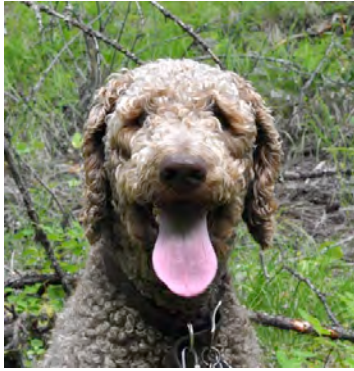


On the track of unknown vegetables.



If you really want to get to grips with the plants of your local region, it's a good idea to get a dog. Good field-guides are important, too, of course, and maybe also a hand-lens, but, since dogs insist on spending lots of time outside, every day, and preferably in a variety of localities, they provide a hard-to-beat stimulus to eventual botanizing. Some folks like walking along plugged into their iPod or phone, but those of us who prefer an involvement with our surroundings, will sooner or later likely start paying attention to plants. And with today's excellent pocket digital cameras, you have all the ingredients for getting yourself on the way to a first-name basis with the components of your local vegetation. At least that has been my experience since moving to Kamloops in 2011.

It's a truism in the teaching trade that if you want to learn something well yourself, it's a good idea to try to teach it to someone else. Thus it was that, having started to take pictures of the plants my dog and I encountered, I decided to compile the photos of identified species into some sort of photo-album, aiming at including pictures that showed off the distinctive features of each species through its various stages, from shoot to fruit— aimed at whoever might want to look. Identification started out simply by use of field guides (see bibliography at the end of this article for references to these and other resources), supplemented by diagnoses made by the folks at e-Flora on images that I submitted to them. Since then, I have benefited from the expert opinion of local vegetation specialists. That's how my plants album began.



My early dog-walking was centered on the Dallas-Barnhartvale and Blackwell trails, and it wasn't long before I became acquainted with some of the local nature-oriented dog-walking folks, and Milt & Shirley Stanley soon told me of the "Friends of Dallas-Barnhartvale Nature Park" website, and, once I'd mentioned my plants album to them, I was invited to include it among its downloadable resources. That was back in 2014, and since then I have provided an annual update, so the 2018 edition is #5, now showing over 300 species. In what follows, I provide a description of the features and scope of the album and a short guide to its use, along with a few comments on botanical names and terminology.

I soon made the choice to compile the pictures into a Powerpoint slide show— one slide per species— since it's a medium I am familiar with, and it provides great ease of image and text manipulation, allowing ready incorporation of new species, corrections, new photos, and re-arrangements, and also provides for eventual text searching. Identified species were accumulated in sequence as the weeks passed, and the idea of arranging the species explicitly by season soon occurred to me. Field guides and other accounts of plants usually organize their species in one of two main ways: using the systematic botanical ordering system— that is, by taxonomic order, family and genus— sometimes also broken down into groups based on major plant life-forms— trees, shrubs, forbs and so on; or by ignoring evolutionary relationships altogether and grouping species by morphological characters— such as life-form, number



and colour of flower petals, leaf-shape, etc. I didn't know of any guide to plants with such a by-the-season arrangement, so I thought such a thing might provide a useful supplement to regular field guides for folks to use in getting to a probable identity for their plants.

So this guide now resides on www.parkfriends.ca site, where it now appears on its own page: www.parkfriends.ca/kamloopsplants/. From that page you may download your choice of format and resolution of these files to either your computer, or to your smart-phone or tablet; then you can easily carry the guide with you when out with your dog or other friend. These.pdf files are all text searchable, so you can easily find a particular species, all members of a given genus or family, and so on.

The whole collection of 300+ species is now separated into three seasonal groups based in ***species' earliest noted flowering, in my experience, and in this specific region of s.c. BC*** (roughly from Tranquille / DuBois and Kenna Cartright in the west to Barnes Lake and Buse Hill in the east, plus a southern outpost at Stake/McConnell Lakes). Of course, some species flower for a long time and/or repeatedly, so many species will be flowering in one to several months adjacent to where they appear in this collection, according to local situation— especially through variation in elevation and aspect— and this will certainly be so in other parts of a species' range, and in years with an unusually early spring, e.g. in 2015 & 2016. But the sequence seems to be generally reliable, of course bearing in mind that, while several species might appear at more or less the same time, the album requires them to occupy positions in a linear sequence, one after another. To cover for this degree of arbitrariness, the overall extent of the flowering season of most species is also provided on their respective pages, taken from various botanical authorities.



On each page the native or alien status of the species is colour-coded in the text of the plants' names — orange for alien, green for native. Also appearing are coloured symbols indicating the primary habitat-types occupied by the species. Some confusing plant groups, like the pussytoes (*Antennaria*), the desert

parsleys (*Lomatium*) or the *Erigeron* daisies have text emphasizing each species' distinctive characters, shown both on the respective species pages and in 'conspectus' pages where similar species are shown together for easier comparison.



