8: Extract traits data for plant species

## ► Example of retrieving data:

```
##writeLines("PATH="${RTOOLS40_HOME}\\\usr\\\bin;${PATH}", con = "~/.Renviron")

install.packages("TR8",type= "binary", dependencies = TRUE)
install.packages("XML", type = "binary")
library(TR8)

##See available traits
print(available_tr8)

## a vector containing a list of plant species names
intro_species<-c("Acer platanoides","Acer pseudoplatanus","Ailanthus altissima", "Betula pendula", "Prunus avium", "Populus alba", "Platanus occidentalis", "Rosa multiflora", "Vitis vinifera")
## a vector of traits (split, takes too long with all 5)
to_be_downloaded<-c("le_area","woodiness")
to_be_downloaded2<-c("leaf_thick","C.N.Ratio","Height")
## now run tr8 and store the results in the my_traits object
intro_traits<-tr8(species_list = intro_species,download_list = to_be_downloaded)
intro_traits2<-tr8(species_list = intro_species,download_list = to_be_downloaded2)

##see downloaded data
print(intro_traits)
print(intro_traits2)
```



# Plant Databases: Possible Applications

- ▶ Plant community composition  
(Dylan's project)
- ▶ Plant traits of insect host plants  
(Olivia's project)
- ▶ Plant DNA detection from insect guts  
(identification of SLF host plants)
- ▶ Feeding preference of insect herbivores  
(meta-analysis of grasshopper feeding preferences for exotic vs. native host plants)



# The NatureServe Explorer

► <https://explorer.natureserve.org/>

NatureServe  
EXPLORER

Welcome to the New NatureServe Explorer!

NatureServe is the definitive source for information on rare and endangered species and ecosystems in the Americas. This online guide provides information on the 100,000 species and ecosystems that we track.

Species     Ecosystems

...Search for species and ecosystems

Additional Search Options  
Search by location, taxonomic group, and conservation status.



searchable  
database

helpful for  
retrieving U.S.  
Invasive Species  
Impact Rank



# The NatureServe Explorer

NatureServe EXPLORER

Search About the Data About Us Help Adopt a Species English

Current Search Criteria: Clear All X  
Searching For: "Miscanthus sinensis" X

Refine Q Export All Results

1 record found.  
Results include only full species with accepted taxonomy and standard ecosystems. See Classification tab for more options.

Matching Species Records:

Plants - Vascular Plants - Flowering Plants - Monocots	NatureServe Status (on Rounded) ⓘ	Distribution
<i>Miscanthus sinensis</i> Chinese Silver Grass	GNR: Unranked	Canada: ON United States: AL, CA, CO, CT, DC, DE, FL, GA, IL, KY, LA, MA, MD, MI, MO, MS, NC, NJ, NY, OH, PA, RI, SC, TN, VA, WV



- ▶ Taxonomy
- ▶ Conservation status for each state

NatureServe EXPLORER

Search About the Data About Us Help Adopt a Species English

*Miscanthus sinensis*  
Chinese Silver Grass

GX GH G1 G2 G3 G4 G5 No Status Rank ⓘ

State/Provincial Conservation Status  
 Documented Distribution (No Data Available) ⓘ

Map of North America showing the distribution of *Miscanthus sinensis*. States are shaded according to their conservation status. A legend on the right defines the colors:

State/Provincial Conservation Status	Color
Presumed Extinct (SX)	Dark Gray
Possibly Extinct (SH)	Light Gray
Critically Imperiled (S1)	Red
Imperiled (S2)	Orange
Vulnerable (S3)	Yellow
Apparently Secure (S4)	Cyan
Secure (S5)	Blue
No Status Rank (SNR/SU/SNA)	Pink
Exotic	Light Blue
Hybrid	Light Green

Classification

Scientific Name: *Miscanthus sinensis* Anders.

Other Common Names: Chinese Silvergrass (EN), Chinese silvergrass (EN), *Miscanthus de Chine* (FR)

Kingdom: Plantae  
Phylum: Anthophyta  
Class: Monocotyledoneae  
Order: Poales  
Family: Poaceae  
Genus: Miscanthus

Concept Reference: Kartesz, J.T. 1994. A synonymized checklist of the vascular flora of the United States, Canada, and Greenland. 2nd edition. 2 vols. Timber Press, Portland, OR.

Name Used in Concept Reference: *Miscanthus sinensis*

NatureServe Unique Identifier: ELEMENT\_GLOBAL.2.147438

NatureServe Element Code: PMPOA44040

Related ITIS Names: *Miscanthus sinensis* Andersson (TSN 41874)



# EDDMapS

► <https://www.eddmaps.org/distribution/>

Distribution Maps

Plants      Insects      Diseases      Wildlife

Click on each species to view distribution maps.

