

KALMIOPSIS

Journal of the Native Plant Society of Oregon



Morton E. Peck, 1871-1959

KALMIOPSIS

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EDITORIAL

At long last your journal *Kalmiopsis* appears. This issue celebrates four major projects in Oregon of great interest to NPSO membership. First, a selection by Susan Kephart from the upcoming biographical compendium, *Plant Hunters of the Pacific Northwest*, edited by Art Kruckeberg and Rhoda Love. Second, a summary of the Oregon Flora Project by Ken Chambers and Scott Sundberg, with a complete list of name changes for Asteraceae. Third, an overview of the Siskiyou Field Project, by Jen Marsden and Eric Jules, including a listing of classes for 2001, and finally, a sampling of the Carex Working Group's tome on Oregon sedges. Many thanks to the authors for their contributions, to readers for their patience, and especially to the invaluable help of new assistant editor Cindy Roché. We have implemented many changes within *Kalmiopsis*, and look forward to receiving your comments.

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COVER PHOTO

Morton E. Peck circa 1936; University Herbarium Archives, UC Berkeley

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MORTON EATON PECK: Field Botanist, Poet, and Author of *A Manual of the Higher Plants of Oregon*

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(Adapted from an essay that will appear in *Plant Hunters of the Pacific Northwest*,
edited by A. Kruckeberg & R. Love)

In January 1955, Nancy Stuart of *The Oregonian* closed her feature article on Morton Peck, the “Dean of Oregon Botanists,” with excerpts from the inscription of his award from the national research honorary society, Sigma Xi: “To Morton Eaton Peck in recognition of his accomplishment in the field of botany; of his labors as an inspiring teacher; of his years of patient research and extensive knowledge of Oregon plant life... [and] of his service to the people of Oregon and the Pacific Northwest...” This inscription is perhaps the most fitting summary of the professional life and accomplishments of a man whose work and personage touched many lives, culminating in the legacy he left among botanists and friends.

Synopsis. MORTON EATON PECK (1871-1959). Morton Peck was born and educated in Iowa, earning an A.B. degree (1895) and A.M. degree (1911) from Cornell College in Mt. Vernon, Iowa. He was awarded honorary doctorates from Cornell College in science (1940) and from Willamette University in literature (1955) for his extensive systematic and floristic studies and his accomplishments in poetry, respectively. After receiving the bachelor’s degree, he taught for one year as an instructor of biology in Marionville, Missouri, prior to serving positions on the faculty of Ellsworth College (1897-1905), Iowa Wesleyan College (1907-1908), and Willamette University (1908-1941), where he continued as an emeritus professor in Salem, Oregon, following a 33-year tenure as chair of the biology department. He received numerous honors including election to the American Ornithological Union (1909) and citations as Outstanding Scientist for the State of Oregon by Phi Beta Kappa and Sigma Xi in 1943 and as a distinguished researcher in horticulture by the Oregon Federation of Garden Clubs (1958). Other professional societies with which he was affiliated included the American Association for the Advancement of Science, the American Society of Plant Taxonomists, the Botanical Society of America, the California Botanical and Ornithological Societies, and the California, Iowa, and Oregon Academies of Science. Peck traveled and collected extensively throughout the Pacific Northwest and in Central and South America, amassing notable collections of myxomycetes (slime molds), vascular plants, and birds. His first edition of *A Manual of the Higher Plants of Oregon* appeared in 1941. His wife, Jessie Grant Peck, accompanied him on collecting trips and was an instructor of biology and herbarium assistant at Willamette University. Morton Peck is credited with discovering and naming over 50 species; he authored numerous publications, pursuing his research at institutions as distant as the British Museum of Natural History, Kew Gardens, and the University of Edinburgh. Duplicate specimens and types are housed in most major U. S. herbaria, and

correspondence from other scientists reside with the Peck Herbarium (WILLU). Some archival field reports of biological surveys exist at the Smithsonian. Peck completed a revised manual of Oregon plants prior to his death in 1959; a grant from National Science Foundation and the cooperation of the Oregon State College Press permitted its final publication in 1961.

Early Childhood and Education

A native of La Porte, Iowa, Morton Peck was born on 12 March 1871 to Clara Eaton and George D. Peck at a time when, according to Peck, Iowa still had “much uncultivated land and a good deal of timber.” In an unpublished, handwritten autobiography that was probably solicited by Albert Sweetser, Peck connects his earliest interest in the out-of-doors to “birds, insects, and fishing” and to his father. Helen Gilkey, a professor at Oregon State College with whom Peck corresponded in later years, learned that as a young lad Morton was often carried into the field on his father’s back. According to Peck, his father preferred living on the outskirts of civilization unlike his mother who “liked neighborhoods instead!” Thus, in compromise, his childhood home and birthplace was a log-cabin somewhat distant from town, where he attended a country school. He first collected organisms at age 11, and his literary aspirations began before he left the country school at 16 to attend La Porte City High School. Peck reflects that his first attempts yielded “abundant and very bad verses.” He left high school without graduating, but authored his first published work, *Webster’s Ghosts and Other Verses*, prior to his junior year.

After high school, Peck taught in country schools for several years before entering Cornell College in Mt. Vernon, Iowa. Initially in college he “gravitated naturally to the classics and to literature,” but when he began to study plants more intimately his junior year, “he knew he had found his field.” At this time, the slime molds Peck collected were members of the Kingdom Plantae, and his work led to an enduring friendship with Thomas Macbride, a professor of Botany at the University of Iowa whom Peck describes in 1936 as “the finest and most cultured man I have ever known.” Peck initiated their correspondence to obtain identification of his specimens, but later his wife Jessie describes many hours where the two of them “met and worked together with these tiny, beautiful plants.” Peck gathered over 1000 myxomycetes in Iowa and Oregon, and his collections are still housed on the campus of Willamette University in Salem, Oregon. Many of Macbride’s personal and professional letters to Peck, from 1927 until Macbride’s death in Seattle in 1934, exist in notebooks at the Oregon State University Herbarium (OSC), where the vascular plant collections of Peck (WILLU) now reside on permanent loan. From the letters, it is evident



Jessie Peck, Willamette University, 1918.
Courtesy or Hailie Ford Museum PLS90-A232.



Morton Peck, Willamette University, 1918.
Courtesy or Hailie Ford Museum PLS90-A217.



Morton Peck, explorer and naturalist at work.

that Macbride valued highly the work of his colleague, whom he had once hoped to hire as a collections assistant. Macbride lamented misplacing one of Peck's manuscripts prior to preparing his treatments of myxomycetes and even volunteered to provide the illustrations to get it published as a separate work. Macbride also arranged to have Biological Abstracts sent to Peck, who had limited access to such resources in Oregon.

Post-Graduate Years and Early Exploits

Upon graduation from Cornell College in 1895, Peck's first position was as an instructor of biology in the Marionville Collegiate Institute, Marionville, Missouri. There he began a life-long career in teaching that continued until his retirement from Willamette University. In 1897, he accepted a professorship in biology at Ellsworth College in Iowa Falls, where his eight-year tenure was interrupted twice by adventuresome travels. His first excursion (1903-1904) began with a float trip down the Mississippi River via the Cedar River, included a train trip to New Orleans and passage on a United Fruit Company steamer to British Honduras, and provided many observations of new birds and mammals. He shared the second trip to Belize (1905-1907) with his new bride, who had been a student of botany at Ellsworth College. Their marriage presumably caused quite a stir. The Iowa Sentinel described the bride, Jessie Grant, as an "estimable young lady" from "one of the substantial families of north Hardin" and the groom as "an exemplary young man" and "noble citizen." Although only immediate families and relatives attended the marriage ceremony, students soon discovered their secret, nearly burying the couple under "a shower of rice and old shoes" and further decorating the New Orleans-bound suitcases with "several styles of appropriate emblems!" As for the trip, Peck bemoaned that he had described it to Jessie "in I fear too brilliant colors." They had just enough money to get started and Jessie had "never been away from home before." She further wrestled with at least one bout of malaria! However, "when that was over we had glorious times, and the trip lengthened to two years...." Both grew increasingly fond of

their wilderness excursions in Belize and only returned to avoid becoming "out of step with civilization." Peck conjectured that their collections added 50-60 new species to the flora and several birds to the fauna of British Honduras. Even the Iowa Sentinel was ready to lay claim in advance to the potential import of their exploits, noting that "Prof. Peck will be our foreign correspondent, keeping our readers informed of his explorations in that Tropical clime."

