Web of Life

> ## What is "web-of-life"?

www.web-of-life.es is a web service that provides a dataset of ecological interactions.

> ## What can you find?

This web service provides a graphical user interface based on google maps for searching and downloading ecological interaction network matrices of several types, their species names, and other usefull information such as the reference source, the link to the full paper, the geographic localization, etc.

> ## How does it work and how can you download the data?

The Map

Over the map you can see the markers (circles) where the networks are located. The **color** of the markers inticates the **type of ecological interaction** of the network.

- Host-Parasite.
- Plant-Ant.
- Plant-Herbivore.
- Pollination.
- Seed-Dispersal.

Matrix Datasheet

If you **move the mouse pointer over a marker**, a popup box will show some **basic information about the network**.

If you **left click** on the marker, the **datasheet** window of the network will pop up. There, you will find much more **information** about the network: **unique identifier**, number of species, number of interactions, full reference link, localization coordinates ... and, of course, the **matrix** and the name of the **species**.

The tab **species** shows a list of the species of the network. You can filter, sort, and download it (see Downloads notes of this section).

You will also find the history records, where all changes will be logged, and graphical representation of the network.

The Menu Bar

On top of the map there is a menu bar:

When the web browser loads the map page, it shows the markers of all networks or a subset of them, depending on the link you clicked of the intro page of the site.

This menu bar **allows you filtering the results** by selecting:

- **Type of networks:** Pollination, Seed Dispersal, Food Webs, Host-Parasite, Host-Parasitoid, Plant-Herbivore, Plant-Ant, and Plant-Epiphyte.
- **Type of data:** binary or weighted.
- **Number of species.**
- **Number of interactions.**

Each time you change some option, the dataset will be filtered, showing over the map only the markers of networks that fit with the selection criteria.

If you want to view a **list of networks** as a result of the filter applied, click on **results**, this will give you more information.

Clicking on **reset** will **erase the actual filter** and will cause showing the entire list of networks and their markers over the map.

The link **help** shows this help page.

The menu link **Donwload** of the menu bar allows you downlading the network matricies of the results list. The number between **brackets** indicates the **number of networks** are in the results list.

Results

The results list shows the **list of networks that fit the selection criteria**. This list include basic information about the networks listed: unique identifier (ID), an icon indicating whether there is more than one component, type of interactions, number of species, number of interactions, connectance, and a short reference. This will be useful to find the networks you are searching.

On top, there is a **search box** for filtering this list. While writing on it, any row with field values fitting the value chosen will be shown on the results, and the rest will be hidden. Keep in mind that this does no mean that hidden rows are deleted from the results, they are only hidden. The number between brackets in the Download link will not change.

At the left of each row there is a **checkbox**. By default, all rows have it as checked, and it means that the network will be included in the zip file for downloading. You can check/uncheck any checkbox to indicate exactly what you want to include in the **download** zip file. At the header there is a checkbox for checking or unchecking the full list.

Searching by Species

In addition to filtering criteria, you can find those **networks containing** specific **species**.

By clicking on link **Search by species**, which is located on top right of the networks list, the species list will be shown. All species of all networks of the dataset will be listed on it. Yo can **order** it by any column name, and also you can **filter** the listed species by writing in the search text box.

Once you click on the **checkbox** of any specie the networks list will be filtered, it will only show those networks which fit the selected criteria (type of network, type of data, range of species, range of interactions) and containing the selected specie names.

Note: The panels/windows are draggable for have a better view.

Downloads

Note: if you download a large result set, generating the zip file could take some time. Please, be patient.

You can download networks in three different ways:

- Individually from its data sheet.
- As a **zip file** containing the **results set** after filtering.
- As a **zip file** containing only networks with **checked** checkboxes.

The data can be donwloaded in theses formats:

- **CSV:** Comma separated values.
- **XLS:** Excel spreadsheet format.
- **NET:** Pajek network format file. Also used by Gephi.
- **JSON:** data transmission webservice in JavaScript Object Notation.

Individual download format selection:

The options are located on top of the matrix.

Download matrix: ☐ Include species   Select format: ◉ CSV ○ EXCEL ○ PAJEK ○ JSON Download

Zip file download format selection:

The options are located on menu bar -> Download(n).
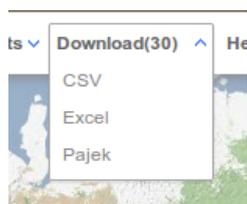
The ZIP file

When downloading by clicking the download link at the menu bar, a ZIP file will be **dynamically generated**. It will contain one file per **network** in the chosen format, the **references** of downloaded networks, and a **readme** file. Also, a **log** file per network with the history of **changes** (if exists) will be included in this zip file.

› What is a network ID? What is it for?

Network Identifier

The network identifier is composed by three strings concatenated by the underscore character.

A_B_C

The string "A" begins with a capital letter indicating the main group to which the network belongs:

› Mutualistic: M_

› Antagonistic: A_

The string "B" is composed by one or more uppercase letters indicating the type of interaciton of the network:

Mutualistic:

› Seed Dispersal: SD_

› Pollination: PL_

› Plant-Ant: PA_

› Plant-Herbivore: PH_

› Plant-Epyphit: PE_

Antagonistic:

› Food webs: FW_

› Host-Parasite: HP_

› Host-Parasitoid: HPD_

The string "C" is composed by three numerical digits from 0 to 9. Its value can change from 000 to 999. For a given type of interaction, this number is incremented each time a network is added to the database.

Use

The main purpose of the network identifier is distinguishing any network from each other, using a homogeneous system of reference. Further, we have extended this nomenclature system to non-identified species names, and for specie names with taxonomic errors.

> Who is the owner and administers this service?

www.web-of-life.es is a service created by Raúl Ortega, Miguel Angel Fortuna, and Jordi Bascompte, provided by the Bascompte Lab at the Spanish Research Council, focused in the structure and dynamics of ecological networks.

> Who support this project?

This project is supported by an **ERC's Advanced Grant** of the European Union.

> Who is the author of de data?

www.web-of-life.es (Bascompte Lab) is not the author/owner of the data, but the author/owner of the service. The original work by each scientist should be acknowledged.

The data has been generated from scientific studies. In some cases, there are published in scientific journals. We have then extracted the data from the appendices of the paper or have requested them to the author. In other cases the data has not been published and has been provided by colleagues or by our own research. The Bascompte Lab has cleaned inconsistent species names, grouped rows or columns with repeated species names, and has deleted those which has 0 interactions, for servicing them to you.

> What can you do with the data?

The use of this dataset is free, you can **use it** in your projects and **share it** with your collaborators.

If you decide to use this dataset in your projects, you must **mention this web service**:

"This work has used the Web of Life dataset (www.web-of-life.es)".

This does not preclude **citing the author** of individual networks when needed. You will find the references inside the file references.csv.

> How can you contribute?

How to contribute

If you have a network that you think could be included in the database, please send us an e-mail, and we'll send you the necessary information. Also we would be happy to know about potential mistakes you spot.

> How to contact us?

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