IV. "pr. p." = pro parte (partly) has been replaced by "/".
V. Author names appear capitalized.
VI. All taxa including a " = " are not considered valid.
VII. "s. l." = sensu lato (in the broad sense) has been replaced by "?"
VIII. In some hybrids of horticultural origin the grower's name was cited following the bastard formula (in brackets); for natural hybrids the location was given.
IX. In homonyms the author citations don't include the author of the older name.
X. The families are arranged in systematical order, genera and species are arranged in alphabetical order.
XI. The genus *Brocchinia* BAKER together with countless others which don't belong into this context at all was *not* listed but *Roridula* L. was included for rather traditional reasons.
XII. Generic synonyms *(Chrysamphora* = *Darlingtonia* TORR.; *Polypompholyx* = *Utricularia* L.) were *not* listed.

WHAT DO THE NAMES MEAN?

By Larry Mellichamp, Botanist

As you look over the world List of CP, you may be overwhelmed by its length and confused by some of the various individual listings. I hope these comments will help clarify matters.

This list contains almost every name ever published for a carnivorous plant. They are listed by family, then alphabetically by genus, then by species. Family names end in -aceae (for example Sarraceniaceae) and represent a group of closely related genera. A genus is a naturally recognizable group of plants, such as the oaks, maples, sundews, and butterworts. The genus may contain one-to-many species. As an analogy, think of your own last name as being the genus name and your first name being the species name and write it "Smith, Tom." Then, just as your own family would contain one-to-several different individuals with different first names, so a genus contains populations of species, each recognizably different and with different species names. The difference between you and the plants in this analogy is that the plant "species" contain many individuals behaving as a population. Now, take your uncles' and aunts' families, of ten with different last names, and bring all of them together for a family reunion. This is roughly analogous to a plant family comprised of one to several different genera, each different, but related for some reason. You may call your "clan" the "Smith family" as a whole (if "Smith" was the founder of your family line generations ago) or it may go by a different family name, of ten unfamiliar to you and your generation. Likewise, the botanical family name is derived from the name of the genus which was first discovered and named.

Ever since the 17th Century professional botanists, horticulturists, and knowledgeable amateurs have been discovering new plants throughout the world. When a person believes he has found a plant that is new to science, he/she may publish a description of it along with a new name for the plant species. In order to be accepted, these names have to be **validly** published. That means they have to be published in a recognized publication (book or periodical) in accordance with the rules of the International Code of Botanical Nomenclature. These rules were written by botanists, for botanists, to standardize the often confusing process of naming plants worldwide. Valid names have to have a brief description of the plant, in Latin, and you have to state explicitly what the name refers to [whether a species (sp.), variety (var.), subspecies (ssp.), form (forma), or hybrid.] A name that does not have a description is called a *nomen nudum,* or "naked name," and it is not valid and cannot be used, ever again.

A plant species, of course, is a difficult-to-define entity; but it is easy to envision a species as a recognizable unit in nature consisting of individual plants growing in a defined area that are similar to each other *and* that can interbreed with each other *and* still maintain their similarity as a breeding population. For example, hybrids are *not* species because they cannot maintain their identity as they interbreed; they cause a blending together of the species that are crossing. No two individuals in a species are identical, just as no two humans are identical to each other. So, we have to define a species as a broad entity and take into account the variations in appearance among the individuals that may be present, some of which may differ significantly from each other depending on the particular spot in which they are growing (environmental influence) or their particular genetic composition (genetic influence). Sometimes human individuals may differ in these ways, and some turn out weird, but we still recognize them as humans! We cannot be too rigid in our definition of species. And of course don't forget that different botanists may have different opinions as to what characteristics are most important for recognizing differences in species, producing differing breakdowns and classifications of the same species or groups. In practice, a species is easily recognized by the person who has long studied it, even though he may not be able to explain it to you, and a novice should not be too quick to think he understands all of the variation in a species after seeing a few plants. This is why botanists and others do elaborate field work trying to visit all of the areas where a species is believed to grow and collect all of the different extremes in appearance to make first-hand comparisons. People who grow only a few plants from a few collections may not be seeing the whole picture, and the plants they do see may be very *similar* or even very *different* from the majority of the individuals throughout the range of a species.

