

Instructions for using the Freshwater Biological Traits Database

Important note: the traits database is under development. This prototype contains draft and test data and is for demonstration purposes only.

There are several different options for downloading data.

The screenshot shows a web application interface with a blue sidebar on the left containing navigation links: Home, Background, Database search, Instruction, Data source, Metadata, and Import new data. The main content area is titled "Database search" and includes several options for downloading data: "Download all traits information" and "Download all traits information - transposed". A note explains that the transposed format uses trait names as file names. Below this, a section titled "Please select one or more options to search." includes a note that removed items are appended to the end of the original list. There are three selection sections: "TaxaList" with a list of species names and "Add >>" / "<< Remove" buttons; "State: (Optional)" with a list of US states and similar buttons; and "Traits Group (Optional)" with a list of trait categories and similar buttons. At the bottom, there are "Confirm", "Search", and "Reset" buttons, followed by the instruction "Please confirm your selection before search."

Database search

[Download all traits information](#)

[Download all traits information - transposed](#)

(Transposed format takes traits data from the table and uses them as file names in the new table. It should provide more user-friendly interface.)

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

- Abedus
- Abedus herberti
- Abedus indentatus
- Ablabesmyia
- Ablabesmyia annulata
- Ablabesmyia aspera
- Ablabesmyia cinctipes
- Ablabesmyia hauberi
- Ablabesmyia illinoensis

State: (Optional)

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Florida

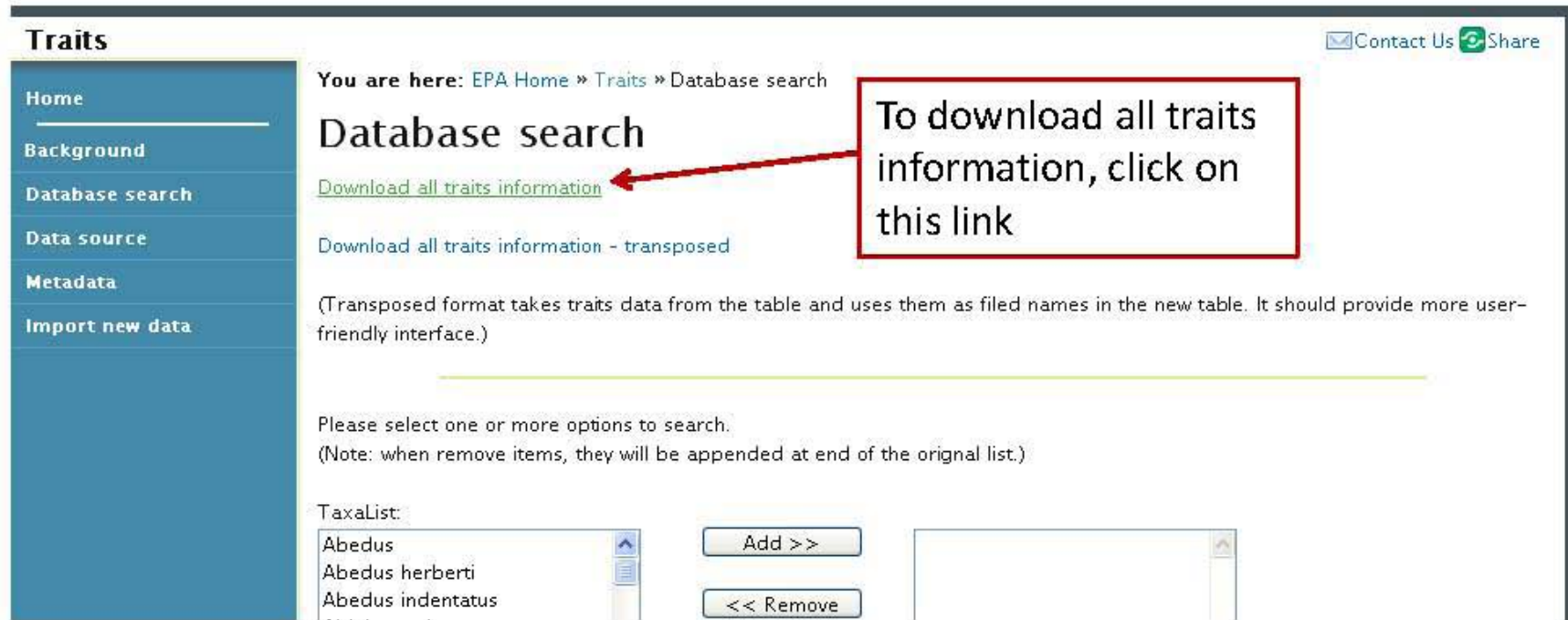
Traits Group (Optional): [Read more information about traits group.](#)

