

How to Use the Database?

Finding the Latin names

To look up a name in the database, Google Vascan or canadensys vascan and click on Name Search – Database of Vascular Plants of Canada. Type the scientific name you have in the box under Name Search and press return or click on Search. (Be sure to use correct spelling, otherwise “0 Results” will come up, and don’t include a space after the last letter!)

Under Results will be a list of one or more Latin names of which one, marked with a green box, will be the Accepted scientific name and the others will be marked Syn. These are synonyms (“same names”) of the accepted name, referring to the same species but names now considered obsolete or in error. They have been discarded because taxonomic research has indicated the need for changes in their classification or because they do not comply with the International Rules of Botanical Nomenclature. (A valid name, according to the latter, is one that was the first validly published name for that species and has a corresponding actual (type) specimen.)

The Latin or scientific name consists of two names, a genus name and a specific name (also known as the specific epithet), and the two together are known as the Latin binomial. Thus, in the case of prairie crocus, for instance, *Pulsatilla* is the genus to which this plant belongs and *nuttalliana* is the species name. (It used to be commonly known as *Anemone patens*, which is now a synonym, found in old guidebooks and lists, but now not to be used.) Apart from the Latin binomial, the author or authors (the original describers and namers of that species) are also given in the name line in Vascan. The list of synonyms gives a clue to the name duplications and changes that names have gone through historically, as a result of having different authors. (As you can imagine, before the age of emails and internets, the same species could easily be given different names by different botanists in different parts of the world. Advances in taxonomic research are behind many of the recent name changes (indeed, in all realms of living things), although not all taxonomists agree on the latest “accepted” name and the source of a given nomenclature is often quoted as a reference. Where an older author’s species name has been retained, but the species has been subject to a new

taxonomic combination, the older author's name will appear in brackets. For example, western showy aster was originally called *Aster conspicuus* Lindley. A botanist called G.L. Nesom put it in a new genus, *Eurybia*, and called it *Eurybia conspicua*, so that the species' full name is now *Eurybia conspicua* (Lindley) G.L. Nesom. (Note that the species name, *conspicua*, agrees with the genus name, *Eurybia*, in its Latin gender ending.) The publication in which the accepted name is published is also provided as a reference in Vascan. However, these details are not of practical concern for most of us non-taxonomists who are simply users of plant names.

A page for every species, with common names

Click on the Accepted Name and a page of details on that particular species will appear. Apart from the full Latin name with authors, it includes a list of Vernacular Names in French and English. One name each is designated as "Accepted" in French and English and other names where they exist are given as vernacular synonyms. (If the accepted name is not familiar, and a name cited by a Western author, such as Linda Kershaw or Vernon Harms, is provided, and/or there is one that I know is locally used, I will use that in preference to Vascan's accepted name.)

Other information is included on infraspecific taxa (i.e., subspecies or varieties) if they exist and the species' full hierarchical classification (e.g., in other words, going upwards, species, genus, family, order, and higher). A map of the species' distribution within the database's geographic range, both current and historical (if extirpated), its native status or otherwise, as well as habit, i.e., tree, shrub or herb, are provided.

Lists of species within genera or genera within families

If you wish to get a list of the genera occurring within a family or of species within a genus, enter the family or genus name in the Name Search box and immediately press return. This will bring up the appropriate list that you can scroll through.

Common names

You can use a common name to find a Latin name by entering this in the Search Box, although you will have to have selected one of the vernacular names listed for that species in order to get a positive result. Again, be sure to click Enter or

Search immediately after the last letter, as the search engine does not recognize spaces.

Examples

As an example, type in *Pulsatilla nuttalliana* in the Name Search box and click on the Accepted species in the list of three that comes up. This results in the full page of data and shows several vernacular names. While I use Vascan as my source of scientific names and generally choose the Accepted scientific name, as noted above, I often choose the vernacular name I am familiar with. Thus, for instance, I would choose “prairie crocus” as being the name most commonly used in the West. (The fact that common names vary with location is another good reason to be cognizant of the Latin name.)

Note that no varieties are recognized for *Pulsatilla nuttalliana*, despite its widespread distribution.

Infraspecific taxa (subspecies and varieties)

If a species consists of populations that are not distinct enough to be recognized as separate species but nevertheless discernibly different, especially if this variation is tied to a geographic location, then infraspecific taxa, i.e., varieties or subspecies, may be officially recognized. Then things are a little more complicated.

Click on Name Search again on the right and type in *Helianthus pauciflorus* in the Name Search box. This species, whose author is Nuttall, has two recognized subspecies, a subspecies *pauciflorus*, and a subspecies *subrhomboideus*, this latter being the one we recognize as our local taxon¹. Click on both subspecies in turn. The maps show that both subspecies are reported to occur in Alberta.

Note also that both subspecies have vernacular names. In the case of subspecies *pauciflorus*, it has the same name as the species, stiff sunflower. The subspecies *subrhomboideus*, however, has the vernacular name rhombic-leaved sunflower.

