

Friends of the Herbarium

Biological Sciences Herbarium

California State University, Chico

Newsletter

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DISTINGUISHED SERVICE AWARD

At the Annual Meeting on 7 November, the Friends of the Biological Sciences Herbarium presented the 1998 Distinguished Service Award to **DR. KINGSLEY STERN**.

Dr. Stern was the obvious choice for this annual award since his 34 years as Director of the Herbarium ended at the beginning of the semester with the appointment of Dr. Kristina Schierenbeck as the new Director of the Herbarium (see the February 1998 *Newsletter*). Dr. Stern retired from teaching at CSU, Chico in 1994, after 37 years of teaching (33 years at CSU, Chico) and 30 years as the Herbarium Director. Following retirement, Dr. Stern continued, on a voluntary basis, as Director of the Herbarium for another four years until Dr. Schierenbeck's appointment. During Dr. Stern's years as Director, the Herbarium collection grew from 2800 specimens to more than 71,000 specimens.

But Dr. Stern's contributions to the Herbarium are only a small part of his contributions to the science and teaching of botany. During his years of teaching at CSU, Chico he introduced six different botany courses to the curriculum, and was named Outstanding Professor in 1993. Dr. Stern also authored the botany textbook *Introductory Plant Biology*, which is now in its 7th edition and is used at 500 universities and colleges across North America. His other contributions to botany include several research grants from NSF, including one to study pollen at the Swedish National Pollen Laboratory in Stockholm, contributions to the new *Flora of North America*, and contributions to a Life Sciences Encyclopedia being developed by Microsoft.

MESSAGE FROM THE BOARD

Since we missed getting out your October *Newsletter* (note that this issue is Volume 4, Numbers 2 and 3), there is much activity to report. This *Newsletter* is the largest ever from your Friends of the Biological Sciences Herbarium; we hope it will make up for the "missing" issue.

ANNUAL MEETING. The Annual Meeting of the Friends of the Herbarium last 7 November was well attended. This event included a symbolic "passing of the torch" from the retired Herbarium Director, Kingsley Stern, to the new Herbarium Director, Dr. Kristina Schierenbeck (see *Newsletter* Vol. 4, No. 1 for more about Dr. Schierenbeck). Dr. Stern was also presented the Distinguished Service Award by the Friends of the Herbarium to honor his many years of service to the Herbarium as its

Continued on page 2





Friends of the Herbarium

The **Friends of the Biological Sciences Herbarium**, California State University, Chico, was formed to help maintain the high quality of work that has been known to be associated with the herbarium. The primary purpose of the group is to provide community support for the herbarium. This includes raising funds for items that are not covered under the University budget. Scientific and academic pursuits are the focus of the group. The Friends also offers low cost workshops and classes on various botanical topics.

The Friends of the Biological Sciences Herbarium operates under auspices of the California State University, Chico, and enjoys non-profit status and has access to the use of University classrooms and equipment.

Memberships are renewed on May 1 of each year.

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Newsletter

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Continued from page 1 Message from the Board

Director, and also as a founding member of the Friends of the Herbarium Board of Directors. Dr. Stern stepped down from his Board position last May, but remains active as an advisor to the Board. See page 1 for more about Dr. Stern.

HERBARIUM CURATOR. The Friends of the Herbarium and the Department of Biological Sciences have matched funds to hire a Curator for one day per week for about eight months. The Board of the Friends of the Herbarium and the Herbarium Director are both working to obtain funding to continue the Curator position in the Herbarium after this initial eight months. The ultimate goal is to obtain a secure funding source for a permanent half time (at least) staff position as Curator of the Herbarium (any suggestions?). For the next eight months, the plan is to have the Curator in the Herbarium all day each Friday, tending to Herbarium business and having the facility open to visitors. The paperwork is almost complete to hire Lawrence Janeway into this part time Curator position. Lawrence has been acting Curator, as a volunteer, for a number of years. The Department has added additional funding for the purchase of a computer and printer for the Herbarium. This will facilitate starting the project to database the Herbarium collection of plant specimens and the Herbarium library (any volunteers to help with this?). The "construction" of a more active www presence for the Herbarium is also possible.

HERBARIUM EXPANSION. The latest news is that the remodel of Room 129 adjacent to the Herbarium may start as early as next May, with completion by the start of classes

HERBARIUM ACTIVITY

HERBARIUM ASSISTANT. It has been very exciting to have an Herbarium Assistant working in the Herbarium since last September. Simona Altman is working 8-10 hours per week as an Herbarium Assistant, under the campus Work-Study program. During the fall semester she worked 10-15 hours per week, and even more hours during intersession. Simona has been doing a marvelous job of catching up on numerous essential herbarium curatorial needs that had been languishing for a number of years, as volunteers struggled to keep up with only the most critical needs. In particular, Simona has gone through the entire herbarium collection and divided the over-filled folders of specimens into thicknesses more appropriate for protecting the enclosed specimens. Her first assignment as Herbarium Assistant was to accession and file the 500 or so bryophyte collections that had been building up for years. Simona's main project at present is to catalogue, repair, and update the Plant Taxonomy Reference Collection presently cased in Room 129. She will also have the Herbarium open for visitors on Monday afternoons.

VOLUNTEERS. Vern Oswald and Lowell Ahart, recipients of the Friends of the Herbarium Distinguished Service Awards in 1996 and 1997, respectively, continue to mount (Lowell), accession, and file (Vern) all vascular plant specimens that come into the herbarium. New specimens are always coming into the Herbarium, usually unmounted, as donations from local botanists (including Vern and Lowell) and in exchange with other herbaria. The mounting, accessioning, and filing

Continued on page 9

Continued on page 9

A GUIDE TO PRONOUNCING PLANT NAMES

Compiled by Vernon H. Oswald¹

Probably most botanists pronounce plant names the way they hear them spoken, either by fellow botanists, their professors, or perhaps as they might hear them on TV. All of these methods can prove to be faulty. A distinguished botanist is not necessarily an accomplished linguist, e.g., see “Pronunciation of Scientific Names” on pages 11 and 12 in *The Jepson Manual*. Professors are not infallible—while preparing this guide, I found several names that I have been mispronouncing for years. I also sometimes hear my colleagues at Chico State University use pronunciations that do not correspond to the “correct” pronunciation given in *Webster’s New International Dictionary* (2nd edition, unabridged).²

When we see an unfamiliar word, we can try to look it up in a dictionary. Unfortunately, most plant names are not in dictionaries.³ However, botanists usually have one or more references on their bookshelves that indicate the pronunciation of genera and epithets of plants, although few apparently realize that help is at hand or know how to use it. Have you ever wondered why Dr. Munz went to all that bother to put accent marks on plant names in his *A California Flora*? In this guide we will learn how to interpret these marks, and you will become a more scholarly botanist!