- Morphology
- Life history
- Resource Acquisition Preferenc
- Mobility
- Tolerance

[Confirm](#) [Search](#) [Reset](#)

Please confirm your selection before search.

OPTION 1: DOWNLOAD ALL DATA

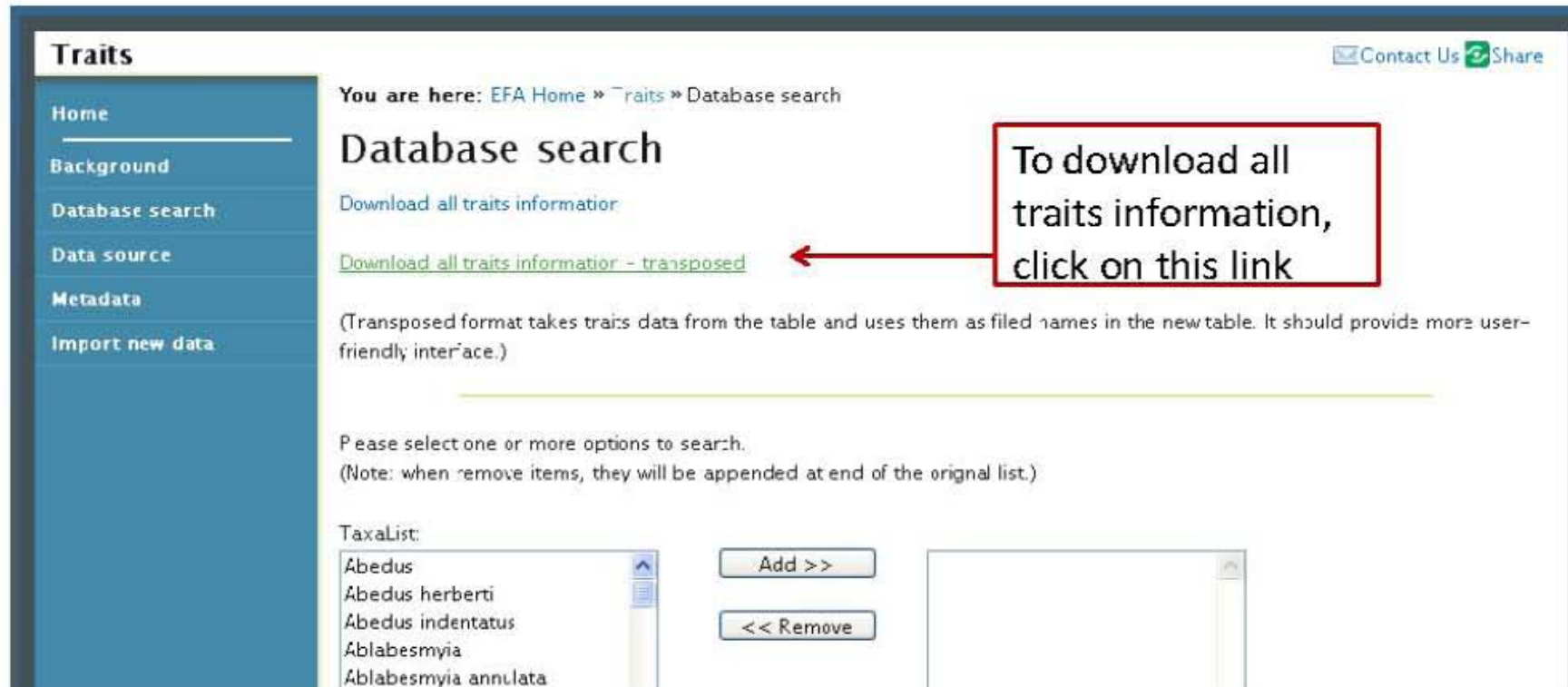


The screenshot shows the EPA Traits Database search page. On the left is a blue sidebar with navigation links: Home, Background, Database search, Data source, Metadata, and Import new data. The main content area has a breadcrumb trail: "You are here: EPA Home » Traits » Database search". Below this is the heading "Database search" and a link "Download all traits information" which is highlighted with a red box and a red arrow. To the right of the box is the text: "To download all traits information, click on this link". Below the link is the text "Download all traits information - transposed" and a note: "(Transposed format takes traits data from the table and uses them as filed names in the new table. It should provide more user-friendly interface.)". Further down, there is a section for searching with the text "Please select one or more options to search. (Note: when remove items, they will be appended at end of the original list.)". This section includes a "TaxaList:" with a scrollable list containing "Abedus", "Abedus herberti", and "Abedus indentatus", and buttons for "Add >>" and "<< Remove".

To download all the data (i.e. you do not want to select for taxa, state or trait group), click on the 'Download all traits information' link.

A zipped Excel file titled 'FreshwaterBioTraits_20100927.zip' will automatically download onto your computer.

OPTION 2: DOWNLOAD ALL DATA – TRANSPOSED FORMAT