Subject Name	Scientific Name	Records	Action
Canada thistle	<i>Cirsium arvense</i>	223,401	State   County   Point   List
Dalmatian toadflax	<i>Linaria dalmatica</i>	116,851	State   County   Point   List
Japanese honeysuckle	<i>Lonicera japonica</i>	114,237	State   County   Point   List
leafy spurge	<i>Euphorbia esula</i>	111,656	State   County   Point   List
spotted knapweed	<i>Centaurea stoebe ssp. micranthos</i>	107,631	State   County   Point   List
musk thistle	<i>Cirsium nutans</i>	87,332	State   County   Point   List
cogongrass	<i>Imperata cylindrica</i>	78,661	State   County   Point   List
bull thistle	<i>Cirsium vulgare</i>	71,132	State   County   Point   List
garlic mustard	<i>Alliaria petiolata</i>	68,077	State   County   Point   List
squarrose knapweed	<i>Centaurea virgata</i>	64,522	State   County   Point   List

Showing 1 to 10 of 3,347 entries

EDDMapS find • map • track

## Canada thistle *Cirsium arvense* (L.) Scop.

This species is Introduced in the United States

States Counties Points List Species Info

ID	User	Location	Date
8752498	Corey Schellenger Utah Department Of Agriculture	Morgan, Utah, United States	11/17/2020
8750751	Sara Jo Dickens Ecology Bridge	Summit, Utah, United States	11/09/2020
8750748	Sara Jo Dickens Ecology Bridge	Summit, Utah, United States	11/09/2020
8749886	Marisa Neuzil Teller-Park Conservation District	Park, Colorado, United States	11/08/2020
8749881	Marisa Neuzil Teller-Park Conservation District	Park, Colorado, United States	11/08/2020
8749880	Marisa Neuzil Teller-Park Conservation District	Park, Colorado, United States	11/08/2020
8749879	Marisa Neuzil Teller-Park Conservation District	Park, Colorado, United States	11/08/2020
8713159	Becky Bindl Daggett Weed Department	Daggett, Utah, United States	11/03/2020
8713165	Becky Bindl Daggett Weed Department	Daggett, Utah, United States	11/03/2020
8713169	Becky Bindl Daggett Weed Department	Daggett, Utah, United States	11/03/2020

Showing 1 to 10 of 218,584 entries

helpful for verification or retrieving species distribution



# The Global Biodiversity Information Facility

► <https://www.gbif.org/>

Multiple options to search

Helpful for exploring invasive species occurrences and distribution

It also has downloadable datasets



# The Global Biodiversity Information Facility

Classification

Select a species

Kingdom: Animalia

Phylum: Arthropoda

Class: Insecta

Order: Hemiptera

Family: Fulgoridae

Genus: *Lycorma* Stål, 1863

Species: *Lycorma delicatula* (White, 1845)  
≡ *Aphaena delicatula* White, 1845

Immediate children:

- Subspecies: *Lycorma delicatula* subsp. *delicatula*
- Subspecies: *Lycorma delicatula* subsp. *jole* Stål, 1863
- Subspecies: *Lycorma delicatula* subsp. *operosa* (Walker, 1858)

Unranked: BOLD:AAJ2800 (cf. *Lycorma delicatula*)

Get data How-to Tools Community About

SPECIES | ACCEPTED

source: Catalogue of Life

Basionym: *Aphaena delicatula* White, 1845

3,634 OCCURRENCES | 4 INFRASPECIES

OVERVIEW METRICS REFERENCE TAXON

3,419 OCCURRENCES WITH IMAGES

SEE GALLERY

3,507 GEOFERENCED RECORDS

Generated 2 days ago © OpenTreeMap contributors, © OpenMapTiles, GBIF

Any year 1937 - 2020 EXPLORE

Issues: Basionym relation derived

NAME USAGES APPLIED TO OCCURRENCES IN GBIF

- ▶ Images
- ▶ Occurrences
- ▶ Taxonomy, etc.