Though by avocation I am simply a curious naturalist— I find all organisms engaging, in some degree at least— by profession I am an evolutionary biologist, and that fact is reflected in other aspects of these plant documents. I have already mentioned the “data pages”, expressing an ecologist’s interest in patterns in the local flora, but other pages betray an interest in the taxonomy and systematics of these plants— that is, in their scientific naming and ordering & grouping. These pages relate to the evolutionary (genealogical) relationships among the various plants and plant groups— what biologists call their phylogenetic relationships— their genetic relatedness, and to changes in our understanding of those matters as our knowledge advances— changes that often involve alterations to the scientific names of some plant species, and to their allocation to particular genera, families or orders. Name changes are confusing, if not downright irritating to those of us who might have learned those scientific names when science’s understanding was different, so it might be worth making a few observations about scientific names: what they seek to express, why they sometimes have to change, and why they are more useful than what we call common, vernacular, or “plain English” names.

Scientific names are two-part: first comes the name of the genus— sort of like the species’ ‘surname’, always capitalized; this is followed by the “species epithet”, the handle, which in combination with the genus name, uniquely specifies the species in question, wherever it occurs in the world. Thus, a given scientific name is **unique, precise** and **universal**. This is very different from vernacular names, which can refer to very different plants in different regions or countries (what is a “robin”? depending on where you live, that name can refer to birds from four different families), while a single species can have multiple “common” names, *even in the same place* (lemonweed, puccoon, western stoneseed, Columbia gromwell— all the same species.) For this reason alone, scientific names are preferable to ‘common’ names, even if perhaps a bit of a challenge to start with.

A genus can include from one to many species, and it is intended that all such species be each other’s closest relatives. Similarly, all members of a given family are supposed to be more closely related to each other than any is to a species from another family. For this reason, a scientific name, as well as being unique, precise and universal, also conveys information about **relatedness**, whereas vernacular names are merely labels, even if sometimes descriptive ones. For example, consider these three species of plant here: lemonweed, narrowleaf stoneseed, and corn gromwell. If we know them by their scientific names (*Lithospermum ruderale*, *Lithospermum incisum* and *Lithospermum arvense*) then we immediately know that they are close relatives, because they are all in the same genus. As another example, consider fringed loosestrife and purple loosestrife. The names suggest that these plants are related, but no, not only aren’t they in the same genus (*Lysimachia* vs. *Lythrum*) but they belong to two families (Primulaceae vs. Lythraceae) in two distantly-related orders (Ericales vs. Myrtales).



So, in biology, closely-related species are grouped into genera (plural of genus), related genera are grouped into Families, related Families into Orders, Orders into Classes, Classes into Phyla, and Phyla into Kingdoms. For example, we are designated as the species *Homo sapiens*, in the same genus as *H. neanderthalensis* and others, in the Family Hominidae, in the Order Primates (monkeys & apes), in the Class Mammalia (mammals), in the Phylum Chordata (creatures with a backbone), in the Kingdom Animalia (animals). This whole naming and classification system thus forms a **nested hierarchical structure**— groups within groups within groups— corresponding to the branching system of evolutionary descent relationships among all life forms. Biologists express this idea in these terms: the naming and classification of organisms is designed to reflect their phylogenetic relationships. And therein lies the reason why sometimes species get re-named and even allocated to different groups: suppose that new studies show us that, say, a group of species traditionally placed in one genus were not, after all, each others' closest relatives. Then, in order to retain the intended correspondence between names and relatedness, the organisms would need to be given different generic names.

This kind of rearranging can affect all levels of the classification system— often species get shifted to another genus (e.g. *Chrysothamnus nauseosus*, the rabbit-brush, has recently been removed to the genus *Ericameria*); sometimes whole families get broken up as it becomes apparent that the true genealogical affinities of at least some of the species lie elsewhere in the system. For example, the family Scrophulariaceae, the figworts, which was traditionally seen as including several local species (e.g. *Castilleja**, *Euphrasia**, *Rhinanthus**, *Linaria*†, *Penstemon*†, *Verbascum*) is now dispersed into the Orobanchaceae* (broomrapes) and Plantaginaceae† (plantains), leaving only *Verbascum thapsus* (mullein) in the original family.



But regardless of the names we might use to refer to our plants, they remain as beautiful and engaging as ever, and as worthy of our attention. Certainly that's how my dog feels about things— English, French or Latin makes no difference to him: he's happy to lie on any plant I'm trying to take pictures of, no matter what I'd call it. Happy botanizing, everyone!

Resources:

Field Guides & other books

Parish et al. *Plants of Southern Interior BC and the Interior Northwest*. Lone Pine Guide.

Turner & Gustafson. *Wildflowers of the Pacific Northwest*. Timber Press.

Whitson et al. *Weeds of the West*. Western Society of Weed Science.

Dickinson & Royer. *Weeds of North America*. U. Chicago Press.

Hitchcock & Cronquist. *Flora of the Pacific Northwest*. U. Washington Press.

Web resources

E-Flora: Electronic Atlas of the Flora of British Columbia— <http://ibis.geog.ubc.ca/biodiversity/eflora/>

WTU Image Collection— <http://biology.burke.washington.edu/herbarium/imagecollection.php?>

Wildflowers of the Pacific Northwest— <http://www.pnwflowers.com/>