Educational Endeavors at Willamette University

Once back in the United States, Peck accepted a professorship in Biology at Iowa Wesleyan University. After only one year, however, a "severe attack of rheumatism" led him to emigrate to Salem, Oregon in 1908, where his parents were already residing, and where he became the sole biology faculty member at Willamette University. In the College of Liberal Arts, his only science colleague was a Professor of Chemistry and Physics, Dr. von Eschen, at a time when the student body numbered only 74. During this period, Willamette University also had a 16-member faculty in its Medical School, an entity that, after a controversial move to Portland, Oregon in 1912, eventually became Oregon Health Sciences University. Fortunately for botany and Peck, however, the College of Liberal Arts expanded in Salem and began to increasingly value discipline-based teaching and research in an atmosphere of scholarly collegiality. By the time of Peck's retirement in 1941, the College of Liberal Arts had grown to 40 full-time faculty and 809 students. That Peck may have tempted to go elsewhere during his tenure is implied from archival correspondence from the early 1920's between University of Oregon botanist, Albert Sweetser, and President, P.L. Campbell. Apparently Peck expressed an interest in the invitation for him to join their faculty, but both parties agreed to wait a year, reputedly in deference to Willamette President Doney, and to allow Peck more time to finish classifying a set of plant specimens. The move never transpired, however, and later documents, presumed to be written by Jessie G. Peck, suggest that Willamette University was where he "spent the best

years of his life” doing “his finest work.” In his handwritten 1936 autobiography, Peck comments, “I have enjoyed my teaching work thoroughly and have never felt that I would like to give it up.” He further acknowledges “the many strong personal friendships” among former students, himself, and Jessie that developed over 25 years.

That students held Peck in high regard is evident from historical documents, discussions with alumni who knew him as students, and published accounts of Peck’s life and professional activities. Recent phone interviews with former acquaintances and alumni note that Peck was friendly and well-liked by students. In 1914, Peck resolved, in the students’ favor, a contentious issue with President Homan over which the senior class threatened to withdraw, denying the university a graduating class (Gatke 1943)! Later, President Doney describes Peck’s popularity and reputation (Gatke 1943): “The Professor’s classes soon filled so that Mrs. Peck assisted himThe students say he is square, so wondrously square that he wants the same quality in them [i.e. technical knowledge]...as for common sense, straightfire good judgment, he is a mingling of Lincoln and Coolidge.” Professor Peck was also known to quiz students during “junior generals,” a two-hour exam that continued to the present day as one-hour “senior orals.” However, one can imagine a very different environment for learning in those days. Native wildflowers and grasses were still present along the Mill race for field study, and lecture rooms (circa 1905) “often proved to be of great disadvantage to our instructors” especially when “accompanied by large and noisy brass [street] bands...[that so] flood[ed] the air with noise [that] no germ could live, no human mind could function....” During Peck’s tenure, university life was also different; heads of departments reported directly to the presidents who were often “dictatorial,” and faculty “lived on a pittance, had “terrible insurance and pensions,” were elected yearly with no promise of tenure, and mostly remained at the university out of dedication to students and to their profession. Similarly, students mostly “worked their way through school, and had few luxuries.” However, various historical documents, and conversations with former faculty and students, suggest a

feeling of mutual respect and camaraderie that continues even today.

Social and Literary Pursuits

Acquaintances on the faculty who knew Peck during the later part of his career describe him as pleasant, scholarly, and well-liked but “more conversant in small groups.” His wife Jessie was “an ardent conversationalist,” and both frequented formal faculty dinners that were the custom in those years. They lived a short distance from campus in a house that still stands at 1552 Court street, and where for over 45 years “they greeted the great and near great from all over: maybe to help identify some simple plants, maybe to pass on some priceless bit of ‘botanical wisdom’... along with the ‘tallest stories’ as told by Mrs. Peck....” These included botanical expeditions along “the old Indian trail over Cape Lookout on the Oregon coast,...or ‘running’ the meagerly furnished hotel at Denio on the Oregon-Nevada border.” Not surprisingly, they discussed the dangers they faced while collecting in the same manner that “the average person might speak of a casual morning walk to the post office” (Gatke 1943).

Peck’s literary penchant also flourished at Willamette University and in Salem where he consorted with Professor Richards in English, was part of an active faculty book club, and figured prominently in the writers section of the Salem Arts League (*Oregon Statesman*, 1925). His most notable literary accomplishment was the *Book of Bards and Other Poems*, a volume of poetry published by Gorham Press in 1923. President Doney described it as “delicate, subtle, an aeolian whisper from the flowers and trees and skies, slipping into the human heart to interpret its deep experiences.” One contemporary suggested that Peck’s poetic instinct helped him “to interpret the beauty and majesty of the biological sciences” from the perspective of one who saw “unity and plan ordered and touched by infinite Intelligence.” But neither his Republican political affiliations nor his ties to First United Methodist Church in Salem kept him from accepting scientific truths. In an apparently unpublished manuscript entitled “Earth’s Green Mantle,” he uses



Morton and Jessie Peck on horseback during their explorations of the Oregon flora.

literary metaphors to describe topics as diverse as genetic change and adaptation, chromosomal inheritance, species concepts, endemism, and extinction in plants.

Collecting Trips & Professional Accomplishments

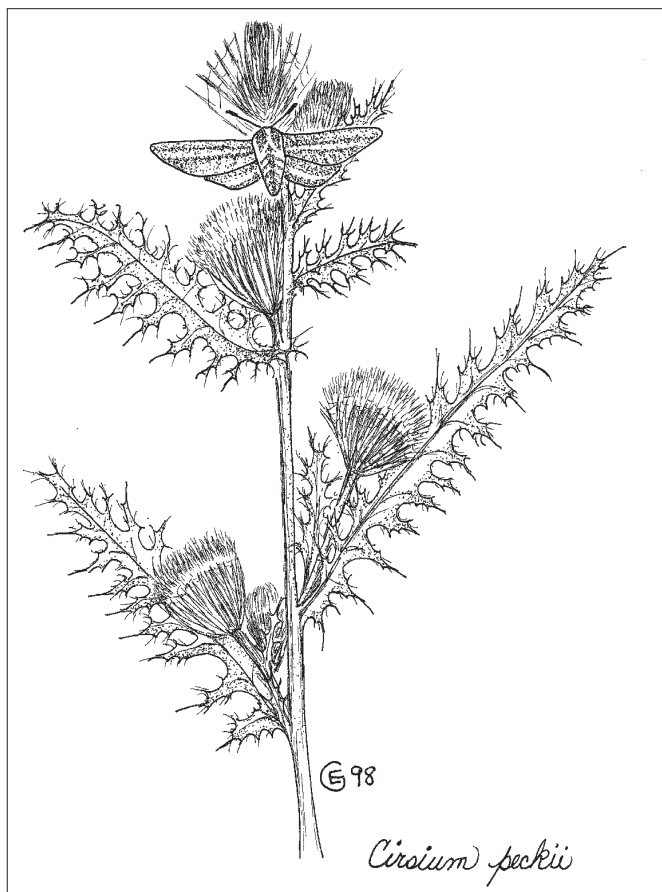
Whereas Peck regarded his literary achievements as something he completed “just for the enjoyment of it,” he not only enjoyed his work as a botanist but also took it seriously. The two most tangible results of those efforts were the Peck Herbarium of Willamette University (WILLU) now housed at Oregon State University in Corvallis, Oregon, and two separate editions (1941, 1961) of *A Manual of the Higher Plants of Oregon*. Though now out of print, this book is still the only existing comprehensive flora for the State of Oregon. Except for a sabbatical leave granted in 1928-29, Morton and Jessie Peck collected most of their plants on weekends and during summers, when the responsibilities of teaching were less onerous. They financed their travels through personal income and the sale of herbarium specimens at a price of 8 cents per sheet; in addition, Peck provided plant lists and specimens as part of the U. S. Biological Survey. By the time of his retirement, Peck and his collaborators had collected about 1600 slime mold specimens, over 1000 Central American plants, and about 40,000 sheets of plants in Oregon and the adjacent western states. The bird and mammal collection he amassed with his father and sold to Ellsworth College in 1904 for \$300 was worth nearly \$100,000 in 1963. Central American bird skins were also deposited at Carnegie and Harvard Museums. In the early 1900's, Peck studied as far afield as Kew Gardens,