# The Global Biodiversity Information Facility

Classification

Select a species

Kingdom: Animalia

Phylum: Arthropoda

Class: Insecta

Order: Hemiptera

Family: Fulgoridae

Genus: *Lycorma* Stål, 1863

Species: *Lycorma delicatula* (White, 1845)

≡ *Aphaena delicatula* White, 1845

Immediate children

Subspecies: *Lycorma delicatula* subsp. *delicatula*

Subspecies: *Lycorma delicatula* subsp. *jole* Stål, 1863

Subspecies: *Lycorma delicatula* subsp. *operosa* (Walker, 1858)

Unranked: BOLD:AAJ2800 (cf. *Lycorma delicatula*)

IUCN STATUS

Not Evaluated

NE  
DD  
LC  
NT  
VU  
EN  
CR  
EW  
EX

Source: IUCN

APPEARS IN 4 CHECKLIST DATASETS:

- GBIF Backbone Taxonomy  
As *Lycorma delicatula* (White, 1845)
- Catalogue of Life  
As *Lycorma delicatula* (White, 1845)
- International Barcode of Life project (iBOL) Barcode Index Numbers (BINs)  
As *Lycorma delicatula* White, 1845
- The National Checklist of Taiwan  
As *Lycorma delicatula* (White, 1845)

APPEARS IN 15 OCCURRENCE DATASETS:

- iNaturalist Research-grade Observations  
View occurrences
- flora & fauna/NIBR  
View occurrences
- Geographically tagged INSDC sequences  
View occurrences
- Hemiptera (Homoptera) collection of National Museum of Nature and Science  
View occurrences
- MNH - Auchenorrhyncha Collection  
View occurrences
- ZFMK Homoptera collection  
View occurrences
- Frost Entomological Museum  
View occurrences
- International Barcode of Life project (iBOL)  
View occurrences
- The Hemiptera collection (EH) of the Muséum national d'Histoire naturelle (MNHN - Paris)  
View occurrences
- Earth Guardians Weekly Feed  
View occurrences

CITATION

NEXT

▶ Lists of occurrences

# The Global Biodiversity Information Facility



## downloadable results



# The NCBI GenBank database

► <https://www.ncbi.nlm.nih.gov/>

The screenshot shows the NCBI homepage. A red arrow points to the 'All Databases' dropdown menu in the top navigation bar. Another red arrow points to the 'BLAST' link in the 'Popular Resources' sidebar.

**Welcome to NCBI**  
The National Center for Biotechnology Information advances science and health by providing access to biomedical and genomic information.  
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Identify an NCBI tool for your data analysis task

**Research**  
Explore NCBI research and collaborative projects

**Popular Resources**  
PubMed  
Bookshelf  
PubMed Central  
**BLAST**  
Nucleotide  
Genome  
SNP  
Gene  
Protein  
PubChem

**NCBI News & Blog**  
Read assembly and Annotation Pipeline Tool (RAPT) is available for use and testing  
24 Nov 2020  
We are excited to launch a beta version  
New Columns added to the web BLAST Descriptions Table  
23 Nov 2020  
In response to your requests, we have added new columns to the Descriptions  
Customize columns in NCBI's Multiple Sequence Alignment Viewer  
20 Nov 2020  
We're excited to report that researchers using the NCBI Multiple Sequence

Species identification

Retrieving sequences for a certain DNA locus



# The NCBI GenBank database

NCBI Resources How To

Nucleotide Nucleotide Miscanthus sinensis trnL

Get the latest public health information from CDC: <https://www.coronavirus.gov>.  
Get the latest research from NIH: <https://www.nih.gov/coronavirus>.  
Find NCBI SARS-CoV-2 literature, sequence, and clinical content: <https://www.ncbi.nlm.nih.gov/sars-cov-2/>.

COVID-19 is an emerging, rapidly evolving situation.

Species Plants (116) Customize ...

Molecule types genomic DNA/RNA (116) Customize ...

Source databases INSDC (GenBank) (116) Customize ...

Sequence Type Nucleotide (116)

Genetic compartments Chloroplast (107) Plastid (107)

Sequence length Custom range ...

Release date Custom range ...

Revision date Custom range ...

Clear all Show additional filters

Summary 20 per page Sort by Default order

Send to: Filters: Manage Filters

See **trnL** tRNA in the Gene database  
**trnL** reference sequences

Items: 1 to 20 of 116

1. **Misanthus sinensis** tRNA-Leu (trnL) gene, partial sequence; **trnL**-**trnF** intergenic spacer, complete sequence; and tRNA-Phe (trnF) gene, partial sequence; chloroplast

2. 765 bp linear DNA Accession: KP711149.1 GI: 961593718 Taxonomy GenBank FASTA Graphics PopSet

3. 99 bp linear DNA Accession: LC057222.1 GI: 1033728843 Taxonomy GenBank FASTA Graphics