The screenshot shows the 'Traits Database search' page. On the left is a blue sidebar with navigation links: Home, Background, Database search, Data source, Metadata, and Import new data. The main content area has a breadcrumb trail: 'You are here: EFA Home » Traits » Database search'. Below this is the title 'Database search' and a link 'Download all traits information'. A red box highlights the link 'Download all traits information - transposed', with a red arrow pointing to it from a text box that says 'To download all traits information, click on this link'. Below the link is a note: '(Transposed format takes traits data from the table and uses them as file names in the new table. It should provide more user-friendly interface.)'. Further down, there is a search instruction: 'Please select one or more options to search. (Note: when remove items, they will be appended at end of the original list.)'. At the bottom, there is a 'TaxaList' section with a list of taxa: 'Abedus', 'Abedus herberti', 'Abedus indentatus', 'Ablabesmyia', and 'Ablabesmyia annulata'. There are 'Add >>' and '<< Remove' buttons between the list and an empty search results box.

To download all the data in a transposed format, click on the 'Download all traits information - transposed' link.

A zipped Excel file titled 'FreshwaterBioTraits_Transposed_20100927.zip' will automatically download onto your computer.

Why the two formats?

Data is stored in the database in the format shown below because it is more efficient than the transposed format (it eliminates all the blanks, of which there are many in this database).