the British Museum of Natural History, and The University of Edinburgh. Today, type specimens and duplicates of his many plant collections can be found in major world herbaria, including Harvard, Kew, Stanford, the Missouri and New York Botanical Gardens, the California Academy of Sciences, the U.S. National Herbarium, and the University of Washington Herbarium. Sadly, his field notebook is missing; it may have disappeared after his death or that of Jessie Peck. During this time, a neighbor apparently rescued some of the few notes and items that remain in archives at Willamette and Oregon State Universities.

Peck's influence on taxonomic botany is evident in the many names, author citations, and collections that bear his mark. Namesakes include plants and fungi as diverse as *Castilleja peckiana* Pennell, *Lathyrus peckii* Piper, *Lomatium peckianum* Mathias & Constance, *Poa peckii* A. Chase, *Phacelia peckianum*, *Penstemon peckii*, *Sanicula peckiana* Robinson, and *Hydnellum peckii*. The latter is a fungus, “strawberries and cream,” known throughout California. Peck also illustrated his collections of myxomycetes in watercolor prints that he “intended mostly for class use.” Chambers (1977) describes Peck as a “discriminating collector” whose herbarium was rich in taxonomically difficult groups; he records 58 holotypes or isotypes of taxa described by Peck. Twenty-nine additional taxa were either based on Peck's collections or named by him, but their documentation by types is uncertain. In Belize, he collected many new plants in riparian habitat (e.g., Manatee Lagoon); the Belize types included *Inga peckii* B.L. Robinson, *Acacia bucerophora* B. L. Robinson, and *Paspalum peckii* F.T. Hubbard. In Oregon, he frequented places as distant as Malheur County and portions of southeastern Oregon where he described new species (e.g. *Polygonum heterosepalum* Peck and Ownbey) and rediscovered some of Cusick's plants. In Central Oregon, he was particularly fond of the Three Sisters mountains and the Metolius River where he found two of the taxa that later bore his name (i.e., in *Poa* and *Penstemon*). Lincoln Constance (1960) describes his knowledge of the flora of the Willamette, Steens, and Cascade ranges as an “incomparable one,” achieved often under difficult travel by foot, horseback, and car.

The Peck Herbarium was the culmination of a lifetime's work. Peck's knowledge of the Oregon flora and other works earned him a reputation as the “senior resident botanist,” succeeding pioneers such as William Cusick, Thomas Howell, and Louis Henderson (Chambers 1977). Oddly enough, both Cusick and Howell were family farmers in Oregon who once attended Willamette University; Henderson also lived contemporaneously with Peck, emerging from retirement in 1924 to curate the University of Oregon Herbarium (Thatcher 1978). Curiously, it seems likely that Peck turned down the same position to devote time to his own growing herbarium, which at various times has included from 33,000-40,000 sheets. The importance of the herbarium is highlighted in his correspondence to Willamette University President Smith, nearly three years before Peck's death:

The herbarium is still my sole interest to which I have a modicum of energy remaining to devote...but have not quite given up the hope of seeing [it] at least once more, with extended facilities for study and research, for which I daily feel indebted.



Cirsiium peckii, drawn by Esther McEvoy.

Clearly, based on his autobiography, Peck regarded *A Manual of the Higher Plants of Oregon* as his greatest achievement. The San Francisco Chronicle first announced its sale in September 1941 at a price of \$5.00 and reiterated Peck's goal of writing a manual accessible enough to allow persons with a "minimum of technical knowledge" to "determine the genus, species, range, and typical habitat" of over 3000 Oregon ferns and flowering plants. Peck was successful because the original flora and his revision of it in the 1950's were the products of many years of study and field work, correspondence with other botanists and taxonomists, and sheer perseverance. His manual was based on an intimate, first-hand knowledge of a diverse flora, and, according to Art Cronquist, on an "excellent collection of Oregon plants, the most complete, so far as I know that exists." Moreover, Peck had the support and broad expertise of a community of botanists with whom he corresponded regularly, exchanging specimens, identifications, and locality data. These colleagues included, among others, L. Bailey (Cornell); L. Detling (University of Oregon); J. Howell (California Academy of Sciences), C. Hitchcock, and J. Thompson (University of Washington), W. Jepson, L. Constance, and G. Stebbins (University of California at Berkeley), B. Maguire (New York Botanical Garden); P. Munz (Pomona); M. Ownbey (Washington State University); R. Rollins (Stanford and Harvard); and C. Weatherby (Gray Herbarium). Furthermore, Helen Gilkey (OSC) kindly intervened to dissolve publisher Peter Binford's concerns that such a technical book would have a limited market and a "difficult set-up."

Almost without exception, Peck's flora received enthusiasm and praise for its format, good prose, and lightweight size, its phylogenetic keys, new floristic records, thorough descriptions and treatments, discussion of Oregon physiographic provinces, and likelihood of promoting the study of Oregon plants. Examples of comments gleaned from correspondence deposited at OSC include accolades from Munz that "it stands up to use!" and from Constance, who declared,

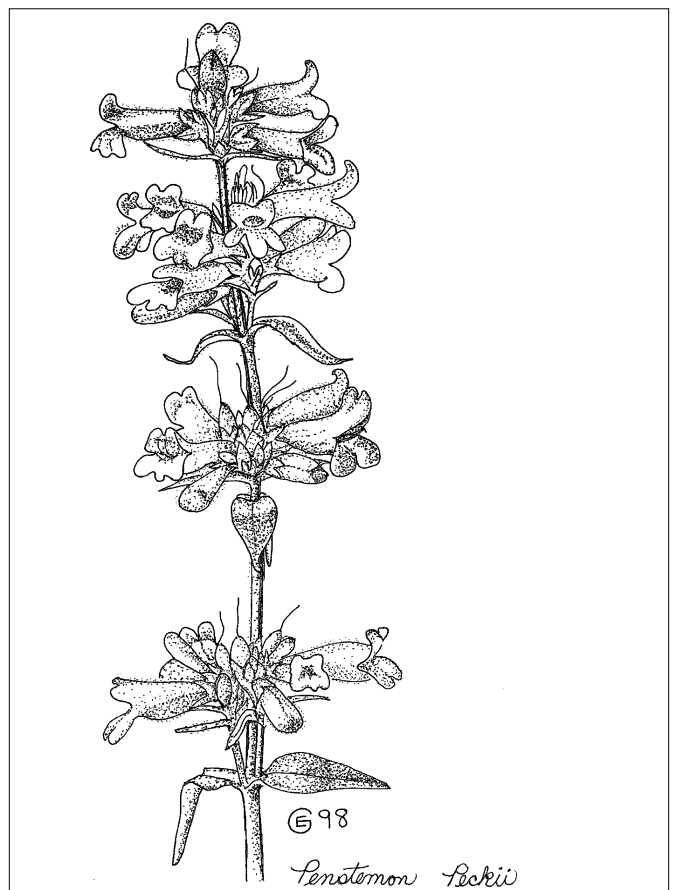
I am frankly delighted with your new Manual! I knew that it would be a carefully conceived and painstakingly prepared volume, but the actual book is much more than that. In my humble opinion, it is one of the two or three best floras that have been written on the Pacific coast, and I am not sure but it may not prove to be the best of the lot...