Syllables and Accentuation

Most mispronunciations of botanical names are caused by placing the accent on the wrong syllable. Latin words have as many syllables as they have vowels and diphthongs: *As·ter*, *ex·i·lis*, *As·trag·a·lus*, *Bal·sam·o·rhi·za*, *Cal·y·ca·de·ni·a*, *Kra·schen·in·ni·ko·vi·a*. The main accent will always fall either on the next to the last syllable (the penult) or on the syllable immediately preceding the next to the last (the antepenult). The major accent *never* falls before the antepenult,⁴ although secondary accents are sometimes found, especially in longer words.

In this guide, accented syllables will be marked with either a grave accent (`) or an acute accent (´). The accent marks also indicate whether the vowel in the accented syllable is “long” or “short.”⁵ According to Bailey (1933), this method was first applied to plant names in J. C. Loudon’s *Hortus Britannicus* published in 1830. Asa Gray took up the method in his *Manual of the Botany of the Northern United States* published in 1848, and the method has passed into all of the subsequent editions of this standard flora now known as *Gray’s Manual of Botany* (Fernald, 1950). Many other authors of standard floras of the United States adopted the method, including Britton and Brown (1913), Abrams (1923–60), Jepson (1925), and Munz (1973). Recent major floras have not employed this system, probably to the detriment of maintaining at least some uniformity in the pronunciation of botanical names.⁶

The easiest way to determine accentuation is to look up the plant name in a flora such as Munz or in the glossaries in *Manual of the Vascular Plants of Butte County, California* (Oswald & Ahart, 1994). A somewhat more difficult method is to learn and apply certain rules.

A few Rules determining Accentuation and Vowel Sound⁷

1. The accent is on the penult (next to the last syllable) in the following cases:
 - a. When the word contains only two syllables: *ál·bus*, *Bri·za*, *dén·sus*, *È·vax*, *Lò·tus*, *mól·lis*, *pù·bens*.
 - b. When the penult contains a diphthong: *a·caù·lis*, *A·chy·ra·chaè·na*, *Ac·taè·a*, *a·ju·gò·des*, *a·moè·nus*, *bet·u·lài·des*, *di·oì·cus*, *Hy·po·chaè·ris* (not *hī·pòk·ēr·is*), *I·pheì·on*, *I·po·moè·a*, *Lin·naè·a*, *Nym·phaè·a*, *Pel·laè·a*, *tel·ma·tèi·a*, *Trit·e·lèi·a*.
 - c. When the vowel in the penult is followed by x or z: *Bal·sam·o·rhi·za*, *de·fléx·us*, *glyc·yr·rhi·zus*, *het·er·o·dòx·us*, *sub·véx·us*.
 - d. When the vowel of the penult is followed by two consonants (ch, ph, th are considered single consonants). In this case, the vowel is also short: *A·pì·ás·trum*, *A·zól·la*, *Ca·lo·chòr·tus*, *Ceph·a·lán·thus*, *Cham·o·míl·la*, *Cor·e·óp·sis*, *Cryp·tán·tha*.

¹ Comments or questions can be addressed to oswald@ecst.csuchico.edu. This document may be copied.

² Since the English language is constantly evolving, acceptable pronunciations also change with time. A pronunciation that does not correspond to the rules becomes acceptable over a period of time if commonly used by workers in the field, e.g., *Pénstemon*, which is correctly *Penstèmon*.

³ *Webster’s New International Dictionary*, (2nd edition, unabridged), which we have in the Herbarium at Chico State University, does give pronunciations of many plant genera, although epithets are not listed.

⁴ In *The Jepson Manual*, page 12, Dr. Hickman suggests that *nuttállii* and *douglásii* should be pronounced with the accent on the syllable before the antepenult (*nut·tall·i·i* and *doug·las·i·i*), showing a lack of understanding of Latin accentuation.

⁵ In the English method of pronouncing Latin, “long” vowels have the sound given them when the alphabet is recited (*màte*, *mète*, *bite*, *rope*, *cùte*), and “short” vowels have one of the other sounds found in common English usage (e.g., *mát*, *mét*, *bít*, *rót*, *cút*). To remember which accent is long and which is short, try this: Imagine that you are running your finger over the word from left to right. Your finger will catch and stop momentarily on the grave (`) accent, resulting in a “long” vowel sound. On the other hand, it will slip easily over the acute (´) accent, resulting in a “short” vowel sound.

⁶ In the International Code of Botanical Nomenclature, Article 73.6 states that “Diacritical signs are not used in Latin plant names.” This may well be the reason why recent floras no longer use grave and acute accents to mark the accented syllables of plant names.

⁷ From *Dictionary of Word Roots and Combining Forms* (Borror, 1960), with botanical examples supplied by the author.

Cu·prés·sus, *Cyn·o·glós·sum*, *Er·i·o·phýl·lum*, *mi·cro·cár·pus*. Epithets ending in *-énsis -is -e*, which indicates place of origin or growth, also follow the double consonant rule, e.g., *chi·lén·sis* (of Chile), *pra·tén·sis* (of meadows).

Exception: When the vowel of the penult is followed by a mute⁸ (*b*, hard *c*, *d*, *g*, *k*, *p*, *q*, *t*, *ch*, *ph*, or *th*) and by *l* or *r*, the accent is shifted to the antepenult: *Á·tri·plex*, *in·te·gra*.