¹ We have not so far recognized a subsp. *pauciflorus* in Alberta, nor until recently, a species *Helianthus pauciflorus*. Our local taxon was previously called *Helianthus subrhomboideus* Rydberg. The recognition of the existence of a species, *Helianthus pauciflorus* in Alberta replacing *H. subrhomboideus*, with the subspecific status *subrhomboideus*, would automatically mean the creation of a typical subspecies, subsp. *pauciflorus*, but it would not necessarily mean that this subspecies would occur in Alberta. Obviously, somebody considers it does. Publications such as *Flora of North America* cannot keep up with such changes and Linda Kershaw and Lorna Allen's *Vascular flora of Alberta: An Illustrated Guide* has not so far included infraspecific taxa except in some important cases. Keys are needed to distinguish subspecies and varieties, as with species.

The subspecies *pauciflorus* has no author following it, its author being necessarily the author of the species, but subspecies *subrhomboideus* is followed by authors other than Nuttall who coined the subspecies name. The recognition of the subspecies *subrhomboideus* automatically created the subspecies *pauciflorus*, which is known as the “typical” variety, the plant that is the equivalent of the species’ type specimen. The subspecies *subrhomboideus* gets its own type specimen.

Observe also, that on the main page synonyms are not given for the species; they are, however, given for the subspecies. Where a species has subspecies or varieties the species does not exist except as a theoretical construct for use in lists and reports where the subspecies is not specified. In nature, populations of real plants belong to their respective subspecies.

Old names in the literature

Old flower guides and textbooks will still be using synonyms and these can also be looked up in Vascan. For example, *Helianthus subrhomboideus* is the name given for our local taxon in *Flora of Alberta* (1983). Enter *Helianthus subrhomboideus* in the Name Search box. It appears in the Results as a synonym for the accepted name *Helianthus pauciflorus* subsp. *subrhomboideus*. Click on this and it brings you to the full page for *Helianthus pauciflorus* subsp. *subrhomboideus*. Here the first synonym listed is *Helianthus laetiflorus* var. *subrhomboideus* (Rydberg) Fernald, which is the synonym given in the *Flora of Alberta*.

Note that while the species and the typical subspecies (subsp. *pauciflorus*) both have the same common name, stiff sunflower, the non-typical variety, subsp. *subrhomboideus*, has a different name, rhombic-leaved sunflower. Hence, to use the correct vernacular name according to Vascan you need to know the variety or subspecies if one exists!

Recognizing infraspecific taxa, and the new guide to Alberta’s vascular flora

Vascan recognizes taxa below the species level, that is, subspecies and varieties, while indicating in other cases that such distinctions are no longer recognized within a species, a process often referred to as “lumping.” Where infraspecific taxa of a species are recognized, a key is necessary in order to separate them, and field botanists should be on the lookout for distinctive characters. The current version

of Linda Kershaw's and Lorna Allen's *Vascular Plants of Alberta: An Illustrated Guide*, a key to Alberta's vasculars, doesn't include infraspecific taxa except for a few important exceptions. However, recognizing subspecies and varieties is necessary for strict taxonomic accuracy. It is not necessarily essential for practical botany and gardening with natives, although it can be practically significant where one variety may be native and another non-native and invasive. The next issue of their guide is planned to include infraspecific ranks, along with larger (and more helpful) illustrations. Currently *Flora of North America* is the reference for keys to infraspecific taxa but it is not completely up-to-date.

For most gardeners, using the correct vernacular name in common parlance will work just fine. In the case of prairie crocus, it corresponds exactly in the database to a valid species with the scientific name, *Pulsatilla nuttalliana*, so accurate translation of Latin to vernacular or vice versa is possible. (It is named in honour of the nineteenth century botanist, Thomas Nuttall, but he is not the authority for the name). Likewise, rhombic-leaved sunflower corresponds directly to a Latin name. Incidentally, in formal scientific writing, this would be written at least once to provide completely accurate identification as *Helianthus pauciflorus* Nuttall subsp. *subrhomboides* (Rydberg) O. Spring & E.E. Schilling. Rydberg's name in brackets indicates that he originally called the species *Helianthus subrhomboides* (the name used in *Flora of Alberta*) but Spring and Schilling decided that this taxon was actually a subspecies of the species *H. pauciflorus* that had earlier been validly described by Nuttall. Interestingly, our other common local sunflower species, common tall sunflower, *Helianthus nuttallii*, also honours Nuttall.

Last word

Naming plants is a formal and complicated business, but the binomial and classification systems developed by Swedish botanist Carolus Linnaeus in the mid 18th century have served botanists well. Regular international conferences to discuss the International Code of Botanical Nomenclature ensure that strict naming rules are followed worldwide and everybody is referring to the same entities. Using taxonomic literature and specimen data contributed by local botanists, the Canadensys Vscan database keeps track of Canada's vasculars, and by using simple lookup procedures, we can use this taxonomy even if we do not fully understand its history and complexity. One caution: the distribution maps

provided are broad-scale, and are not always up-to-date, depending, for example, on the speed with which contributors provide information when new species are detected in their province.

Once you have a name it is not difficult to find out descriptive information about the plant in question. There are various online sources for many of our plants and Wikipedia generally does a good job of providing botanical information.

References

<http://data.canadensys.net/vascan>

Flora of North America. https://floranorthamerica.org/Main_Page

Kershaw, Linda and Lorna Allen. 2020. *Vascular Flora of Alberta: An Illustrated Guide*. Self-published. Kindle Direct Publishing.

Moss, E. H. 1983. *Flora of Alberta*. (Ed. by J. G. Packer.) Toronto, University of Toronto Press.