Similarly, Hitchcock congratulates Peck on a "beautiful piece of work...[that] seems to be as nice a flora as I have seen." Hitchcock in fact used Peck's manual extensively in taxonomy courses at the University of Washington until his own flora was completed. Gilkey further noted the manual's usefulness in untangling difficulties with Oregon plants. Yet Peck's flora was not without a few drawbacks: *e.g.*, its only illustrations were part of a technical guide to basic plant parts. Peck also regretted various typographical errors, but these merely underscored the enormous task he had undertaken. His strongest critic was W. H. "Red" Camp (New York Botanical Garden), who cited insufficient bibliographic referencing of new combinations. His negative remarks in *Taxonomic Index* drew a backlash of criticism, however. Camp later acknowledged Peck's limited access to the "nec-

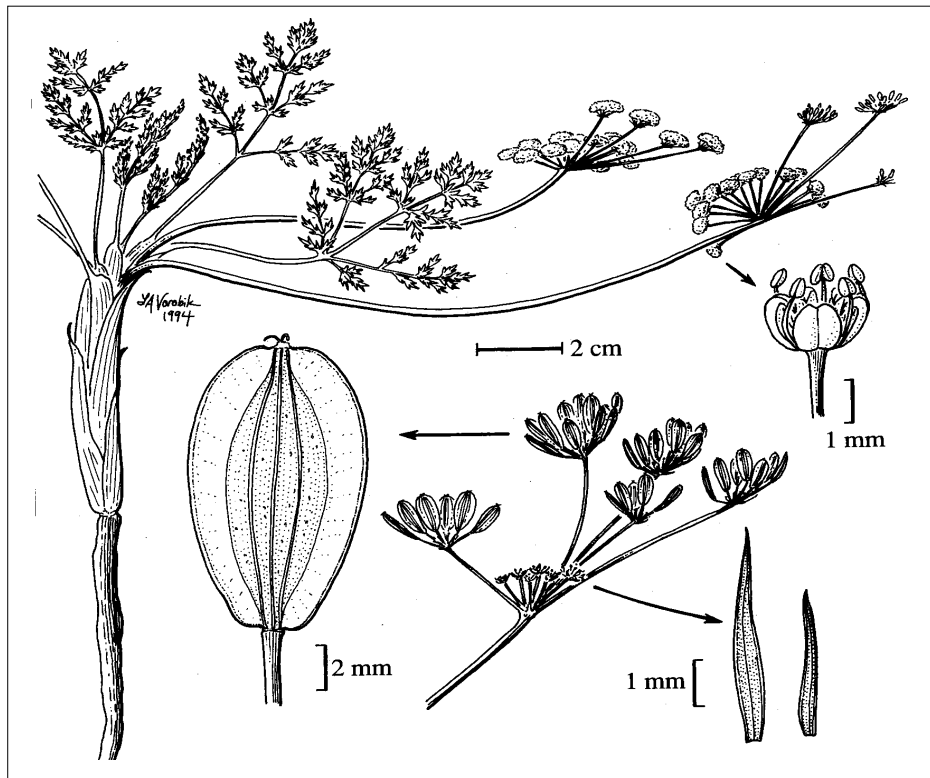
essary bibliographic aids and literature," and admitted that his form was valid under nomenclatural rules. Many colleagues wrote letters of support to Peck, including Reed Rollins, who noted that Camp "tends to be a bit 'flip' on things of real significance, at other times giving undue attention to publications of far less merit."

Peck's interests were wide-ranging within the areas of floristic botany, taxonomy, and phytogeography; he regularly published short articles of a descriptive nature on vegetational provinces within Oregon and the Pacific Northwest. Letters to Peck also suggest an interest in large trees (*e.g.*, Oracle Oak), in conifer diversity, including the Modoc cypress, and in protecting areas of diversity within "some kind of primitive area," perhaps foreshadowing the modern concept of "Research Natural Areas" and other similar designations. He corresponded extensively with J. Thomas Howell in the 1950's concerning endemism and the boundaries of the California Floristic Province. Howell describes his first visit to meet Peck in 1952 as part of a 4300-mile trip to collect *Cirsium* for the Abrams flora: "As I look back over it all, one of the happiest, pleasantest moments of the whole outing was my visit with you in Salem. I am ever so grateful to you for the privilege of examining your specimens and I treasure the memory of our afternoon together." Certainly, the quiet, yet humble personage of Peck left a mark on posterity.

What is unfortunate is that so little of the correspondence of record was actually penned by Peck. Thus, most of what we know comes from the letters of others, and very little is known



Penstemon peckii, drawn by Esther McEvoy.



Lomatium peckianum, drawn for Lincoln Constance of UC Berkeley by Linda Ann Vorobik.

of how Peck viewed his own work and collegial relationships. From correspondence in presidential files, Peck apparently held Henderson in high regard, commenting in a letter to University of Oregon Professor Sweetser in 1939 that "I do not like to think of the University of Oregon Herbarium without Professor Henderson..." In addition, Peck's correspondence with some individuals either predates the publication of his flora and/or spans enough years to be considered indicative of long-standing personal or professional relationships: these persons include Milo Baker, Carleton Ball, Lincoln Constance, Helen Gilkey, Thomas Macbride, Oliver Matthews, Marion Ownbey, Francis Pennell, J.W.Thompson, Charles Weatherby, and Edgar Wherry.

Peck's health began to fail as early as 1952, when, by letter, J. T. Howell expressed hope that his condition would improve. The fact of his illness must have been well known even a year later when Bartlett mistakenly referred to the "late Professor Morton Peck" in an early draft of a biographical sketch mailed to Willamette University; the error was corrected prior to the article's publication in the *Asa Gray Bulletin*. Yet another similar error surfaced in 1958 when a newspaper account claimed Peck's award from the Oregon Federation of Garden Clubs to be posthumous! The cause of his passing on December 4, 1959, is unclear from the literature. What we do know from President Doney's comments in the *Willamette Chronicles* (Gatke, 1943), however, is that Peck's home was likely "in the hearts of some three thousand men and women whom he instructed and inspired." He was survived by his wife and by a nephew, Ward Prescott, an algologist whose work reflected a similar scholarly excellence. Today students and professionals alike are reminded of Peck's contributions via the Peck Herbarium, his manual of Oregon plants, and the Peck Scholarship, which has been awarded annually since 1973 to Willamette undergraduates with

botanical inclinations. If he were alive today, doubtless Peck would be delighted to know that a new Oregon checklist and flora are already in progress!