The *name* of a plant species always consists fo two parts, a generic name (a noun) and a specific epithet (an adjective modifying or describing that noun, often called the "species name"). This two-part name is called a *binomial.* The genus *Sarracenia* represents a group of similar plants consisting of about 10 different recognizable species, each would be identified by its specific epithet, like *Sarracenia purpurea, Sarracenia flava, Sarracenia minor,* etc. The specific epithet is usually descriptive of some characteristic of the species (such as *purpurea* means "purple," *flava* means "yellow," *minor* means "smaller," etc.), or is named after a person or place (such as *jonesii* after "Jones." and *alabamensis* after "Alabama"). In a sentence after you first mention a genus name, it can be abbreviated by listing the first letter only, such as *S. purpurea;* species names can *never* be correctly abbreviated. You may have noticed that a generic name can be correctly used only one time in all the world, and that it can be used by itself to conjure up an image of a group of plants; whereas a species name can be used many times (it is simply a descriptive adjective) and has meaning *only* when it is linked to a genus name.

When a person names a plant species, his/her name is placed after the name of the plant whenever the species is formally listed in a book or article. Often the names of well-known persons are abbreviated. Thus, *Sarracenia purpurea* L. means that the species we know as *"Sarracenia purpurea"* was first validly named by Carl Linnaeus, the 18th Century Swedish naturalist. The reasons for giving the author's names in formal listings are simple: it allows you to trace back to the original description in the literature (by helping you to identify a book or article written by that person) and it allows you to differentiate two similar names published for the same plant species. For example, *Sarracenia minor* Sweet was a new name given to a species by a man named Sweet. Later investigations (the reading of Sweet's original description) show us that this plant was really NOT the same *S. minor* Walter: while it turns out that the *S. minor* of Sweet is really *S. rubra.* Thus, *S. minor* Sweet becomes a *synonym* of the correctly named *S. rubra* Walter because *S. rubra* was first validly named by Walter also. In this case, you have two different names used for the same plants, and that would lead to confusion. So you see it becomes a matter of who names a species validly **first;** then no one else can name that species, or use that name for another species.

As you look through the listing, you will find that some species have been named many different times by different people. If more than one person names the same species, at a different time or from a different place (the second person may have thought the species was new, but didn't compare it carefully with the first discovery, or the second person didn't know that the species had already been validly named) then the later name becomes a *synonym* and will be shown in the list as "= the correct species name." The rule is that the first validly published name is the correct one. (Several names may be *validly* published; but only one can be *correct* for a given species, that is the first or oldest one.)

There are also those few occasions of more than one correct name for a plant if there is more than one **opinion** about what the plant is. The classic case is the *Sarracenia rubra* complex. *Sarracenia rubra* may be seen as one big species with a broad geographical range. Or, it may be seen on one extreme as 4 different entities, each in a separate region and each worthy of species recognition. Thus we would have *S. rubra, S. jonesii, S. alabamensis* subspecies *alabamensis* in central Alabama and *S. alabamensis* ssp. *wherryi* in southern Alabama. Each of these names is valid and correct. If on the other hand you believe there is one big species with 5 recognizable sub-types within it that are not worthy of separate **species** recognition, you can have *S. rubra* with 5 **subspecies** as follows:

S. rubra ssp. *rubra*
S. rubra ssp. *jonesii*
S. rubra ssp. *alabamensis*
S. rubra ssp. *wherryi*
S. rubra ssp. *gulfensis*

The reason for repeating the name "rubra" in *S. rubra* ssp. **rubra** is that when you divide up a large geographically widespread species, you take the original or most typical portion of that species and simply repeat its original name as the subspecies name for that entity. To look at it another way, if you start with *S. rubra* and none others, you don't have to differentiate *S. rubra* any further. As soon as you find another "kind" of *S. rubra* that you want to recognize, then you have to differentiate it (by name) from the original. So, when you name *S. rubra jonesii,* you then automatically **by convention** create the name *S. rubra rubra.* The convention is simply a rule that botanists choose to follow to make names below the level of species uniform in appearance and perfectly clear as to which subspecies (or variety) you are referring to. If you recognize *S. jonesii* as a separate species not that similar to *S. rubra,* then they would be known simply as *S. jonesii* and *S. rubra.* The difference between a subspecies and a variety is that a subspecies is a "recognizable variation" of a species that does not grow with the typical species; while a variety is a "recognizable variation" that does grow within the range of the typical species. Also, a subspecies is usually more different from the typical species (2 or 3 good differences) and a variety is only a little different from the typical species (maybe just one or two good differences).