- e. When the vowel in the penult is long. Whether the vowel in the penult is long or short often depends upon the vowel sound in the source language and may involve looking up the word in a Latin or Greek dictionary. The vowel is long in the following cases:
- 1.) When the vowel of the penult is *u*, except when the *u* is followed by *l*: *Cus·cù·ta*, *Fes·tù·ca*, *Lac·tù·ca*, *Sam·bù·cus*, but *Bét·u·la*, *Cam·pán·u·la*, *Sa·níc·u·la*.
 - 2.) When the vowel of the penult is followed by *z*: *Co·nỳ·za*, *Cor·ál·lo·rhi·za*, *e·ryth·ro·rhi·zos*, *Os·mo·rhi·za*.
 - 3.) In epithets with the following endings:
 - ális -is -e*: belonging or pertaining to; often translated *of*, e.g., *la·cù·na·ver·nà·lis* (of vernal pools); *bo·re·ál·is* (of the north; northern).
 - ánus -a -um*: indicates position, connection, or possession by, e.g., *a·mer·i·cà·nus* (American). It is also the adjectival ending of epithets derived from personal names e.g., *jep·so·ni·à·nus* (of W.L. Jepson).
 - áris -is -e*: belonging or pertaining to; often translated *of*; a variant of *-ális* and used after stems ending in *-l*, e.g., *a·cic·u·là·ris* (pertaining to a needle; needle-shaped).
 - átus -a -um*: indicates a past, passive participle; frequently translated *-ed*, e.g., *punc·tà·tus* (dotted).
 - ínus -a -um*: indicates possession or resemblance, e.g., *a·myg·da·lí·nus* (resembling an almond). In a few words such as *can·náb·i·nus*, *gos·síp·i·nus*, and *ser·rót·i·nus*, the *-i-* in the penult is short, shifting the accent to the antepenult.
 - òsus -a -um*: indicates abundance or full or marked development, e.g., *mac·u·lò·sus* (full of spots).
 - òtus -a -um*: indicates resemblance or possession, e.g., *lep·i·dò·tus* (scaly).
 - ùtus -a -um*: indicates possession, e.g., *cor·nù·tus* (horned).
2. In other cases, the accent is on the antepenult (the syllable preceding the penult).
- a. The vowel of the antepenult is long in the following cases:
 - 1.) When it is followed by another vowel: *lu·tè·o·lum* (often incorrectly pronounced *luteòlum*), *Mo·di·o·la*.
 - 2.) When it is *a*, *e*, *o*, or *u* followed by a single consonant and two vowels, the first of which is *e*, *i*, or *y*, e.g., *ol·i·và·ce·us*, *lan·ce·i·fò·li·us*.
 - 3.) When it is *u* followed by a single consonant: *pur·pù·sí·i*, *pù·mil·us*.
 - 4.) When it is a diphthong: *foè·tid·us*.
 - 5.) In epithets with the following endings:
 - a.) *-áceus -a -um*: indicates resemblance, e.g., *a·run·di·nà·ce·us* (reed-like).
 - b.) *-òrius -a -um*: indicates capability, action, or function, e.g., *tinc·tò·ri·us* (capable of dyeing; belonging to dyers).
 - c.) *-oideus -a -um*: meaning *like* or *resembling*, e.g., *a·rach·noì·de·us*, resembling a cobweb.
 - b. The vowel of the antepenult is short in other cases, including the following endings of epithets:
 - ábilis -is -e*: indicates capacity or ability; translated *-able*, e.g., *mu·táb·il·is* (changeable); *var·i·á·bil·is* (variable).
 - érrimus -a -um*: superlative degree and translatable *-est* or *very*, e.g., *as·pér·ri·mus*, (very rough or roughest).
 - íbilis -is -e*: indicates capacity or ability; translated *-able*, e.g., *flex·ib·il·is* (bendable).
 - íssimus -a -um*: superlative degree and translatable *-est* or *very*. Thus *ál·tus* (tall) becomes *ál·ti·or* (taller) and *al·tís·sí·mus -a -um* (tallest; very tall).

Some Commonly Mispronounced Names

1. Names containing *-phyll-* (leaf) and *-phil-* (love, loving) in the penult. Both roots sound the same (fíl), but in the former, the accent is on the penult (double consonant rule) while in the latter the accent is on the antepenult: *Allophýllum*, *Ceratophýllum* (not *cěr·ă·tǒfĭ·lŭm*), *Eriophýllum* (not *ěrĭ·ǒfĭ·lŭm*), *Hydrophýllum*, *Lagophýlla*, *Myriophýllum*, *Peraphýllum*, *Stenophýllus*, *Xerophýllum*, *adenophýllus -a -um*, *aphýllus -a -um*, *argophýllus -a -um*, *brachyphýllus -a -um*, *glaucophýllus -a -um*, *heterophýllus -a -um*, *lasiophýllus -a -um*, *leptophýllus -a -um*, *macrophýllus -a -um*, *malacophýllus -a -um*, *microphýllus -a -um*, *orthophýllus -a -um*, *stenophýllus -a -um*, *tetrachýllus -a -um*, *Ammóphila*, *Chimáphila*,⁹ *Eróphila*, *Nemóphila*, *limnóphilus -a -um*, *petróphilus -a -um*, *xeróphilus -a -um*.
2. The *o* in the roots *-com-*, *-dor-*, *-phor-*, *-spor-*, *-stom-*, and *-trop-* is short, thus shifting the accent to the antepenult: *Anisócoma*, *Echinódorus*, *Erióphorum*, *Choríspora*, *Disporum*, *Pittósporum*, *Pleuricóspora*, *Pteróspora*, *Rhynchóspora*, *oligósporus*

⁸ A consonant formed with complete momentary stoppage of breath.

⁹ In *The Jepson Manual* on page 12, Dr. Hickman suggests that *Chimáphila* should be pronounced Chi-ma-**phil**-a, revealing an ignorance of the rules of Latin accentuation.

-a -um, *Adenóstoma*, *Odontóstomum*, *Allótropha*.