Acknowledgements

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- Photos: As above, also from Hunt Institute.
- Primary phone interviews or conversations that yielded information: Dr. Robert Anderson, Dr. Kenton Chambers, Dr. Lincoln Constance, Dr. Allan Ferrin, Dr. Ernest Greenwood, Helen Luther, Ursula Purbrick, Dr. John Ross, Mrs. Daniel (Amelia) Schulze, Dr. Paul Trueblood. Direct quotes are indicated in text but not assigned by source, except when extensive.
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First Blooms of the Oregon Flora Project

The Oregon Vascular Plant Checklist: Asteraceae

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In June of 1998, the Oregon Flora Project issued, as its first publication, a formal list of the accepted names of all the composites (family Asteraceae) known from Oregon. The list was reprinted in May 2000, with changes and additions. Written by Project members Kenton Chambers and Scott Sundberg, this 56-page booklet includes all the taxa (genera, species, subspecies, and varieties), both native and naturalized, comprising Oregon's largest family of flowering plants. The list is the first installment of the *Oregon Vascular Plant Checklist*, which will be published as a series of fascicles treating all Oregon vascular plant families and culminating finally in a one-volume, comprehensive list. The first draft was compiled in 1989 by Karl Urban, with assistance from Kenton Chambers, and was based mainly on the published floras and taxonomic literature available at that time. Since then, members of the Oregon Flora Project and dozens of invited specialists have been revising the list, family by family. In addition, there is a Checklist Advisory Board of nine members, who are asked to review all the treatments of plant families submitted by these authors.

The *Checklist* is maintained in a Paradox computerized database at the Oregon State University Herbarium. The data are periodically updated, and the statistics cited below are derived from the January 2001 version of the database. A digital version of the Asteraceae checklist can now be viewed online by visiting the Oregon Flora Project website at <http://www.oregonflora.org>. This version will continue to be updated as new information becomes available.

Production of the *Checklist* is a fundamental step toward writing a new *Flora of Oregon*. Our goal is to determine which plants occur in the state and to make critical decisions on what names should be used for them. In some ways, the writing of a checklist is the most challenging step, as it requires reviewing all available literature and examining thousands of herbarium specimens. The *Checklist* has a further purpose, which is to spur interest in Oregon plants and to encourage users to report new or unusual plant records. In this article we provide a brief summary of the Asteraceae list, show the process used to prepare it, and discuss our approach in the context of earlier floras.

The Asteraceae checklist includes accepted names of all Oregon taxa growing outside of cultivation, their common names, origins (native or exotic) and comments on taxonomic problems and hybridization (see Guide for Contributors in the Oregon Flora Project website). All included taxa have been verified through at least one voucher specimen in the three herbaria housed at Oregon State University. Only in rare cases, when no voucher collection is present in our herbaria, will a published reference to specimens in other herbaria be cited. Because various books may differ in the naming of certain Oregon plants,

each accepted name in the *Checklist* is followed by all the alternative scientific names that appear in ten standard floras and lists of Oregon species. Excluded species, those whose presence in the state has not been confirmed, are listed in an appendix.

The Asteraceae, or Compositae, is one of the largest, most rapidly evolving, and most successful families of flowering plants. It has the largest number of species of all the families in Oregon's flora. Some Oregon Asteraceae are dominant members of their communities, for example sagebrush and rabbitbrush, which are familiar components of arid landscapes east of the Cascade Mountains. The Asteraceae also contains some of our worst non-native weeds, including dandelion, starthistle, Canada thistle, tansy ragwort, and several species of knapweed. A surprising 22 percent of composites in Oregon are non-native species. As published in 1998, the *Checklist* comprised 571 taxa, including 122 genera and 490 species. Since then, new state records and newly published taxonomic research have raised these numbers to 577 taxa, found in 129 genera and 496 species. There are 108 species that include one or more subspecies or varieties. In addition, 578 synonyms (alternative names) are listed. At present, 41 taxa are known from only one collection at Oregon State University, which houses the herbaria of this university (OSC), the University of Oregon (ORE), and Willamette University (WILLU). Four taxa are known only from old collections on ship ballast in the Portland area. Genera with the greatest numbers of taxa are *Eriogon* (daisies and fleabanes; 49 taxa), *Aster* (asters; 33), *Artemisia* (sagebrushes and mugworts; 31), *Senecio* (groundsels and butterweeds; 28), *Cirsium* (thistles; 20), and *Antennaria* (pussy-toes and everlastings; 19).

As we worked through the Asteraceae family, species by species, our principal task was to choose among the various names that are published in standard floras, monographs, and plant lists for Oregon. In technical terms, we say that "alternative treatments" have been written by two or more botanical authors. Each treatment represents the considered opinion of a particular taxonomist—someone who has written a flora of Oregon or has published a detailed study of a tribe or genus within the family. What one finds in practice is that considerable differences of opinion often exist among such authors. Many plant genera, especially in a complex family like the Asteraceae, exhibit a high degree of evolutionary flexibility and therefore show elaborate patterns of intergrading variation combined with subtle, minor morphological differences between taxa. In many genera, the distinctions between species are ambiguous, and there may be no consensus among specialists as to what the "best" taxonomic approach should be. One expert may view a genus as containing a small number of large, variable species (perhaps divided into numerous subspecies or varieties), while another may raise these



Leucanthemum vulgare, ox-eye daisy (photo copyright S. Sharnoff).

varieties and subspecies to species status. Similar differences occur at the generic level, and we particularly had to deal with the recent tendency among Asteraceae specialists to divide some long-established, polymorphic genera into numerous smaller, more sharply defined genera, which often have novel and unfamiliar names.

The taxonomic literature that we surveyed comprises, first of all, the "standard floras" for the geographical region that includes Oregon, and secondly, the numerous research papers and taxonomic revisions published in scientific journals. A peculiar feature of our selected floras is that the taxonomy of Asteraceae is dominated by the work of a single person, the late Dr. Arthur Cronquist. Renowned for his expertise with this plant family, Cronquist wrote the treatments for *Vascular Plants of the Pacific Northwest, Part 5* (1955), *Flora of the Pacific Northwest* (1973), and *Intermountain Flora, Volume 5* (1994), as well as major sections of *Illustrated Flora of the Pacific States, Vol. 4* (1960). Furthermore, Morton E. Peck, in his *Manual of the Higher Plants of Oregon* (edition 2, 1961) often followed Cronquist's lead in the taxonomy of this family. Only in the multiple-authored *The Jepson Manual: Higher Plants of California* (1993) do we find significant divergences from Cronquist's classification of Asteraceae genera and species in the Pacific Coast region.

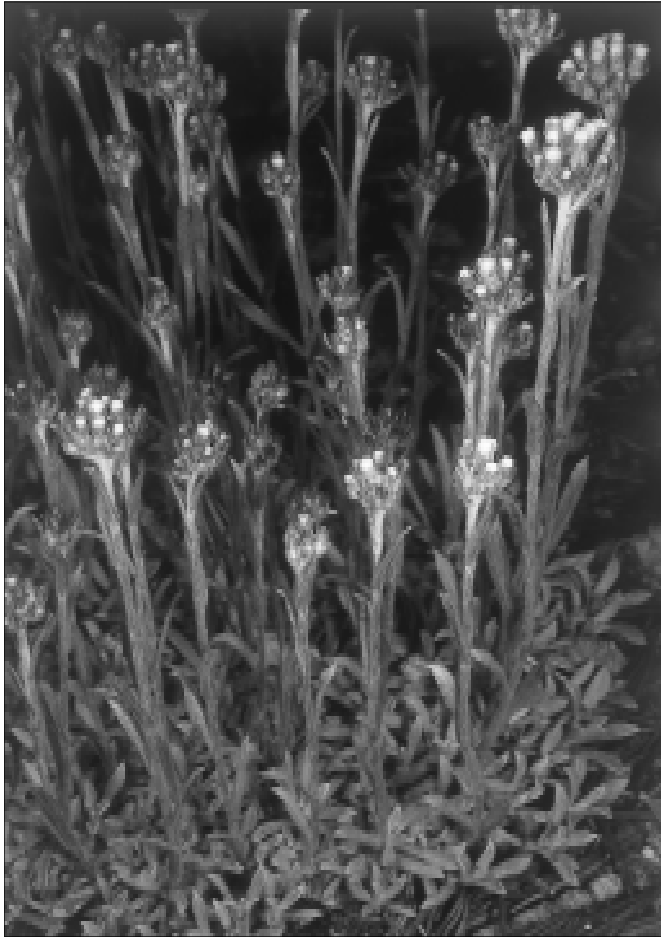
Arthur Cronquist was one of America's leading botanists, and his floristic works are admired for their thoroughness, detail, and practical taxonomic approach. Nonetheless, one also has to consider the many recent monographs and taxonomic papers about Asteraceae written by other individuals, who themselves are specialists on this family. In reviewing Cronquist's publications, it seems that once he had studied a particular group and made conclusions as to how best to circumscribe its genera and species, he was reluctant to make any changes based on later publications by other workers. With few exceptions, Cronquist stuck by his own original observations, and he therefore repeated