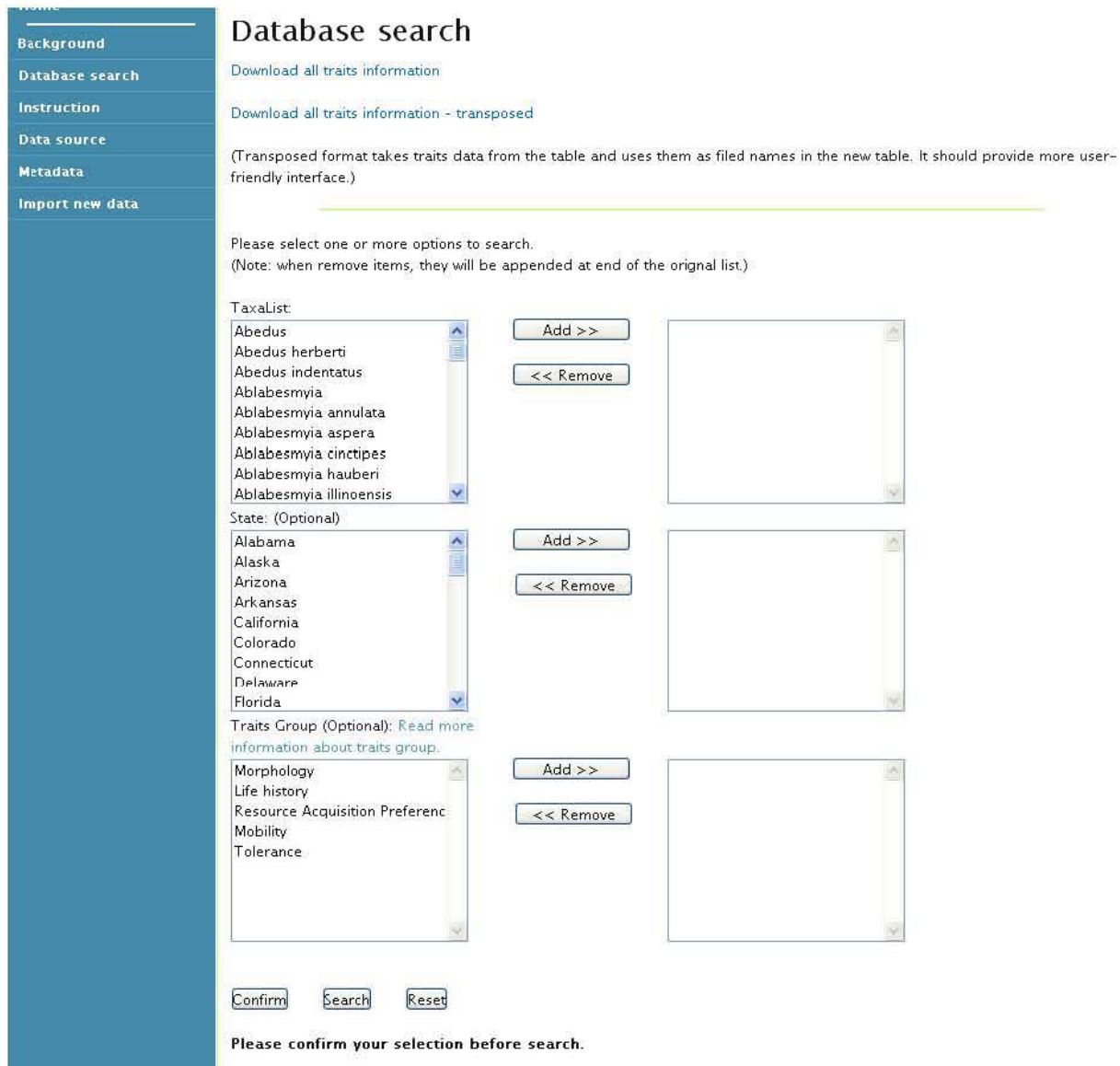
A	B	C	D	E	F
TAXON	CATEGORY_NAME	TRAITS_NAME	VALUE_YN	VALUE_NUMBER	VALUE_TEXT
Acentrella	Waterbody Type	Second-fourth order streams	Y		
Acentrella	Morphology - Adaptation	Suckers	Y		
Acentrella	Mobility	Swimming ability			strong
Acentrella	Tolerance	Thermal Indicator			cold
Acentrella	Tolerance	Thermal optima rank		3	
Acentrella	Tolerance	Thermal optima value		16.92	
Acentrella	Tolerance	Thermal tolerance rank		4	
Acentrella	Resource Acquisition Preference	Vertical habitat position benthic	Y		
Acentrella	Resource Acquisition Preference	Vertical habitat position	Y		
Acentrella	Life history - emergence	Voltinism			> 1 Generation per year

Although it may be more efficient at storing data, it is likely to be less user-friendly for many of you, so we wanted to provide you with the option of downloading the data in a transposed format, as shown below (trait names are column headings, etc.).