3. Names ending in the diminutive *-olus -a -um*. The *o* in this diminutive ending is short, shifting the accent to the antepenult: *Gratiola* (diminutive of *gratia*, grace or favor and pronounced *grā·tī·ō·lā*), *lutèolus -a -um* (pale yellow), *Pýrola* (diminutive of *Pýrus*), *Sálsola* (diminutive of *salty*), *serríolus -a -um* (small-toothed). Some names such as *Viola* (*Viòla* according to some floras) are ancient names and their pronunciation depends upon how they were supposedly originally pronounced. Also do not confuse the diminutive ending *-ola* with the root *-cola*, meaning dwelling, although in these words the accent is also on the antepenult: *ambustícola*, *craterícola*, *montícola -a -um*, *oryzícola*, *saxícola*, *silvícola*, *vallicola*.
4. Words with a short vowel in the penult (unless the vowel is followed by two consonants) have their accent on the antepenult: *Athýsanus* (not *Athysánus*), *Clématis* (not *Clemátis*), *Cýtisus* (not *Cytisus*), *lóngipes* (not *longípes*), *Óxalis* (not *Oxális*), *Saxífraga* (not *Saxifrága*).
5. Words ending in *-eus -a -um* are usually accented on the antepenult: *andromèdeus -a -um*, *androsàceus -a -um*, *arachnoideus -a -um*, *argénteus -a -um*, *purpúreus -a -um*. **Exceptions:** A few names such as *Achillèa* (dedicated to Achilles), *Barbarèa*, *Elodèa*, *gigantèus -a -um*, and *Heraclèum* (dedicated to Hercules) usually retain their classical pronunciations.
6. Words ending in *-stèma* or *-stèmon* (thread, stamen) and *-stémma* (a crown or garland) are all accented on the penult but the vowel is long in the first case and short in the second: *Penstèmon* (although *Pénstemon* in common usage), *Platystèmon*, *Trichostèma*, *Agrostémma*, *Dichelostémma*.
7. Since the vowel in *-lepis* (scale) is short, the accent is shifted to the antepenult: *Chrysólepis*, *Monólepis*, *lasiólepis -is -e*, *macrólepis -is -e*, *Raphiólepis*.
8. Epithets ending in *-stachys* or *stàchyus -a -um* (spike) are accented on the antepenult, which is short in the first case and long in the second: *brachýstachys*, *lasióstachys*, *leióstachys*, *leucóstachys*, *micróstachys*, *melanóstachys*, *athrostàchyus -a -um*, *dasytàchyus -a -um*, *distàchyos -os -on*, *macrostàchyus -a -um*, *megastàchyus -a -um*, *pachystàchyus -a -um*, *psilostàchyus -a -um*. The genus *Agástache* is also accented on the antepenult.
9. Words ending in *-pes* (a foot; sounds like peas) are accented on the antepenult: *cúrvipes* (not *curvípes*), *flípes* (not *filípes*), *laèvipés* (not *laevípes*), *lóngipes* (not *longípes*).
10. Grasses ending in *-thèrum* (awn) are accented on the penult: *Áchnathèrum*, *Píptathèrum*, *Taèniathèrum*.
11. In grasses ending with the root *-chlo-* (grass), the vowel of the penult is short, shifting the accent to the antepenult: *Échinóchloa*, *Hèlèóchloa*, *Hieróchloë*, *Leptóchloa*, *Tórreyóchloa*. These names are commonly mispronounced by putting the primary accent on the penult, e.g., *ē·kī·nō·chlō·ă*.
12. Words with the root *-phyt-* in the penult should be accented on the antepenult: *Anthóphyta*, *Coniferóphyta*, *Lycóphyta*, *Pteróphyta*, *Sphenóphyta*, *Sýmphytum*, *geóphytus -a -um*, *kentróphytus -a -um*, *mesóphytus -a -um*. Some floras are not consistent, accenting the antepenult in some names and the penult in others, e.g., Munz uses *Gayophýtum* and *geophýtum* but *Sýmphytum*.
13. The accent in words ending in *-stylus* or *-stylis* (style) depends on the source language. In Latin the *y* is short, shifting the accent to the antepenult, while in Greek the *y* is long and the penult is accented: *brevístylus -a -um* (Latin), *Bulbóstylis* (Latin), *Fimbrístylis* (Latin), but *brachystýlus -a -um* (Greek), *Hydrastýlus* (Greek), *systýlus -a -um* (Greek).

Secondary Accents

In longer names, the placement of secondary accents can have a marked influence on how the word sounds, e.g., *Selaginélla* can be pronounced *sél·ă·jī·něl·ă* (Webster's Collegiate Dictionary) or *sē·lāj·ī·něl·ă* (Webster's New Collegiate Dictionary). In both the primary accent is on the penult, but a secondary accent is placed on the first syllable in one case and on the second syllable in the other. Most floras using accents do not mark secondary accents, but Jepson's *Manual of the Flowering Plants of California* (1925) does give some secondary accents. In longer names consisting of two or more roots, the secondary accent(s) can often be deduced by applying the same rules that determine primary accent to the initial root(s) of the word: *ándromaèdífōlius -a -um*, *atríplicifōlius -a -um*, *Cératophýllum*, *íntegrifōlius -a -um*.

Vowels

In the English method of pronouncing Latin, the following rules can be applied:

1. *Y*, when used as a vowel, has the sound of *i* in the same position: *Agropýron*, *Allophýllum*.
2. All vowels are pronounced in Latin words with the possible exception of epithets derived from monosyllabic English names such as *Ivesia* (for Ives), *jonesii* (for Jones) or *forbesii* (for Forbes). In these examples, one might hear either *ī·vē·sí·ă* or *īvs·ī·ă*, *jō·nē·sí·ī* or *jōns·ī·ī*, *fōr·bē·sí·ī* or *fōrbs·ī·ī*.
3. Terminal *e*'s are never silent: *Callítriche* (*kă·lít·rī·kē*, not *kăl·ī·trīk*), *Cardámine* (*kăr·dăm·ī·nē*, not *kăr·dă·mīn*), *Pogógyne* (*pō·gō·jī·nē*, not *pō·gō·jīn*).
4. A vowel at the end of a word has the long sound except final *a*, which has an *uh* sound (as in *idea*): *Pogógyne*, *trăcyi*, *Senècio*,

Arnica.

5. The vowel in the final syllable of a word has the short sound except *-es*, which is pronounced *ease*: *Átriplex*, *Artemísia*, *Penstémön* or *Pénstemön*, *Adiántüm*, *cyperoidēs*, *lóngipēs*, *Ribēs*.
6. The following diphthongs are commonly encountered in botanical names and are pronounced as follows:
ae = *è* (long): *Fabàceae* (fā·bā·sē·ē), *Achyrachaèna* (ā·kī·rā·kē·nā), rarely *é* (short): *caespitòsus* (sēs·pī·tō·sūs).
ai = *à* (long): *ida·màia*, *Ailánthus*, *Àira*, *Maiánthemum*. One has to differentiate between *ai* as a diphthong and *ai* as two separate vowels: *Nothocalàis* (nō·thō·kā·lā·īs), *silajfòlius* (sī·lā·ī·fō·lī·ūs).
au = *as* in *auto*: *Adenocaùlon*, *Caulánthus*. In words of German origin, *au* is sometimes pronounced as in *house*: *Kohltrauschia*, *Tauschia*, *Zauschneria*.
ei = *i* (long): *Cheilánthes*, *Ipheìon*, *cleistógamus*. Exception: *ei* followed by a vowel is pronounced *è* (long): *Tritelèia* (trī·tē·lē·ā).
eu = *ù* (long): *Eucalýptus*, *Euphòrbia*. In words of Germanic origin, *eu* is sometimes pronounced as in *oil*. Thus *Heùchera* can be pronounced either *hū·kē·rā* or *hoi·kē·rā* and *Scheuchzèria* either *shūk·zēr·ī·ā* or *shoik·zēr·ī·ā*.
oe = *è* (long): *Foèniculum*, *Ipomozèa*, rarely *é* (short): *coerùleus*. A dieresis (¨) is the only diacritical mark permitted in Latin plant names (Article 73.6) and indicates that the vowels are to be pronounced separately: *Isoètes* (ī·sō·ë·tēs), *Leucothoè* (lū·kōth·ō·ë).
oi = *as* in *oil*: *Boisduvàlia*, *ambrosioides*. In the termination of names such as *Hedýpnois* (hē·dīp·nō·īs), *oi* is not a diphthong.