essentially the same taxonomic treatments from one flora to the next. For the *Oregon Vascular Plant Checklist*, we balanced Cronquist's views against those of other authors, a task that was facilitated by the divergent treatments already published in *The Jepson Manual*. In many cases our choice of names differs from Cronquist's, as reflected in the synonyms (i.e. names we chose *not* to use) listed in Table 1.

The greatest number of nomenclatural differences are with older floras, such as Peck's *Manual of the Higher Plants of Oregon* (220 name changes in Asteraceae) and the Abrams' *Illustrated Flora of the Pacific States* (209 changes). In Hitchcock and Cronquist's *Flora of the Pacific Northwest*, which was published 28 years ago, 171 names have been changed (Table 1). The genus name has been changed in about one fourth of these; varieties or subspecies are submerged in one third; and the rest consist of species name changes and changes in taxonomic rank (e.g. varieties changed to subspecies, or elevation of varieties to species).

While assembling the *Checklist*, we examined all the Oregon collections of Asteraceae housed at Oregon State University. Approximately 18,000 specimens were examined. For each genus, we tried to match existing herbarium specimens against the keys and descriptions in the reference floras and in any monographs written since about 1960 (i.e., since the publication of Peck's *Manual* and of *Illustrated Flora of the Pacific States*). Many specimens were found to be misidentified, and in some cases the misnamed collections were of species not previously recorded for the state. It was particularly helpful to find specimens that had been annotated by specialists; e.g. species of *Grindelia* (gumweeds and gumplants) annotated by Meredith Lane, *Machaeranthera* (asters) by B. L. Turner, *Antennaria* by G. L. Stebbins, *Filago* (filagos) by James Morefield, *Senecio* by T. M. Barkley, and so on.

By comparing specimens with published descriptions, we



Antennaria rosea, rosy pussy-toes (photo copyright S. Sharnoff).

could validate, to our own satisfaction, the status of Oregon taxa. That is, if a species had been reported to occur in the state, we tried to verify this from herbarium specimens and, additionally, to check that our specimens confirmed the morphological differences and variation patterns implied by treatments in floras and monographs. In effect, we wanted to learn if the published keys and descriptions “worked” in Oregon, and if not, should we then modify the taxonomy as it applies to this state’s flora?

A further important question was whether particular taxa should be considered as native to the state, or as “exotic” in origin—which is generally taken to mean introduced into the flora since the advent of European explorers and settlers. The choice of native versus exotic can be difficult for species that are native elsewhere in North America and in Oregon are found mainly in human-disturbed habitats (one might call these species “weeds of North American origin”). Some examples are annual sunflower (*Helianthus annuus*), horseweed (*Conyza canadensis*), and cocklebur (*Xanthium strumarium*). Many species, including exotics, are known only from one or two herbarium specimens, and in the *Checklist* we state where and when these vouchers were collected. Some of these species may no longer exist in Oregon, while others may be more common here than the paucity of collections would indicate. Examples include orange hawkweed (*Hieracium aurantiacum*), corn marigold (*Chrysanthemum segetum*), and California false sunflower (*Helianthella californica*). We hope that by calling attention to these rarely seen species, users of the *Checklist* may be stimulated to report their discover-

ies of novel weeds, escaped garden plants, and unusual occurrences of various uncommon native species.

Probably the most drastic—one might even say upsetting—taxonomic changes in the *Checklist* involve the modification or elimination of well-known generic names. A conspicuous example of this would be the six new genera to which the Oregon species of *Haplopappus* are now assigned: *Columbiadoria*, *Ericameria*, *Hazardia*, *Pyrrocoma*, *Stenotus*, and *Tonestus*. Furthermore, *Chrysothamnus*, or rabbitbrush, has been dropped, its species merged into the genus *Ericameria* [although some members may be returned to *Chrysothamnus* pending analysis of recent research]. A marked increase in computer-assisted phylogenetic studies in Asteraceae has led to numerous recent proposals to split various large genera and invent new names for the resulting segregate taxa. Such proposals tend to be very controversial, both because the morphological distinctions between the “new” genera are often quite minor, and because the previously existing generic names are well known and widely used. An example of such extensive splitting is the proposal to assign the North American species of *Aster* to at least eight segregate genera—effectively removing the familiar name *Aster* from our native flora! The equally well-known butterweed genus *Senecio* has been similarly fragmented. Although these generic splits were not accepted in the 1998 *Checklist*, we are currently reconsidering these nomenclatural changes.

For the Oregon *Checklist* we have evaluated various taxonomic changes on their own merits but have tended to be conservative in the extent to which we accept new generic names and concepts. Many of the changes that do appear in our *Checklist* are also to be found in *The Jepson Manual*, giving a degree of consistency to the floristic treatments for Oregon and California. Some examples are our use of the genera *Acroptilon*, *Ageratina*, *Ancistrocarphus*, *Cacaliopsis*, *Hespererax*, *Heterotheca*, *Leucanthemum*, *Nothocalais*, *Sphaeromeria*, and *Uropappus*, as well as the genera segregated from *Haplopappus* mentioned above. Following publication of the *Checklist* in 1998, we have evaluated and accepted some further generic realignments from published studies at the University of California, Berkeley, based on the molecular phylogenetic research of Bruce G. Baldwin and co-workers. An example is the placement of spiny skeletonweed, formerly known as *Stephanomeria spinosa* (and even earlier as *Lygodesmia spinosa*) in the unique genus *Pleiacanthus*, as *P. spinosus* (Nutt.) Rydb. This species was shown, by DNA analysis, to be well separated genetically from both *Lygodesmia* and *Stephanomeria*. Related research on the genera of subtribe Madiinae (tarweeds) has led Baldwin to propose dividing the genus *Madia* into several phylogenetically separate lineages. Oregon species affected by these changes include *M. bolanderi* [now named *Kyphosia bolanderi* (A. Gray) B. G. Baldwin], *M. madioides* [now *Anisocarpus madioides* Nutt.], and *M. minima* [which we now call *Hemizonella minima* (A. Gray) A. Gray]. Such changes become necessary when thorough and well-grounded taxonomic research leads to a radically new understanding of plant species relationships.