TSN	Taxon	Study_Citation_abbrev	WB_type_headwater	WB_type_2-4_order	Max_body_size	Body_shape_abbrev	ThermalOptima
100801	Acentrella	EPA GCRP North Carolina (2010)		1		streamlined	16.93
100801	Acentrella	EPA GCRP Maine (2010)		1		streamlined	20.61
100801	Acentrella	Rankin and Yoder (2009)		1			23.90
100801	Acentrella	Yuan (2006)		1			17.00
100801	Acentrella	USGS (2006)		1			
100801	Acentrella	Poff et al. (2006)		1	Small (length < 9 mm)	streamlined	
609528	Acentrella alachua	USGS (2006)		1	Small (length < 9 mm)		
568571	Acentrella ampla	USGS (2006)		1			
568571	Acentrella ampla	USGS (2006)		1			
568571	Acentrella ampla	USGS (2006)		1	Small (length < 9 mm)		
609529	Acentrella feropagus	USGS (2006)			Small (length < 9 mm)	streamlined	
568572	Acentrella	Oregon DEQ (2008)		1			22.20

OPTION 3: DOWNLOAD SELECTED DATA

You can select for taxa, state (optional) and/or trait group (optional)



Database search

[Download all traits information](#)

[Download all traits information - transposed](#)

(Transposed format takes traits data from the table and uses them as filed names in the new table. It should provide more user-friendly interface.)

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

- Abedus
- Abedus herberti
- Abedus indentatus
- Ablabesmyia
- Ablabesmyia annulata
- Ablabesmyia aspera
- Ablabesmyia cinctipes
- Ablabesmyia hauberi
- Ablabesmyia illinoensis

State: (Optional)

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Florida

Traits Group (Optional): [Read more information about traits group.](#)

- Morphology
- Life history
- Resource Acquisition Preferenc
- Mobility
- Tolerance

Please confirm your selection before search.

SELECTING FOR A TAXON OR MULTIPLE TAXA – Step 1: Highlight the taxa of interest

The taxa list is sorted alphabetically.

You can select a single taxon or multiple taxa.

To select a single taxon, click on the name of the taxon. The name will then be highlighted.

To select multiple taxa, if sequential, you can hold the shift key down while left clicking on the taxa of interest. If not sequential, use Ctl+Shift to make your selections, or select each taxa and click on 'Add' individually.

You will see the selected taxa highlighted in blue.

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

Abedus	<input type="button" value="Add >>"/>	
Abedus herberti	<input type="button" value="Add >>"/>	
Abedus indentatus	<input type="button" value="Add >>"/>	
Ablabesmyia	<input type="button" value="Add >>"/>	
Ablabesmyia annulata	<input type="button" value="Add >>"/>	
Ablabesmyia aspera	<input type="button" value="Add >>"/>	
Ablabesmyia cinctipes	<input type="button" value="Add >>"/>	
Ablabesmyia hauberi	<input type="button" value="Add >>"/>	
Ablabesmyia illinoensis	<input type="button" value="Add >>"/>	

State: (Optional)

Alabama	<input type="button" value="Add >>"/>	
Alaska	<input type="button" value="Add >>"/>	
Arizona	<input type="button" value="Add >>"/>	
Arkansas	<input type="button" value="Add >>"/>	
California	<input type="button" value="Add >>"/>	
Colorado	<input type="button" value="Add >>"/>	
Connecticut	<input type="button" value="Add >>"/>	
Delaware	<input type="button" value="Add >>"/>	
Florida	<input type="button" value="Add >>"/>	

Traits Group (Optional): [Read more information about traits group.](#)

Morphology	<input type="button" value="Add >>"/>	
Life history	<input type="button" value="Add >>"/>	
Resource Acquisition Preferenc	<input type="button" value="Add >>"/>	
Mobility	<input type="button" value="Add >>"/>	
Tolerance	<input type="button" value="Add >>"/>	

<< Remove

<< Remove

<< Remove

SELECTING FOR A TAXON OR MULTIPLE TAXA – Step 2: Click ‘Add’

After you click ‘Add,’ the names of the highlighted taxa will appear in the box to the right, as shown.

If you would like to remove any of these taxa from this list, click ‘Remove.’

The names of the removed taxa will be appended to the bottom of the taxa list. If you want to resort the taxa list, click the ‘Reset’ button at the bottom of the page.