4. 499 bp linear DNA Accession: HQ522044.1 GI: 343530317 Taxonomy GenBank FASTA Graphics PopSet

5. 456 bp linear DNA Accession: AB168050.1 GI: 84469230 Taxonomy GenBank FASTA Graphics

6. 456 bp linear DNA Accession: AB168049.1 GI: 84469229 Taxonomy GenBank FASTA Graphics

7. 456 bp linear DNA Accession: AB168048.1 GI: 84469228 Taxonomy GenBank FASTA Graphics PopSet

8. **Misanthus sinensis** var. **purpurascens** tRNA-Leu (trnL) gene, partial sequence; **trnL**-**trnF** intergenic spacer, complete sequence; and tRNA-Phe (trnF) gene, partial sequence; chloroplast

764 bp linear DNA Accession: KP711148.1 GI: 961593717 Taxonomy GenBank FASTA Graphics PopSet

9. **Misanthus sinensis** subsp. **condensatus** chloroplast **trnL** gene, intron, partial sequence; isolate: OGAA0405

Page 1 of 6 Next > Last >

Results by taxon Top Organisms [Tree]  
Misanthus sinensis (87)  
Misanthus sacchariflorus (22)  
Misanthus x giganteus (4)  
Misanthus polystachyus (1)  
All other taxa (1)

More...

Find related data Database: Select

Search details ("Misanthus sinensis"[Organism] OR Misanthus sinensis[All Fields]) AND trnL[All Fields]

Search See more...

Recent activity Turn Off Clear

Misanthus sinensis trnL (116) Nucleotide

Misanthus sinensis (4670) Nucleotide

poto leafhopper (5) Nucleotide

InsectBase: a resource for insect genomes and transcriptomes

Acer platanoides tRNA-Leu (trnL) gene, partial sequence; chloroplast Nucleotide

See more...

Nucleotide  
Species name and DNA locus



# The NCBI GenBank database

NCBI Resources How To

Nucleotide Nucleotide Misanthus sinensis trnI Create alert Advanced

COVID-19 is an emerging, rapidly evolving situation.  
Get the latest public health information from CDC: <https://www.cdc.gov/coronavirus>  
Get the latest research information from NIH: <https://www.nih.gov/coronavirus>

Find NCBI SARS-CoV-2 Research Data: <https://www.ncbi.nlm.nih.gov/sars-cov-2/>

Help

Species Plants (116) Customize... Molecule types genomic DNA/RNA (116) Customize... Source databases INSDC (GenBank) (116) Cutt... Sequer... Nucleic... Genetic... Chromosome... Chloplast (107) Plasto (107) Sequence length Custom range... Release date Custom range... Revision date Custom range... Clear all Show additional filters

Summary • 20 per page • Sort by Default order • Send to: Filters: Manage Filters

See trnI\_rRNA in the Gene database  
trnI reference sequences

Items: 1 to 20 of 116

1.  **Misanthus sinensis** rRNA-Leu (trnI)\_gene\_partial sequence\_trnI-tmF intergenic spacer 1, complete sequence and RNA-Phe (trnI)\_gene\_partial sequence\_chloroplast 765 bp linear DNA Accession: KPT11481\_01 GI: 961593718 Taxonomy GerBase FASTA Graphic PosSet

2. **Misanthus sinensis** chloroplast DNA trnI\_intron\_partial sequence 96 bp linear DNA Accession: L205722\_01 GI: 1033728443 Taxonomy GerBase FASTA Graphic PosSet

3. **Misanthus sinensis** voucher KWNUTJ5836 rRNA-Leu (trnI)\_gene\_partial sequence\_chloroplast 499 bp linear DNA Accession: HQ202441\_01 GI: 343533017 Taxonomy GerBase FASTA Graphic PosSet

4. **Misanthus sinensis** var condensatus chloroplast trnI\_gene\_partial sequence\_helkyltpe\_C 456 bp linear DNA Accession: AB186001\_01 GI: 84469230 Taxonomy GerBase FASTA Graphic PosSet

5. **Misanthus sinensis** var condensatus chloroplast trnI\_gene\_partial sequence\_helkyltpe\_B 456 bp linear DNA Accession: AB186004\_01 GI: 84469229 Taxonomy GerBase FASTA Graphic PosSet

6. **Misanthus sinensis** var condensatus chloroplast trnI\_gene\_partial sequence\_helkyltpe\_A 456 bp linear DNA Accession: AB186004\_01 GI: 84469228 Taxonomy GerBase FASTA Graphic PosSet