The last thing I want to point out at this time is the naming of hybrids (a hybrid is a cross between two different parents, presumably between two different species). When you find a natural hybrid, or create one artificially, you have the choice of two forms of naming. One is simply to use a formula: *S. flava* × *S. purpurea.* Or, you can go one step further and give it a "hybrid binomial" in the same form as a species name. This is usually done if the hybrid exists in nature, produces viable seed, and would be encountered by anyone on a field trip. The above hybrid would then be known as *S.* × *catesbaei.* The "×" or "times sign" (not simple an "ex") indicates a hybrid and the name is read *"Sarracenia* hybrid *catesbaei"* [pronounced "sair ah sin ee uh—hybrid—kates bee eye] or "the hybrid *Sarracenia catesbaei."* A hybrid binomial is treated like a species name: it is in Latin, (underlined in writing or italicized in printing) and has an authority (author's name) such as *S.* × *catesbaei* (Elliott) Bell. In this case, Elliott used the name "catesbaei" first, but not as a hybrid. When Bell recognized this plant as a hybrid, he "reformulated" the name to reflect this and used the × sign. The name is now new in the proper format, but using Elliott's epithet. So, Elliott's name goes in

parentheses as the first author to use an epithet that IS NOW USED IN A MORE CORRECT NAME. This will be true of any authority name used in parentheses in the list. These parenthetical authors are being given credit for "inventing" a name, but it is now being used in the proper context by a later person whose name goes last. In the case of changes of format, mis-identifications, or differences of taxonomic opinion (where a species is believed to better fit in a different genus), you often get author's names in parentheses.

The bottom line is that you do not have to use author's names when normally using scientific names; they are there in formal listings to help clarify problems and indicate the technicalities of botanical nomenclature. Do not let them bother you; but do understand what they mean.

Darlingtonia *TORR* -

D. californica *TORR.* Calif., Oregon USA

Heliamphora *BENTH* -

H. heterodoxa STEYERM. Mt. Ptari-tepui, Ven.
H. heterodoxa f. ***glabra*** (MAGUIRE) STEYERM. Serra do Sol, Ven.
H. heterodoxa var. ***exappendiculata*** MAGUIRE & STEYERM. Mt. Churi-tepui, Mt. Chimata-tepui, Ven.
H. heterodoxa STEYERM. var. ***exappendiculata*** MAGUIRE & STEYERM. f.***glabella*** STEYERM. Mt. Auyan-tepui, Ven.
H. heterodoxa STEYERM. var. *glabra* = *heterodoxa* STEYERM. f. *glabra* STEYERM.
H. ionasi MAGUIRE Mt. Ilu-tepui, Ven.
H. macdonaldae GLEASON = *tatei* GLEASON f. *macdonaldae* (GLEASON) STEYERM.
H. minor GLEASON Mt. Auyan-tepui, Ven.
H. minor GLEASON f. ***laevis*** STEYERM. Mt. Auyan-tepui, Ven.
H. neblinae MAGUIRE = *tatei* GLEASON var. *neblinae* (MAGUIRE) STEYERM.
H. neblinae MAGUIRE var. *parva* MAGUIRE = *tatei* GLEASON var. *neblinae* (MAGUIRE) STEYERM. f. *parva* (MAGUIRE) STEYERM.
H. neblinae MAGUIRE var. *viridis* MAGUIRE = *tatei* GLEASON var. *neblinae* (MAGUIRE) (MAGUIRE) STEYERM.
H. nutans BENTH. Mt. Roraima, Ven.
H. tatei GLEASON Mt. Duida, Ven.
H. tatei GLEASON f. ***macdonaldae*** (GLEASON) STEYERM. Mt. Duida, Ven.
H. tatei GLEASON var. *macdonaldae* (GLEASON) MAGUIRE = *tatei* GLEASON f. *macdonaldae*
H. tatei GLEASON var. ***neblinae*** (MAGUIRE) STEYERM. Cerro de la Neblina, Ven.
H. tatei GLEASON var. ***neblinae*** (MAGUIRE) STEYERM. f. ***parva*** (MAGUIRE) STEYERM. Cerro de la Neblina, Ven.
H. tyleri GLEASON = *tatei* GLEASON

Sarracenia *L.*

S. acuta *RAF.* = rubra *WALT.*
S. adunca SM. = minor *WALT.*
S. ahlesii *BELL & CASE* = alata *WOOD* X rubra *WALT.* Ala., Miss. USA
S. alabam**ensis** *CASE & CASE* = rubra *WALT.* ssp. alabamensis *(CASE & CASE) SCHNELL*
S. alabamensis *CASE & CASE* ssp. wherryi *CASE & CASE* = rubra *WALT.* ssp. wherryi *(CASE & CASE) SCHNELL*