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

<ul style="list-style-type: none">Ablabesmyia asperaAblabesmyia cinctipesAblabesmyia hauberiAblabesmyia illinoensisAblabesmyia jantaAblabesmyia mallochiAblabesmyia monilisAblabesmyia ornataAblabesmyia parajanta	<input type="button" value="Add >>"/>	<ul style="list-style-type: none">AbedusAbedus herbertiAbedus indentatusAblabesmyiaAblabesmyia annulata
State: (Optional) <ul style="list-style-type: none">AlabamaAlaskaArizonaArkansasCaliforniaColoradoConnecticutDelawareFlorida	<input type="button" value="Add >>"/> <input type="button" value="<< Remove"/>	
Traits Group (Optional): Read more information about traits group. <ul style="list-style-type: none">MorphologyLife historyResource Acquisition PreferencMobility	<input type="button" value="Add >>"/> <input type="button" value="<< Remove"/>	

SELECTING FOR A STATE (OPTIONAL) –

You have the option of selecting a state or multiple states.

You can do so by following the same instructions as above.

If you do not select a state, all records will be shown.

IMPORTANT NOTE: search on this field with caution; this type of geographical information has not been entered for all of the records.

The screenshot shows a web interface with three main sections for selection. Each section has a list of items on the left, two buttons ('Add >>' and '<< Remove') in the middle, and a list of selected items on the right.

- TaxaList:** A list of species names including *Ablabesmyia aspera*, *Ablabesmyia cinctipes*, *Ablabesmyia hauberi*, *Ablabesmyia illinoensis*, *Ablabesmyia janta*, *Ablabesmyia mallochi*, *Ablabesmyia monilis*, *Ablabesmyia ornata*, and *Ablabesmyia parajanta*. The right list is empty.
- State: (Optional):** A list of US states including Alabama, Alaska, Arizona, Delaware, Florida, Georgia, Hawaii, Idaho, and Illinois. The right list contains Arkansas, California, Colorado, and Connecticut.
- Traits Group (Optional):** A list of traits including Morphology, Life history, Resource Acquisition Preferenc, Mobility, and Tolerance. The right list is empty.

At the bottom, there are three buttons: 'Confirm', 'Search', and 'Reset'. Below them is the text: 'Please confirm your selection before search.'

SELECTING FOR A TRAIT GROUP (OPTIONAL) –

You have the option of selecting one or multiple trait groups.

You can do so by following the same instructions as above.

If you do not select a trait group, all records will be shown.

To see which traits are included in each trait group, click on the 'read more information about traits group' link.

Please select one or more options to search.
(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

Ablabesmyia aspera	↑
Ablabesmyia cinctipes	⋮
Ablabesmyia hauberi	↓
Ablabesmyia illinoensis	
Ablabesmyia janta	
Ablabesmyia mallochi	
Ablabesmyia monilis	
Ablabesmyia ornata	
Ablabesmyia parajanta	↓

State: (Optional)

Alabama	↑
Alaska	⋮
Arizona	↓
Delaware	
Florida	
Georgia	
Hawaii	
Idaho	
Illinois	↓

Traits Group (Optional): [Read more information about traits group.](#)

Life history	↑
Mobility	⋮
Tolerance	↓

Buttons: Add >> << Remove

Abedus	↑
Abedus herberti	⋮
Abedus indentatus	↓
Ablabesmyia	
Ablabesmyia annulata	↓

Buttons: Add >> << Remove

Arkansas	↑
California	⋮
Colorado	↓
Connecticut	↓

Buttons: Add >> << Remove

Morphology	↑
Resource Acquisition Preferenc	⋮
	↓

Buttons: Add >> << Remove

Confirm Search Reset

Please confirm your selection before search.

4. CLICK 'CONFIRM'

Important!

Do not forget to do this, otherwise you will get an error message when you try to do the data download.

After you click 'confirm,' the selections you have made will be highlighted in gray.

Please select one or more options to search.