7. **Misanthus sinensis** var ouroussensis rRNA-Leu (trnI)\_gene\_partial sequence\_tmL-tmF intergenic spacer complete sequence and RNA-Phe (trnI)\_gene\_partial sequence\_chloroplast 96 bp linear DNA Accession: KPT11481\_01 GI: 961593717 Taxonomy GerBase FASTA Graphic PosSet

8. OGAA0405 **Misanthus sinensis** subsp. condensatus chloroplast trnI\_gene\_intron\_partial sequence\_isolate.

Results by taxon Top Organisms [Tree] Misanthus sinensis (37) Misanthus x acuminatus (22) Misanthus x giganteus (4) Misanthus punctulatus (1) Misanthus sibiricus (1) All other taxa (17) More...

Find related data Database: Select

Find more...

Search details ("Misanthus sinensis" [Organism] OR "Misanthus sinensis" [All Fields]) AND trnI [All Fields]

Search See more...

Recent activity Tax ID Cat

Q. Misanthus sinensis trnI (116) Nucleotide

Q. Misanthus sinensis (4670) Nucleotide

Q. potato leafhopper (5) Nucleotide

Q. InsectBase: a resource for insect genomes and transcriptomes Nucleotide

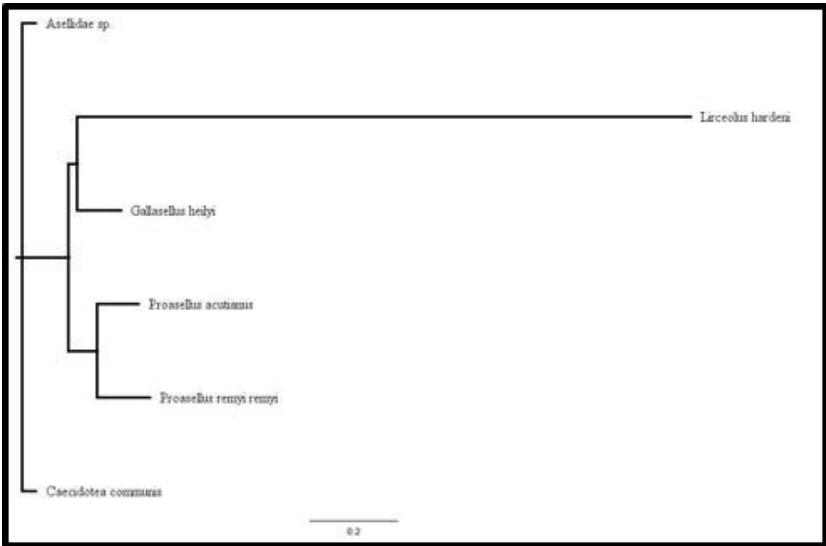
Q. Acer palmatum rRNA-Leu (trnI)\_gene\_partial sequence\_chloroplast Nucleotide

See more...



