

# Taxonomic keys and Flora

By

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## **Plant Definition.**

Plants are multicellular organisms in the kingdom Plantae that use photosynthesis to make their own food. They produce most of the world's oxygen, and are important in the food chain, as many organisms eat plants or eat organisms which eat plants.

## **What is a Flora**

The word "flora" refers to the plants occurring within a given region as well as to the publication of scientific descriptions of those plants

The flora of a particular area consists of its plant species, considered as a whole. The word also refers to the plant life of a particular era — for example, fossilized plants can help us determine the *flora* at the time of dinosaurs.

A Flora almost always contains scientific names, and it may also include common names, literature references, descriptions, habitats, geographical distribution, illustrations, flowering times, and notes. Less often, Floras include such specialized information as data on plant chemistry, reproduction, chromosome numbers, and population occurrences. Sometimes the plants are listed alphabetically, and sometimes they are represented within a classification system that indicates which plants are most similar or are thought to be related. Floras often also include devices called "keys" that enable the user to identify an unknown plant.

## KEYS:

- A taxonomic key is a simple tool used to identify a specific object.
- A taxonomic key is one of the most useful tools available to scientists trying to identify an unknown organism. Systematists rely on keys to help identify known organisms or plants and determine whether they have discovered a new organism entirely.
- Taxonomic keys are useful tools guiding researchers towards the known name of an organism. However, all taxonomic keys are not created equally. They are often created on a regional level or for a particular group of organisms (i.e., Plants of the Great Lakes Region, Argentinean Monocots etc.). So it is important to pick a key that represents the diversity of the region or group of organisms you are interested in examining.

### **Types of Taxonomic Keys:**

- (a) Dichotomous and
- (b) Poly clave (also called Multiple Access or Synoptic)

**DICHOTOMOUS KEYS** allow the user to determine the identity of items using a sequence of alternative choices. Dichotomous comes from the Greek root *dich-*, meaning "two" and *temnein*, meaning "to cut."

**Dichotomous keys** always give two, mutually exclusive choices in parallel statements. The pair of statements is referred to as a couplet and each 1/2 of a couplet is a lead. At each couplet of a dichotomous key the user is presented with two choices about a specific character present in the group of organisms, a specific character state is described for each lead. Sometimes the characters are quantitative (i.e., measurements) and sometimes the characters are qualitative (e.g., texture). As the user makes a choice about a particular characteristic of an organism s/he is led to a new branch or couplet of the key. Each couplet provides characteristics that become progressively more specific until the final step is reached and identification is made. Followed correctly, keys will lead you to the correct name of an unknown organism or object. Dichotomous keys can be developed to identify anything in any sort of classification.

Example:

University of Michigan Herbarium's General Keys to Families and Special Groups  
Jepson eFlora's Key to California Plant Families

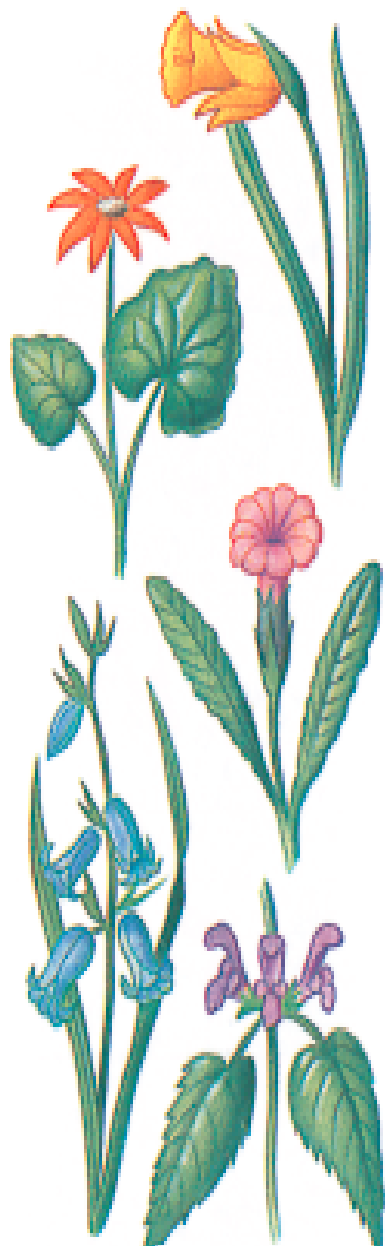
**POLYCLAVE KEYS** are tools used to help identify unknown objects or species. The keys are generated using interactive computer programs. Polyclave keys use a process of elimination.