(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

Ablabesmyia aspera Ablabesmyia cinctipes Ablabesmyia hauberi Ablabesmyia illinoensis Ablabesmyia janta Ablabesmyia mallochi Ablabesmyia monilis Ablabesmyia ornata Ablabesmyia parajanta	Add >> << Remove	Abedus Abedus herberti Abedus indentatus Ablabesmyia Ablabesmyia annulata
State: (Optional) Alabama Alaska Arizona Delaware Florida Georgia Hawaii Idaho Illinois	Add >> << Remove	Arkansas California Colorado Connecticut
Traits Group (Optional): Read more information about traits group. Life history Mobility Tolerance	Add >> << Remove	Morphology Resource Acquisition Preferenc

Click on this!



Confirm Search Reset

Please confirm your selection before search.

5. CLICK 'SEARCH'

Please select one or more options to search.

(Note: when remove items, they will be appended at end of the original list.)

TaxaList:

- Ablabesmyia aspera
- Ablabesmyia cinctipes
- Ablabesmyia hauberi
- Ablabesmyia illinoensis
- Ablabesmyia janta
- Ablabesmyia mallochi
- Ablabesmyia monilis
- Ablabesmyia ornata
- Ablabesmyia parajanta

Add >>

<< Remove

- Abedus
- Abedus herberti
- Abedus indentatus
- Ablabesmyia
- Ablabesmyia annulata

State: (Optional)

- Alabama
- Alaska
- Arizona
- Delaware
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois

Add >>

<< Remove

- Arkansas
- California
- Colorado
- Connecticut

Traits Group (Optional): [Read more information about traits group.](#)

- Life history
- Mobility
- Tolerance

Add >>

<< Remove

- Morphology
- Resource Acquisition Preferenc

Then click on this!



Search

Reset

Please confirm your selection before search.

6. SELECT CITATIONS

You are given a choice of citations.

To find out more about the citations, click on the arrow next to the Data Source column heading, and you will be taken to the Data Source page.

To select individual citations, click on the check boxes.

Or to select all records, click 'select all.'

If, after doing so, you decide you don't want to select them all, click the 'uncheck all' button.

Database search

Here is your search criteria:


Taxa List: ('Abedus', 'Abedus herberti', 'Abedus indentatus', 'Ablabesmyia', 'Ablabesmyia annulata', 'Ablabesmyia aspera', 'Ablabesmyia cinctipes', 'Ablabesmyia hauberi')

State

List: ('Arizona', 'Arkansas', 'California', 'Colorado', 'Connecticut', 'Delaware', 'Florida', 'Georgia', 'Hawaii', 'Idaho', 'Illinois', 'Indiana', 'Iowa', 'Maine', 'Maryland', 'Massachusetts', 'Michigan', 'Minnesota', 'Mississippi', 'Missouri', 'Montana', 'Nebraska', 'Nevada', 'New Hampshire', 'New Jersey', 'New York', 'North Carolina', 'North Dakota', 'Ohio', 'Oklahoma', 'Oregon', 'Pennsylvania', 'Rhode Island', 'South Carolina', 'South Dakota', 'Tennessee', 'Texas', 'Utah', 'Virginia', 'Washington', 'West Virginia', 'Wisconsin', 'Wyoming')

Traits Groups: ('Mobility', 'Morphology', 'Resource Acquisition Preference')

Please select the items to download:

	Taxon	TSN	Citation	Country	Region	State	Data Source 
<input type="checkbox"/>	Abedus	103721	Aquatic Insects and Oligochaetes of North and South Carolina.	United States	Gulf Coast / Delta Area (TX - FL)	Mississippi	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C. Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187
<input type="checkbox"/>	Ablabesmyia	128079	Secondary production of Chironomidae (Diptera)	United States		Indiana	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C. Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187
<input type="checkbox"/>	Ablabesmyia	128079	Freshwater Biological Traits Table for Maine	United States		Maine	EPA GCRP State Biomonitoring Data Climate Change Pilot Project 2010: Freshwater Biological Traits Table for Maine (traits data came from several different sources (main sources were Vieira et al. 2006 and the Poff et al. 2006 trait matrix).
<input type="checkbox"/>	Abedus herberti	103731	An Introduction	United States		Arizona	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and

Whichever citations have checks in the checkboxes will be included in your data output file.

Why are there multiple records for one taxon?