Consonants

In the English method of pronouncing Latin, consonants are generally pronounced as they are in most common English words.

- c* When *c* is followed by *e*, *i*, *y*, *ae*, or *oe*, it has the soft (*s*) sound: *Àcer*, *Circaèa*, *coerùleus*, *concinuus*, *cylíndricus*. When *c* is followed by *a*, *o*, *oi*, or *u*, it has the hard (*k*) sound: *divaricátus*, *concinuus*, *fruticòsus*, *muscoìdes*, *nidíficus*. Exceptions: *c* is pronounced *sh* when ending or following an accented syllable: *spècies* (spē·shēz), *membranàceum* (mēm·brā·nā·shē·ūm); before *i* followed by a vowel: *speciòsus* (spē·shī·ō·sūs), *Acàcia* (ā·kā·shī·ā), *Crucianella* (krū·shī·ā·nēl·ā); and before *eu*: *setàceus* (sē·tā·shī·ūs).
- cc* When a double *c* is followed by *i* or *y*, it is pronounced *ks*: *Vaccínium*, *phytolaccifòlium*. When it is followed by some other vowel, it is pronounced *k*: *Phytolácca*.
- ch* In words or word roots derived from Greek, the letter *chi* (X, χ) is transliterated as *ch* and has the *k* sound: *Achillèa* or *Achillea*, *Achnathèrum*, *Achyrachaèna*, *Agástache*, *Alchemilla*, *Amelánchier*, *Aristolòchia*, *Bácccharis*, *Botrychium*, *Brachypòdium*, *Callitriche*, *Chaenàctis*, *Chenopòdium*, *Distíchlis*, *Echinòchloa*, *Leptóchloa*, *Lýchnis*, *Machaerocárpus*, *Monochòria*, *Orobánche*, *Paronýchia*, *Polýstichum*, *Rhynchòspora*, *Sisyrrinchium*, *syzigáchne*, *Sónchus*, *Stáchys*, *Torreyóchloa*, *Trichostèma*, *Triglòchin*. In words derived from some other language such as English, Spanish, or Italian, *ch* is pronounced as in *church*: *chilènsis*, *chinènsis*, *fitchii*, *Hutchinsia*, *richardsòni*, *sawatchènsis*, *Zannichèllia*. In names of French origin, *ch* is often pronounced *sh*: *chamissoi* (shā·mīs·ō·ī, for A.L. von Chamisso), *Deschámpsia* (for J.L.A. Loiseleur-Deslongchamps), *Duchésnea* (for A.N. Duchesne).
- ct*, *cn*, *gn*, *mn*, *ps*, *pt*: If at the beginning of a word, the first consonant of the pair is not pronounced: *Cneorídium*, *Ctènum*, *Gnaphálium*, *Mniùm*, *Pseudostellària*, *Ptèlia*. In the middle of a word, both consonants are pronounced: *Arctostáphylos*, *Polycètènum*, *pycnocéphalus*, *salígnus*, *Chrysothámmus*, *Coreópsis*, *Cryptántha*.
- g* When *g* is followed by *e*, *i*, *y*, *ae*, or *oe*, it has the soft sound (as in *gin*): *porrigéns*, *rigidus*, *pogógyne*. When *g* is followed by *a*, *o*, *oi*, or *u*, it has the hard sound (as in *go*): *Polýgala*, *Polýgonum*, *ajugoides*, *Spergulària*. Exceptions to soft *g* sound are found in certain honorary names such as *Gilia*, *geyeri*, and *gibbsii*, which are usually pronounced with a hard *g*.
- sch* In words of Germanic origin, the combination *sch* is pronounced *sh*: *Boschniàkia*, *Eschschólzia*, *Hirschfèldia*, *Kohltrauschia*, *Tauschia*, *Scheuchzèria*, *schrèberi*, *Zauschnèria*. However, in words of Greek origin, the *s* and *ch* are pronounced separately: *moschátus* (mōs·kā·tūs), *Schoenolirion* (skē·nō·līr·ī·ōn), *schoenoides* (skē·noi·dēs).
- t* *T* following an accented syllable and preceding an *i* followed by another vowel is pronounced *sh*: *Géntianèlla* (jēn·shā·nēl·ā or jēn·shī·ā·nēl·ā), *Navarrètia* (nāv·ā·rē·shā or nāv·ā·rē·shī·ā), *Lomátium* (lō·mā·shūm or lō·mā·shī·ūm).
- x* At the beginning of a word, *x* is pronounced *z*: *Xánthium*. In the middle or at the end of a word, *x* is pronounced *ks*: *Fráxinus*, *Èvax*.

The Continental Method

For those who prefer to approximate the Continental method of pronouncing botanical Latin, certain changes in “long” vowel sounds, diphthongs, and consonants should be made. Short vowel sounds would approximate those of the English method.

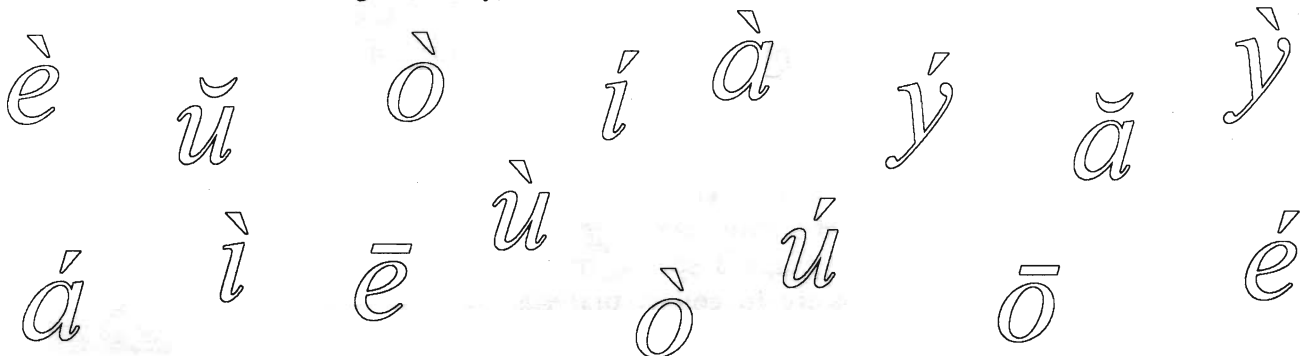
à (long) – pronounced *ah* as in *father* (widely used by American botanists).