Subspecies and varieties also represent a level in the taxonomic hierarchy where divergent opinions exist among botanists. Some authors use the subspecies rank exclusively, others use only the varietal rank, and still others make a subtle distinction



Achillea millefolium, yarrow (photo copyright S. Sharnoff).

between subspecies as wide-ranging geographical races, and varieties as localized, ecologically differentiated populations. In existing floras of Oregon, it is usual to find subspecies and varieties used almost interchangeably; that is, the same population groupings that one author classifies as varieties are, by a different author, treated as subspecies. No simple cure to this problem exists at present; it is something we have learned to live with despite the apparent inconsistency. Therefore, in composing this *Checklist*, our practice was to consider each genus individually and to use whichever rank was accepted by the monographer or specialist whose treatment we chose to follow. In the genus *Erigeron*, for example, where we mostly used the publications of Arthur Cronquist to characterize the Oregon taxa, only the rank of variety is accepted in the *Checklist*. However, in the genus *Antennaria* we utilize subspecies only, as was done in the detailed monographic studies by R. J. Bayer and G. L. Stebbins. In the genera *Aster* and *Artemisia*, both subspecies and varieties are mentioned, but the categories are conceptually nearly identical; we simply wanted to avoid having to create new combinations for the sake of uniformity.

In the Asteraceae, as in many other families of vascular plants, species often are not rigid, unvarying entities but rather are genetically and evolutionarily flexible and open to change. Their flexibility arises mainly from hybridization; that is, genetic exchange between morphologically or ecologically differentiated populations. At one extreme, hybrid plants may be found which



Chaenactis douglasii, pincushion (photo copyright S. Sharnoff).

are intermediate between otherwise well defined species. In the *Checklist*, we comment upon some examples of this phenomenon and assign names indicative of the plant's hybrid origin. *Grindelia integrifolia* × *G. nana* var. *nana* is one such case, with plants of this parentage occurring at numerous sites in the Willamette Valley. Some interspecific hybrids are designated by a species epithet preceded by an "×" as in *Wyethia* × *cusickii*, the hybrid between *W. helianthoides* and *W. amplexicaulis*.

A much more common form of hybridization is the intergradation one sees between subspecies of a single species. In fact, the existence of morphologically (hence, genetically) intermediate populations connecting one extreme form with another is often the justification we have for placing the extremes in a single species but named as different subspecies or varieties. In the *Checklist*, we sometimes remark that intergradation between races of a species is so extensive that it is impractical to describe subspecies or varieties; that is, the variation tends to be continuous rather than bimodal. Excellent examples of this pattern are seen in the common yarrow, *Achillea millefolium*, and in Scouler's hawkweed, *Hieracium scouleri*.

A third kind of hybrid evolution to be mentioned is the development of polyploid complexes, of which the Asteraceae contain many notable examples. The evolution of species in such groups proceeds by the combining of whole chromosome sets derived from well differentiated ancestral species, followed by the stabilization of derived hybrid species through chromosome



Madia elegans, common madia (photo copyright S. Sharnoff).

To Get Your Copy of the 56-page May, 2000 2nd Printing of the Asteraceae Checklist

- For those of you who have participated in or donated to the Oregon Flora Project, the Asteraceae Checklist is available free of charge upon request.
- Or you may receive a copy in return for a donation of any amount to the Oregon Flora Project. Please enclose your check to the OSU Foundation. (The cost of printing, postage and handling is approximately \$4.00.) Please send correspondence to:

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multiplication. The derived polyploid species may blend the morphological traits of two or more of their parental taxa, often making it difficult to assign species names to particular populations. The taxonomy of hybrid complexes is often handled differently by different authors, and in our comments in the *Checklist*, we usually indicate whose opinions we are following in particular genera. In Oregon there are excellent examples of polyploid complexes in *Agoseris*, *Antennaria*, *Arnica*, *Artemisia*, *Aster*, *Crepis*, *Ericameria*, *Eriophyllum*, and *Pyrrocoma*. When polyploidy is combined with asexual propagation, as for example in *Antennaria*, *Arnica*, and *Crepis*, it becomes nearly impossible, in many cases, to draw sharp distinctions between the species.

The Asteraceae *Checklist* is the first of many such lists of Oregon plants to be distributed by the Oregon Flora Project. Watch for announcements on our web site (URL address is <http://www.oregonflora.org>), in the *Oregon Flora Newsletter*, and in this journal.

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Table 1. Nomenclatural changes for Asteraceae (Sunflower Family) in Oregon(FPN = *Flora of the Pacific Northwest* by Hitchcock & Cronquist, 1973.)