Data has been compiled from numerous different sources. Traits information for a taxon can differ depending on the source. That is why each taxon-citation combination has been entered as a unique record.

7. DOWNLOAD THE DATA

Click on the 'Download traits information to Excel' button at the bottom of the page.

Database search

Here is your search criteria:

Taxa List: ('Abedus', 'Abedus herberti', 'Abedus indentatus', 'Ablabesmyia', 'Ablabesmyia annulata', 'Ablabesmyia aspera', 'Ablabesmyia cinctipes', 'Ablabesmyia hauberi')

State

List: ('Arizona', 'Arkansas', 'California', 'Colorado', 'Connecticut', 'Delaware', 'Florida', 'Georgia', 'Hawaii', 'Idaho', 'Illinois', 'Indiana')

Traits Groups: ('Mobility', 'Morphology', 'Resource Acquisition Preference')

Please select the items to download:

	Taxon	TSN	Citation	Country	Region	State	Data Source
<input checked="" type="checkbox"/>	3654 Abedus	103721	Aquatic Insects and Oligochaetes of North and South Carolina.	United States	Gulf Coast / Delta Area (TX - FL)	Mississippi	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C.Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187
<input checked="" type="checkbox"/>	3663 Ablabesmyia	128079	Secondary production of Chironomidae (Diptera)	United States		Indiana	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C.Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187
<input checked="" type="checkbox"/>	3666 Ablabesmyia	128079	Freshwater Biological Traits Table for Maine	United States		Maine	EPA GCRP State Biomonitoring Data Climate Change Pilot Project 2010: Freshwater Biological Traits Table for Maine (traits data came from several different sources (main sources were Vieira et al. 2006 and the Poff et al. 2006 trait matrix).
<input checked="" type="checkbox"/>	3660 Abedus herberti	103731	An Introduction to the Aquatic Insects of North America	United States		Arizona	Vieira, N.K.M., N.L. Poff, D.M. Carlisle, S.R. Moulton II, M.K. Koski, and B.C.Kondratieff. 2006. A database of lotic invertebrate traits for North America: U.S. Geological Survey Data Series 187. Available at: http://pubs.water.usgs.gov/ds187

[Download Traits Information to Excel](#)

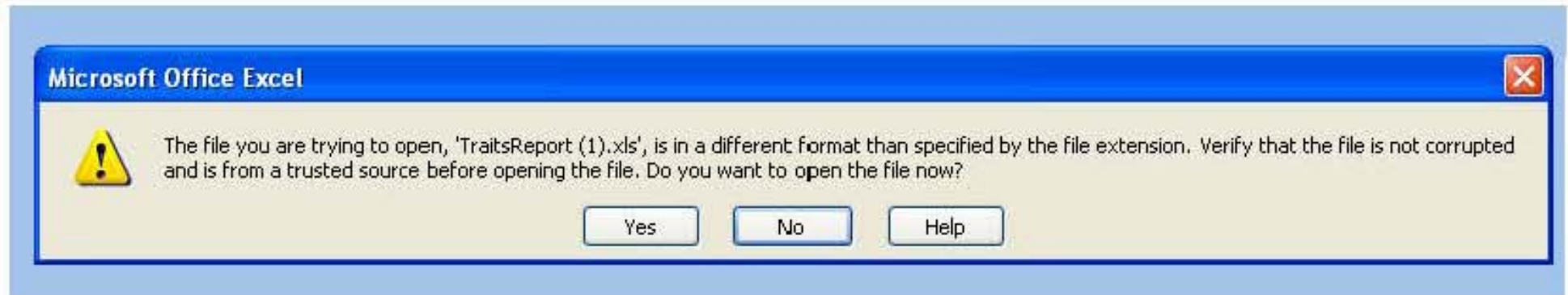
Click on this!



8. RETRIEVE THE EXCEL FILE FROM YOUR DOWNLOAD FOLDER

The Excel file will be named 'TraitsReport.'

When you go to open the file, you will most likely receive an error message like the one shown below. Do not be alarmed. Just click 'Yes' and the file should open without a problem.



Congrats! You have completed your first successful download!