è (long) – pronounced *à* as in *pale*.

- i* (long) – pronounced *è* as in *police* (used by some American botanists)
ù (long) – pronounced *oo* as in *rude*.
ae – pronounced *i* as in *ice*.
ei – pronounced *à* as in *veil*.
au – pronounced as in *house*.
eu – pronounced *e·oo*.
c – always as in *cow*, never as in *city* or *gracious*.
g – always as in *go*, never as in *gin*.
j – as in *yes*.
t – always as in *botany*, never as in *nation*.

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A New Ricefield Weed for Butte County

by Vernon Oswald and Lowell Ahart

Lowell Ahart made the first California collection of *Limnophila* in a rice field on the Sam Shintaffer Farms located five miles northeast of Marysville, Yuba County, on 25 September 1977. Several specimens of the Ahart collection sent by Mr. J. Thomas Howell to Mr. T.C. Fuller, Program Supervisor, Laboratory Services/Botany, Division of Plant Industry, Department of Food & Agriculture, Sacramento, were referred to *L. indica* (L.) Druce. Since the plants did not key out cleanly, however, Mr. Fuller sent some of the material to Mr. John Lewis of the British Museum (Natural History) to confirm the identification. Mr. Lewis in turn sent the specimens to Mr. David Philcox, Royal Botanic Gardens, Kew, who had made a recent study of *Limnophila* (A taxonomic review of the genus *Limnophila* R. Br. (Scrophulariaceae).

Kew Bull. 24: 101–170. 1970). On 21 December 1977 Mr. Philcox wrote of the Ahart collection, "I consider this to be an example of the hybrid *L. indica* x *sessiliflora* which has glandular calyx lobes compared with the hirsute lobes of those specimens seen by me in preparing my monograph. As all the other characters compare, I consider this to represent the above

hybrid with a somewhat greater leaning towards *L. indica* (L.) Druce in the calyx characters."

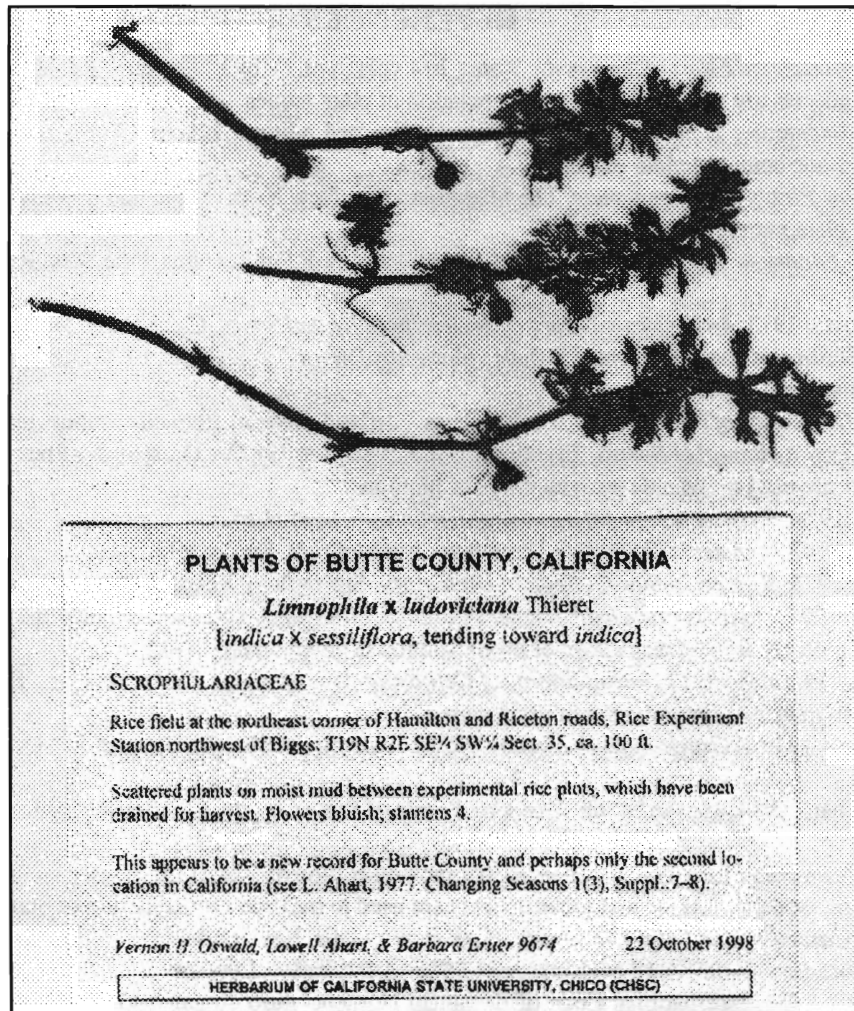
Although Lowell reported his find in *Changing Seasons* 1(3), Suppl.:7–8. 1977, both the report and his specimens, which had been dis-

Aquatic Plants she would be teaching on the 24th and 25th. As plastic bags were being filled with various weeds from drying mud of the drained rice plots, Lowell spotted *Limnophila*, the plant he had collected over twenty years ago in Yuba County. He recognized it immediately and called to us that he had found a new plant for Butte County! Both Lowell and Barbara collected a number of specimens for further study and for pressing.

Although the Butte County plants seemed to be a good match with Lowell's original collection from Yuba County, Dr. Ertter sent some other material to Mr. David Philcox for determination. He concluded that the Butte County *Limnophila* was again the hybrid *L. indica* x *sessiliflora*.

Dr. Fred Hrusa, the Senior Plant Taxonomist at the Plant

Pest Diagnostics Center in Sacramento, has no records of *Limnophila* from California rice fields since Lowell's original collection in 1977 (pers. comm.). Thus our collection at the Rice Experiment Station is not only a new record for Butte County but also only the second collection for California.



tributed to several herbaria, were apparently overlooked during the preparation of *The Jepson Manual*.