The user is presented with a series of choices that describe features of the species they wish to identify. The user then checks off a list of character states present in the organism they wish to study. The program looks to match those character states with all the species they can possibly match. If a species does not have that character state it is eliminated from the list. The more character states listed the more species that are eliminated. This allows the rapid elimination of large numbers of species that the specimen cannot be. The process continues until only one species (or a short list of species) remains. This allows the user to eliminate lots of potential species and identify the species or at least a short list of possible species. This continues until only one species is left. If all went well, *and the key fits your group of organisms*, that is the name of the species you have located! Even the best keys have their limitations, so make sure you verify your identification using multiple tools (image verification, herbarium specimens, expert identification, etc.).

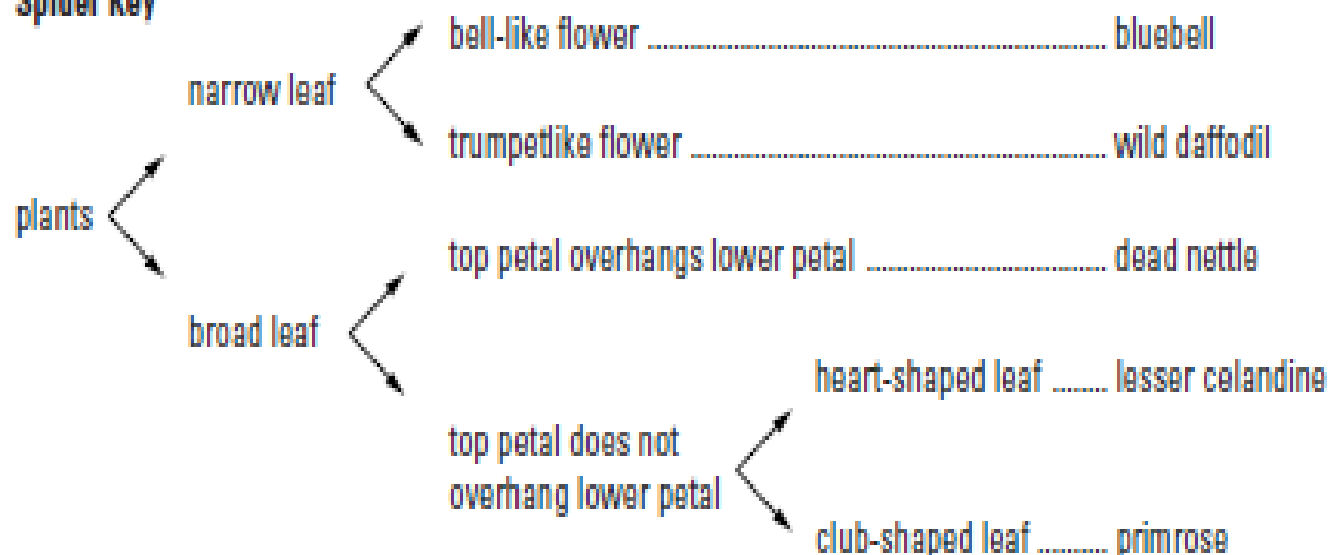
Example polyclave keys:

Symbiota's dynamic species list and key generator

Sagehen Creek Field Station's Wildflower Guide on iNaturalist



# Spider Key



1. narrow leaf ..... go to 2  
broad leaf ..... go to 3
2. bell-like flower ..... bluebell  
trumpetlike flower ..... wild daffodil

3. top petal overhangs lower petal ..... dead nettle  
top petal does not overhang  
lower petal ..... go to 4

4. heart-shaped leaf ..... lesser celandine  
club-shaped leaf ..... primrose