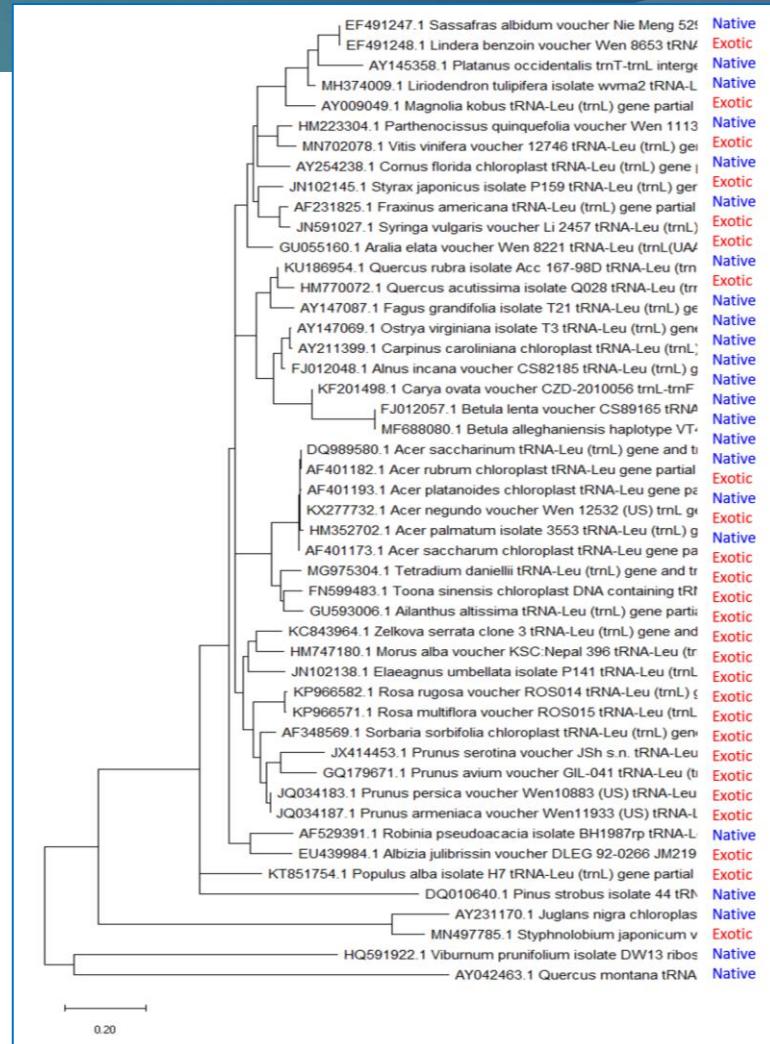
# The NCBI GenBank database

## ► Possible applications



- Phylogenetic relationships of isopods (Nina's project)

- Phylogenetic relationships of SLF host plants (Olivia's project)





# InsectBase

► <http://www.insect-genome.com/>

The screenshot shows the InsectBase homepage. The left sidebar has a green header and contains links: Home, Data, Search, BLAST, GBrowse, iPPathway, Ortholog, Gene Family, iFacebook, ncRNA, Transposon, UTR & CDS, Get Help, Submit, Links, About Us, and Contact us (with an email address: lfei1@zj.edu.cn). Below these is a small map of the world with the text "5,215 Projects Oct 20th Nov 20th". The main content area has a blue header with the InsectBase logo and the text "Integrated genome and transcriptome resources for insect". It features images of a butterfly, a spider, and a DNA helix. Below the header is a paragraph about the database's scope and history, followed by a "Citation" section and a note about browser compatibility. The central part of the page includes a "Quick start" search bar with fields for "Program" (set to "blastn"), "E-value" (set to "10"), and "Database" (set to "All species's RNA"). There is also a "Fasta" input field with a "what is FASTA format?" link. To the right is an "Announcement" box about a female genome assembly from the IAS Genomics Consortium. At the bottom is a pie chart titled "The distribution of 138 insect genomes" showing the percentage of genomes by order: Diptera (48.6%), Hymenoptera (21.0%), Lepidoptera (8.0%), Orthoptera (0.7%), Phasmida (0.7%), Strepsiptera (0.7%), Thysanoptera (0.7%), and Trichoptera (0.7%).

Very similar to the NCBI  
GenBank database



# Odonate Phenotypic DataBase

- ▶ [http://www.odonatenphenotypicdatabase.org/shiny/odonates/?\\_inputs\\_&choose\\_species=%22%22](http://www.odonatenphenotypicdatabase.org/shiny/odonates/?_inputs_&choose_species=%22%22)

The screenshot shows the 'Odonate Phenotypic DataBase' shiny app. The title 'Odonate Phenotypic DataBase' is at the top. On the left, there's a 'Look Up' section with dropdown menus for 'Select family', 'Select genus', and 'Select species', each with a 'Choose' option. Below it is a 'Download' section with buttons for 'Complete Database' and 'Variable Definitions'. The main area contains several tables for different phenotypic traits:

- Genus species**: Contains three columns: 'Body Length', 'Front Wing Length', and 'Hind Wing Length'.
- Size ♂**: Contains three columns: 'Body Length', 'Front Wing Length', and 'Hind Wing Length'.
- Size ♀**: Contains three columns: 'Body Length', 'Front Wing Length', and 'Hind Wing Length'.
- Body Colors ♂**: Contains three columns: 'Body Colors', 'Body Color Type(s)', and 'Body Pattern Type(s)'.
- Morphisms**: Contains three columns: 'Strength of Sexual Dimorphism', 'Polymorphisms by Sex', and 'Polymorphisms by Region'.
- Behaviour ♂**: Contains three columns: 'Mate Guarding Behaviour', 'Flight Mode', and 'Territoriality'.
- Location and Habitat**: This section is currently empty.

Decorative elements include small dragonfly and fly icons scattered across the page.



# Insect Images

► <https://www.insectimages.org/>

The screenshot shows the Insect Images website interface. A red arrow points from the search bar on the main navigation bar to the 'View Images' button on the Hemiptera page. Another red arrow points from the 'Browse By' dropdown menu on the left to the 'Image Categories' section on the right.