On Thursday, 22 October 1998, Lowell and Vern Oswald met Dr. Barbara Ertter at the Rice Experiment Station near Biggs. Dr. Ertter had made a special trip to Butte County to collect material for a Jepson Herbarium Workshop on



Continued from page 2
Message from the Board

next fall semester. Dr. Michael Abruzzo, Chairman of the Department of Biological Sciences, has been working very hard with the campus planning process to move this project forward. Dr. Abruzzo has helped keep this project moving forward even though the current cost estimates are well above the initial expected costs. We'll keep you informed on the progress of this project. We are hoping that our next Annual Meeting can include a dedication of the newly expanded Herbarium facility.

JIM JOKERST FIELD BOTANY AWARD. Two Awards (\$250 each) are again available to students this spring thanks to the continuing support of this Award by our usual anonymous donor. **Applications are due by this coming 12 March.** These Awards are offered to students at CSU Chico, from sophomore to graduate level, working on an Independent Study or Thesis project involving field work in botany or ecology. Project descriptions from the winning applicants, as included with their applications, are published in this *Newsletter*, and Award winners are asked to make short presentations about their projects at the Annual Meeting in October. If you are interested in applying for this Award, or know someone who should apply, you can obtain an application form from the Department of Biological Sciences office any week day or from the Herbarium on Fridays. Thanks to Caroline Warren for volunteering to distribute flyers announcing this Award.

WORKSHOPS. The past year saw a very nice set of workshops offered by the Friends of the Herbarium. See the insert in this *Newsletter* for information about work-

shops for this coming spring, and a beginning schedule for next summer. The Board is always open to suggestions for new workshops. If there is a topic you would like to learn more about, let us know. Especially if you have a particular presenter in mind, local or someone you think might come to Chico to present a workshop, please let us know.

HIRED HELP. The myriad of details required to present our workshops, such as returning phone calls requesting information, registering participants, mailing receipts and directions, etc. has over-loaded your loyal Board of Directors. Jan Monelo in particular has been managing to accomplish much of this detail work. But the Board has decided that some extra help is essential to keeping this workshop program running smoothly. To this end, the Board has authorized the hiring of a part time aide to work one to three hours per week to deal with the workshop details listed above, plus to deal with membership renewals as they come in (remember that the Friends of the Herbarium membership renewal date is 1 May each year). The hiring hasn't been completed yet, but will be in place in time to process registrations for the next workshop.

BOARD MEMBER POSITIONS. We expect one or two Board positions to become open at the end of the current term, 1 May. The Board will soon be establishing a Nominating Committee to seek interested members of the botanical community, professional or amateur, to serve on the Board. If you are interested in such service to the Herbarium and what it represents to the botanical community, please contact a Board member or the Herbarium. Board meetings are held on an irregular, as needed, basis, but sel-

dom more often than once every month or two. A slate for Board of Directors, for approval by the membership, will be mailed out in April, along with a membership renewal reminder. LJ

Continued from page 2
Herbarium Activity

of these hundreds of new specimens each year involves a tremendous amount of work, and everyone who uses the herbarium is indebted to Vern and Lowell for their continuing effort and dedication.

COMPUTER. As mentioned above in the message from the Board of the Friends of the Herbarium, the Herbarium will soon have a new computer and printer. This will be a PC, with its principal function being to house the herbarium database. This databasing of the herbarium collection and library will be a long-term project. Grant money is being pursued by the Herbarium Director and by the Friends of the Herbarium to accomplish this project in a more timely manner. In the meantime, volunteers are needed to get the project underway. It is hoped that the Curator and Herbarium Assistant will have time to at least database the Herbarium library. This cataloguing of the Herbarium library will simplify determining which donated books and journals to keep in the Herbarium, and which ones can be traded with other herbaria for plant specimens or other journals. Databasing of Herbarium specimens is proceeding, often very slowly, at herbaria throughout the world, in order that each Herbarium's holdings may be more readily accessible to researchers around the world.

LJ



Yes! I would like to join!

____ Student.....\$5.00
____ Individual\$10.00
____ Contributing\$25.00
____ Sustaining\$100.00
____ Lifetime\$1,000.00
____ Donation\$ _____

This is a renewal for 1999

Please make your check payable to:

"Friends of the Biological Sciences Herbarium"

Name _____

Organization _____

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The draft **Sacramento River Conservation Area Handbook** has just been published by the Sacramento River Advisory Council. The Handbook offers information on the biology, land use patterns, political jurisdictions, and riparian habitat programs on the Sacramento River today. It outlines the Advisory Council's riparian habitat management principles and guidelines, as well as recommended actions for the future. Copies can be obtained for \$10 from the California Department of Water Resources, P. O. Box 942836, Sacramento, CA 94236-0001. Make checks payable to Department of Water Resources. California residents add current sales tax. FOR A LIMITED TIME, COPIES WILL BE AVAILABLE FOR FREE TO FRIENDS OF THE HERBARIUM. PLEASE CALL JOYCE LACEY RICKERT AT (530) 529-7333 TO RESERVE A COPY.

Friends of the Biological Sciences Herbarium

California State University, Chico

Chico, CA 95929-0515

(530) 898-5381

ADDRESS CORRECTION REQUESTED

WORKSHOPS

SPONSORED BY THE

FRIENDS OF THE BIOLOGICAL SCIENCES HERBARIUM

CALIFORNIA STATE UNIVERSITY, CHICO

BOTANICAL ILLUSTRATION.

17 April 1999, Saturday.

INTRODUCTION TO FLOWERING PLANT IDENTIFICATION, TERMINOLOGY, AND TECHNIQUES FOR BEGINNERS. 24 April 1999, Saturday.

IDENTIFICATION OF PLANTS FROM VERNAL POOLS AND OTHER SEASONAL WETLANDS.

8 May 1999, Saturday.

FIELD PHOTOGRAPHY.

14-15 May 1999, Friday & Saturday.

INTRODUCTION TO KEYING THE SUNFLOWERS (ASTERACEAE).

25 September 1999, Saturday.

TO REGISTER FOR WORKSHOPS:

Please make checks payable to:

"Friends of the Biological Sciences Herbarium"

include your name, address, and phone number and mail to:

Friends of the Biological Sciences Herbarium

California State University, Chico

Chico, CA 95929-0515

BOTANICAL ILLUSTRATION. 17 April 1999, Saturday.