**Hemiptera**

Kingdom: Animalia  
Phylum: Arthropoda  
Subphylum: Atelocerata  
Class: Hexapoda (including Insecta)  
Infraclass: Neoptera  
Subclass: Pterygota  
Order: Hemiptera

15,443 Images

Search:

**Image Categories**

**Insect Orders:**

- ants, bees, sawflies, wasps, and allies Hymenoptera
- beetles and weevils Coleoptera
- bugs, cicadas, aphids and scale insects Hemiptera
- butterflies, moths, and skippers Lepidoptera
- cockroaches Blattodea
- damselflies and dragonflies Odonata
- earwigs Dermaptera
- flies Diptera
- grasshoppers, katydids, crickets Orthoptera
- lacewings, antlions and others Neuroptera
- lice Phthiraptera
- mantids Mantodea
- silverfish, firebrats Thysanura
- termites Isoptera
- thrips Thysanoptera
- walkingsticks Phasmatoptera

**Related Organisms:**

- Centipedes
- Crabs, Crayfish, Lobsters
- Harvestmen
- Millipedes
- Mites and ticks
- Pill Bugs and woodlice
- Scorpions
- Spiders

**View Subjects** **View Images Details** **View Images**

Detailed description: The screenshot displays the Hemiptera page of the Insect Images website. The page header includes the site's logo, a search bar, and a red 'View Images' button. Below the header, detailed taxonomic information for Hemiptera is provided, followed by a count of 15,443 images. A search input field is also present. The main content area is divided into two sections: 'Image Categories' and 'Related Organisms'. The 'Image Categories' section lists various insect orders with their corresponding scientific names and common names. The 'Related Organisms' section lists other arthropods. On the right side of the page, there is a grid of 12 thumbnail images of different Hemiptera species, each with a caption and a small ID number. A large blue arrow on the left side of the page points from the main navigation bar to the 'View Images' button, and another red arrow points from the 'Browse By' dropdown menu to the 'Image Categories' section.

# U.S. National Insect Collection Database



- ▶ <https://catalog.data.gov/dataset/u-s-national-insect-collection-database>

DATA.GOV

DATA CATALOG

SEARCH Data.Gov

DATA TOPICS - RESOURCES STRATEGY DEVELOPERS CONTACT

Organizations / Datasets

Submit Data Story Report Data Issue

Department of ... / Agricultural Research ...

U.S. National Insect Collection Database

Metadata Updated: February 21, 2020

Access & Use Information

Public: This dataset is intended for public access and use.

Creative Commons CCZero

Downloads & Resources

Web Page (55 views) Visit page

Web Page (25 views) Visit page

Dates

Metadata Created Date: February 21, 2020

Metadata Updated Date: February 21, 2020

Metadata Source

Data.json Metadata Download Metadata

Harvested from USDA JSON

acari alyrodomorpha aphid aphidomorpha coccomorpha exoskeletons insects mites organisms psyllids psyllophora scale-insects thrips thysanoptera whitefly

Additional Metadata

Smithsonian National Museum of Natural History

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NMNH Home | NMNH Research & Collections | Entomology | Collections

Search the Department of Entomology Collections

Entomology Collections Keyword Search General Search Types Search Specimen Inventory Species Inventory Genetic Sample Search

Entomology Collection

The U.S. National Entomological Collection (USNM) traces its origins in part to the acquisition of the U.S. Department of Agriculture Collection of 138,000 specimens donated in 1885. These specimens became the foundation of one of the world's largest and most important accessible entomological collections, with over 33 million specimens taken care of by the combined staff of three government agencies: the Smithsonian Institution; the Systematic Entomology Laboratory (Agricultural Research Service, United States Department of Agriculture); and the Walter Reed Biosystems Unit (Walter Reed Army Institute of Research).

Approximately 450,000 records are currently available in this online catalog, including Genetic Samples, and the Primary Type, Specimens, and Species Inventories. Also available are the Illustration Archive records that include Images and data about published scientific illustrations.

Search the Entomology Collection

We recommend using Search by Field (Scientific Name or Precise Locality) for best results, but you can also search by Keywords. You may also restrict your search to Genetic Samples, Primary Type Specimens, Species Inventory, Specimen Inventory, records with Images, records with geo-referenced localities, or Illustrations.

Search results are sorted by taxonomic group and limited to 5,000 records. If you need to retrieve a larger record set, please contact the Department of Entomology's Collection Information Manager. You can also customize the sort and fields to be seen in the results.

Help

See the Help tab to learn more about searching and then exploring your returned results (sorting, exporting, etc.).