Want to draw plants and flowers? Here's your chance! Local illustrator and teacher, Judy McCrary, will lead this one day workshop on botanical illustration. The workshop will concentrate on pencil and ink techniques, although other media may be explored depending on the interests of the participants.

Please bring an HB pencil and ink pens, nibs, and black ink if you have them on hand – these and other basic materials, including paper, will be available for purchase at the class. Let's all bring plant cuttings and flowers to draw and share. Please also bring a lunch.

The workshop will meet on Saturday, April 17, from 10:00 am to 4:00 pm in Holt Hall room 129 at CSU Chico. Registration for the workshop is \$35.00 (\$25.00 for members); please register in advance. Class size is limited to 15 participants; older children are welcome to register. For more information about workshop content, please contact Judy McCrary at (530) 589-1418. For information about registration or directions, please call the Herbarium at (530) 898-5381.

INTRODUCTION TO FLOWERING PLANT IDENTIFICATION, TERMINOLOGY, AND TECHNIQUES FOR BEGINNERS. 24 April 1999, Saturday.

California has over 5,800 species of flowering plants, roughly 30% of all North American plant species (north of Mexico). How do you accurately figure out the name of a plant without thumbing through incomplete picture books? How do botanists go to a totally new area and make an accurate and complete plant list? This workshop will answer those questions and get you started identifying plants by yourself.

The workshop is designed to introduce beginners in plant identification to the terminology and techniques essential to identifying flowering plants using *The Jepson Manual*. Students will work with fresh plant material that illustrates the terminology used in plant identification, they will be introduced to using and writing plant "keys" (a central concept to identifying plants), and they will learn how to dissect flowers with a dissecting microscope and a hand lens. Emphasis during group instruction will be in the use of keys available in *The Jepson Manual*.

Some of the basic equipment is available to loan to workshop participants, but if you have any of the following items please bring them: hand lens, forceps (tweezers), dissecting needle, 6" millimeter ruler, and *The Jepson Manual* (please let us know what you need to borrow).

The workshop will meet Saturday, April 24, from 9:00 am to 4:30 pm in Holt Hall room 129 at CSU Chico. The registration fee is \$35.00 (25.00 for members); please register in advance. The class is limited to 16 participants. This workshop is led by John Dittes, local botanist and consultant with Jones & Stokes Associates of Sacramento. For more information about this workshop, please contact John Dittes at (530) 895-0349 or 105544.467@compuserve.com. For more information about registration please call the herbarium at (530) 898-5381.

IDENTIFICATION OF PLANTS FROM VERNAL POOLS AND OTHER SEASONAL WETLANDS.

8 May 1999, Saturday.

Vernal pools and other seasonal wetlands are fascinating and complicated habitats that support hydrophytic plant species from a variety of flowering, and non-flowering, plant families. This workshop will provide an opportunity to practice your plant identification skills, and at the same time become more familiar with the diverse and unique flora of seasonal wetlands.

This one day workshop is designed for those who already have a beginning understanding of the terminology used in plant identification, and the use of *The Jepson Manual* as a plant "key." Fresh and pressed specimens of local plants will be provided for participants to key, mostly as individuals with one-on-one instruction, and also as a group. Emphasis of group instruction will be placed on the recognition of families and the morphological features used to delimit genera and species. An overview will also be provided of the types of seasonal wetlands in northern California and some of their important ecological characteristics. Some of the basic equipment is available to loan to workshop participants, but if you have any of the following items please bring them: hand lens, forceps (tweezers), dissecting needle, 6" millimeter ruler, and *The Jepson Manual* (please let us know what you need to borrow).

The workshop will meet Saturday, May 8, from 9:00 am to 4:30 pm in Holt Hall room 129 at CSU Chico. The registration fee is \$35.00 (25.00 for members); please register in advance. The class is limited to 16 participants. This workshop is led by John Dittes and Josephine Guardino, local botanists and consultants with Jones & Stokes Associates of Sacramento. For more information about this workshop, please contact John Dittes at (530) 895-0349 or 105544.467@compuserve.com. For more information about registration please call the herbarium at (530) 898-5381.

FIELD PHOTOGRAPHY. 14-15 May 1999, Friday evening and all day Saturday.

We've all marveled at the wonderful photographs of flowers shown by experienced photographers. Here is an opportunity to learn some of these techniques.

This workshop is an introduction to field photography with an emphasis on photographing wildflowers. The workshop will be led by local botanist Maryanne Griggs, and will consist of a short Friday evening slide show and introduction to tools and equipment, and an all day field class on Saturday. Please bring your camera, tripod (or substitute), and close-up lens (or extension tubes), as well as lunch and water for the field portion.

The Friday evening introduction will be from 7:00 pm to 8:30 pm in Holt Hall room 129 at CSU Chico; we will be carpooling in our own vehicles to a local site for the 9:00 am to 5:00 pm field day. The registration fee is \$35.00 (\$25.00 for members); please register in advance. The class is limited to 16 participants. For information about workshop content, please call Mary Ann Griggs at (530) 824-4862. For information about registration or directions, please call the Herbarium at (530) 898-5381.

INTRO TO KEYING THE SUNFLOWERS (ASTERACEAE). 25 September 1999, Saturday.

With over 1,300 genera and 21,000 species recorded, the sunflower family (Asteraceae) is the largest plant family in the world, and with over 207 genera represented, it is also the largest family in California. Come and learn the taxonomy of this remarkably diverse group with John Dittes, local botanist and consultant with Jones and Stokes Associates. John will lead this one-day workshop during which participants will key as a group and individually, using *The Jepson Manual*. John will provide fresh specimens from Butte, Tehama, Plumas, Lassen, and Sierra Counties. Beginners, as well as those wishing to brush up on their skills, are invited.

Please bring forceps (tweezers), dissecting needle, and a 6" millimeter ruler. You are also invited to bring any plants you may have been wondering about. If possible, also bring a copy of *The Jepson Manual* (we have several copies to loan to those who need them); we can direct you to sources for *The Jepson Manual* if you contact us ahead of time.

The workshop will meet on Saturday, September 25, from 9:00 am to 4:30 pm in Holt Hall room 129 at CSU Chico. The registration fee is \$35.00 (\$25.00 for members); please register in advance. The class is limited to 16 participants. For more information about workshop content, please contact John Dittes at (530) 895-0349 or 105544.467@compuserve.com. For information about registration or directions, please call the Herbarium at (530) 898-5381.