Featured Searches

Search the Primary Type Specimens Catalog

Search the Specimen Inventory

Search the Species Inventory

Search the Illustration Archive

NMNH Data Access Policy

Smithsonian Institution | Terms of Use | Privacy Policy | Home | Press | Contact Us | Host an Event | Donate



# ESA Common Names of Insects Database

► <https://www.entsoc.org/common-names>

The screenshot shows the homepage of the Entomological Society of America's Common Names of Insects Database. At the top, there is a navigation bar with links for About, Resources (which is the active page), Events, Career Center, Publications, Policy & Initiatives, and News. Below the navigation bar, the main content area has a sub-navigation bar with links for Home and Resources. The main title is "Common Names of Insects Database". A brief description states: "The ESA Common Names database is an essential reference for anyone who works with insects. It includes more than 2,000 common names and is searchable by common name, scientific name, author, order, family, genus, and species." A note for interested individuals to propose new common names is also present. Below this, a section for taxonomy updates is mentioned. A search form at the bottom allows users to enter search terms in various taxonomic fields (Common Name, Scientific Name, Order, Family, Genus, Species, Author) and click "APPLY". To the right, a "USEFUL LINKS" sidebar lists various resources like the full list sorted by common name, scientific name, or taxa, as well as the committee on common names roster. At the bottom right, there is a "SEARCH THE ESA ARCHIVES" button.

HOME / RESOURCES

## Common Names of Insects Database

The ESA Common Names database is an essential reference for anyone who works with insects. It includes more than 2,000 common names and is searchable by common name, scientific name, author, order, family, genus, and species.

Interested individuals may propose new common names by submitting the Common Names Proposal Form that is reviewed by the Committee on the Common Names of Insects and voted on by the ESA Governing Board. Detailed information on the submission and approval process is available through the links in the sidebar to the right.

Our understanding of taxonomy evolves over time, and although the Committee on the Common Names of Insects does work to update the taxonomic information included in the ESA Common Names database, sometimes the committee is not aware of recent changes. If you see outdated taxonomic information in the ESA Common Names list, you can help by notifying the committee at [pubs@entsoc.org](mailto:pubs@entsoc.org).

Enter a search term in one or more of the filter fields below and click APPLY to see the results.

Common Name  Scientific Name   
Order  Family   
Genus  Species   
Author

APPLY

Select any filter and click on Apply to see results

SEARCH THE ESA ARCHIVES  SEARCH

### USEFUL LINKS

Full List Sorted by Common Name (PDF as of 4/16/20)  
Full List Sorted by Scientific Name (PDF as of 4/16/20)  
Full List Sorted by Taxa (PDF as of 4/16/20)  
Use and Submission of Common Names  
Common Name Proposal Form  
Proposed Names  
Committee on Common Names Roster

FEATURED EVENTS

# Additional helpful resources

## ► BugGuide

<https://bugguide.net/node/view/15740>



## ► Illinois Natural History Survey: Insect Collection

<https://insect.inhs.illinois.edu/data/>



## ► SCALETOOL / Species Traits Databases

<http://scales.ckff.si/scaletool/?menu=6>



The screenshot shows the homepage of the SCALETOOL website. At the top, there's a banner with the text "Securing the Conservation of biodiversity across Administrative Levels and spatial, temporal, and Ecological Scales" and images of a fox, a butterfly, an eagle, and a deer. Below the banner, the main navigation menu includes "Introduction", "Drivers", "Biodiversity", "Policies and management", and "Connectivity and protected areas". On the left, a sidebar titled "SCALETOOL" lists various databases and tools: Reptile Trait Database, Minimum Area Requirements of species, Plant Trait Database, Wasps & Bees Database, BioMat, Up- and downscaling methods, Conservation prioritization, Active surveys and initiatives, Case Studies, and Sitemap. The main content area features several sections with links to detailed information: "Species traits databases" (describing traits as characteristics of species), "BIOLFLOR" (a database of plant species and traits), "Cavity-nesting Wasp and Bee Traits" (a database of wasp and bee traits), "CLIMBER" (a dataset on butterfly climatic niches), "Dispersal database" (a relational database of dispersal information), "European amphibian life-history traits Database" (information on amphibian life history traits), "European Bird Traits Database" (data on bird traits), "European Butterfly Trait Database" (data on butterfly traits), "LEDA" (a database of plant traits for North-West Europe), "Minimum Area Requirements of species" (estimates from literature for 216 species), and "Plant dispersal distances and traits" (maximum dispersal distance data for plant species).

Thank you!

Happy Data Mining!