Page No.	Name in the <i>Flora of the Pacific Northwest</i>	Name in the <i>Oregon Vascular Plant Checklist</i>
FPN-478	<i>Achillea millefolium</i> L. ssp. <i>lanulosa</i> (Nutt.) Piper	<i>Achillea millefolium</i> L.
FPN-478	<i>Achillea millefolium</i> L. var. <i>alpicola</i> (Rydb.) Garrett	<i>Achillea millefolium</i> L.
FPN-478	<i>Achillea millefolium</i> L. var. <i>californica</i> (Pollard) Jeps.	<i>Achillea millefolium</i> L.
FPN-478	<i>Achillea millefolium</i> L. var. <i>lanulosa</i> (Nutt.) Piper	<i>Achillea millefolium</i> L.
FPN-479	<i>Agoseris glauca</i> (Pursh) Raf. var. <i>agrestis</i> (Osterh.) Q. Jones ex Cronquist	<i>Agoseris</i> × <i>agrestis</i> Osterh.
FPN-479	<i>Agoseris glauca</i> (Pursh) Raf. var. <i>laciniata</i> (D.C. Eaton) Smiley	<i>Agoseris parviflora</i> (Nutt.) D. Dietr.
FPN-479	<i>Agoseris glauca</i> (Pursh) Raf. var. <i>monticola</i> (Greene) Q. Jones ex Cronquist	<i>Agoseris monticola</i> Greene
FPN-481	<i>Antennaria alpina</i> (L.) Gaertn. var. <i>media</i> (Greene) Jeps.	<i>Antennaria media</i> Greene
FPN-481	<i>Antennaria microphylla</i> Rydb., misapplied	<i>Antennaria rosea</i> Greene
FPN-481	<i>Antennaria neglecta</i> Greene var. <i>attenuata</i> (Fernald) Cronquist, in part .....	..... <i>Antennaria howellii</i> Greene ssp. <i>neodioica</i> (Greene) R.J. Bayer
FPN-481	<i>Antennaria neglecta</i> Greene var. <i>attenuata</i> (Fernald) Cronquist, in part .....	..... <i>Antennaria howellii</i> Greene ssp. <i>petaloidea</i> (Fernald) R.J. Bayer
FPN-481	<i>Antennaria neglecta</i> Greene var. <i>howellii</i> (Greene) Cronquist	<i>Antennaria howellii</i> Greene ssp. <i>howellii</i>
FPN-483	<i>Apargidium boreale</i> (Bong.) Torr. & A. Gray	<i>Microseris borealis</i> (Bong.) Sch. Bip.
FPN-483	<i>Arnica chamissonis</i> Less. var. <i>foliosa</i> (Nutt.) Maguire	<i>Arnica chamissonis</i> Less. ssp. <i>foliosa</i> (Nutt.) Maguire
FPN-483	<i>Arnica chamissonis</i> Less. var. <i>incana</i> (A. Gray) Hultén	<i>Arnica chamissonis</i> Less. ssp. <i>incana</i> (A. Gray) Maguire
FPN-484	<i>Arnica amplexicaulis</i> Nutt. var. <i>amplexicaulis</i>	<i>Arnica amplexicaulis</i> Nutt.
FPN-484	<i>Arnica amplexicaulis</i> Nutt. var. <i>piperi</i> H. St. John & F.A. Warren	<i>Arnica amplexicaulis</i> Nutt.
FPN-484	<i>Arnica discoidea</i> Benth. var. <i>eradiata</i> (A. Gray) Cronquist	<i>Arnica discoidea</i> Benth.
FPN-484	<i>Arnica latifolia</i> Bong. var. <i>gracilis</i> (Rydb.) Cronquist	<i>Arnica gracilis</i> Rydb.
FPN-484	<i>Arnica latifolia</i> Bong. var. <i>latifolia</i>	<i>Arnica latifolia</i> Bong.
FPN-484	<i>Arnica parryi</i> A. Gray var. <i>parryi</i>	<i>Arnica parryi</i> A. Gray
FPN-485	<i>Arnica cordifolia</i> Hook. var. <i>cordifolia</i>	<i>Arnica cordifolia</i> Hook.
FPN-485	<i>Arnica cordifolia</i> Hook. var. <i>pumila</i> (Rydb.) Maguire	<i>Arnica cordifolia</i> Hook.
FPN-486	<i>Artemisia ludoviciana</i> Nutt. var. <i>latiloba</i> Nutt. ....	..... <i>Artemisia ludoviciana</i> Nutt. ssp. <i>candicans</i> (Rydb.) D.D. Keck
FPN-486	<i>Artemisia ludoviciana</i> Nutt. var. <i>ludoviciana</i>	<i>Artemisia ludoviciana</i> Nutt. ssp. <i>ludoviciana</i>
FPN-486	<i>Artemisia tilesii</i> Ledeb. var. <i>unalaschcensis</i> Besser	<i>Artemisia tilesii</i> Ledeb. ssp. <i>unalaschcensis</i> (Besser) Hultén
FPN-487	<i>Artemisia dracunculus</i> L. var. <i>dracunculus</i>	<i>Artemisia dracunculus</i> L.
FPN-487	<i>Artemisia ludoviciana</i> Nutt. var. <i>incompta</i> (Nutt.) Cronquist .....	..... <i>Artemisia ludoviciana</i> Nutt. ssp. <i>incompta</i> (Nutt.) D.D. Keck
FPN-488	<i>Artemisia arbuscula</i> Nutt. var. <i>arbuscula</i>	<i>Artemisia arbuscula</i> Nutt. ssp. <i>arbuscula</i>
FPN-488	<i>Artemisia arbuscula</i> Nutt. var. <i>nova</i> (A. Nelson) Cronquist	<i>Artemisia nova</i> A. Nelson
FPN-488	<i>Artemisia campestris</i> L. ssp. <i>borealis</i> (Pall.) H.M. Hall & Clem. ....	..... <i>Artemisia campestris</i> L. var. <i>wormskioldii</i> (Besser) Cronquist
FPN-488	<i>Artemisia campestris</i> L. var. <i>purshii</i> (Hook.) Cronquist. ....	..... <i>Artemisia campestris</i> L. var. <i>scouleriana</i> (Besser) Cronquist
FPN-490	<i>Aster alpigenus</i> (Torr. & A. Gray) A. Gray var. <i>alpigenus</i> .....	..... <i>Aster alpigenus</i> (Torr. & A. Gray) A. Gray ssp. <i>alpigenus</i>
FPN-490	<i>Aster alpigenus</i> (Torr. & A. Gray) A. Gray var. <i>andersonii</i> (A. Gray) M. Peck .....	..... <i>Aster alpigenus</i> (Torr. & A. Gray) A. Gray ssp. <i>andersonii</i> (A. Gray) Onno
FPN-490	<i>Aster alpigenus</i> (Torr. & A. Gray) A. Gray var. <i>haydenii</i> (Porter) Cronquist .....	..... <i>Aster alpigenus</i> (Torr. & A. Gray) A. Gray ssp. <i>haydenii</i> (Porter) Cronquist
FPN-491	<i>Aster campestris</i> Nutt. var. <i>bloomeri</i> A. Gray	<i>Aster campestris</i> Nutt.
FPN-491	<i>Aster campestris</i> Nutt. var. <i>campestris</i>	<i>Aster campestris</i> Nutt.
FPN-491	<i>Aster ledophyllus</i> (A. Gray) A. Gray var. <i>covillei</i> (Greene) Cronquist	<i>Aster ledophyllus</i> (A. Gray) A. Gray
FPN-491	<i>Aster ledophyllus</i> (A. Gray) A. Gray var. <i>ledophyllus</i>	<i>Aster ledophyllus</i> (A. Gray) A. Gray
FPN-492	<i>Aster chilensis</i> Nees ssp. <i>adscendens</i> (Lindl.) Cronquist	<i>Aster ascendens</i> Lindl.
FPN-492	<i>Aster chilensis</i> Nees ssp. <i>chilensis</i>	<i>Aster chilensis</i> Nees
FPN-492	<i>Aster chilensis</i> Nees ssp. <i>hallii</i> (A. Gray) Cronquist	<i>Aster hallii</i> A. Gray
FPN-493	<i>Aster occidentalis</i> (Nutt.) Torr. & A. Gray var. <i>intermedius</i> A. Gray	<i>Aster occidentalis</i> (Nutt.) Torr. & A. Gray

Table 1. Nomenclatural changes for Asteraceae (Sunflower Family) in Oregon, cont.(FPN = *Flora of the Pacific Northwest* by Hitchcock & Cronquist, 1973.)

Page No.	Name in the <i>Flora of the Pacific Northwest</i>	Name in the <i>Oregon Vascular Plant Checklist</i>
FPN-493	<i>Aster occidentalis</i> (Nutt.) Torr. & A. Gray var. <i>occidentalis</i>	<i>Aster occidentalis</i> (Nutt.) Torr. & A. Gray
FPN-494	<i>Aster foliaceus</i> Lindl. var. <i>canbyi</i> A. Gray, misapplied	<i>Aster foliaceus</i> Lindl. var. <i>parryi</i> (D.C. Eaton) A. Gray
FPN-494	<i>Aster foliaceus</i> Lindl. var. <i>cusickii</i> (A. Gray) Cronquist	<i>Aster cusickii</i> A. Gray
FPN-494	<i>Aster foliaceus</i> Lindl. var. <i>lyallii</i> (A. Gray) Cronquist, in part	<i>Aster cusickii</i> A. Gray
FPN-494	<i>Baccharis pilularis</i> DC. var. <i>consanguinea</i> (DC.) Kuntze	<i>Baccharis pilularis</i> DC.
FPN-496	<i>Balsamorhiza hirsuta</i> Nutt.	<i>Balsamorhiza hookeri</i> Nutt. var. <i>hirsuta</i> (Nutt.) A. Nelson
FPN-499	<i>Centaurea dubia</i> Suter	<i>Centaurea nigrescens</i> Willd.
FPN-499	<i>Centaurea repens</i> L.	<i>Acroptilon repens</i> (L.) DC.
FPN-500	<i>Chaenactis douglasii</i> (Hook.) Hook. & Arn. var. <i>achilleaefolia</i> (Hook. & Arn.) A. Nelson .....	..... ..... <i>Chaenactis douglasii</i> (Hook.) Hook. & Arn. var. <i>douglasii</i>
FPN-501	<i>Chrysanthemum balsamita</i> (L.) Baill.	<i>Tanacetum balsamita</i> L.
FPN-501	<i>Chrysanthemum leucanthemum</i> L.	<i>Leucanthemum vulgare</i> Lam.
FPN-501	<i>Chrysanthemum maximum</i> Ramond	<i>Leucanthemum maximum</i> (Ramond) DC.
FPN-501	<i>Chrysanthemum parthenium</i> (L.) Bernh.	<i>Tanacetum parthenium</i> (L.) Sch. Bip.
FPN-501	<i>Chrysopsis oregona</i> (Nutt.) A. Gray	<i>Heterotheca oregona</i> (Nutt.) Shinnery
FPN-501	<i>Chrysopsis villosa</i> (Pursh) Nutt. ex DC. var. <i>hispida</i> (Hook.) A. Gray .....	..... ..... <i>Heterotheca villosa</i> (Pursh) Shinnery var. <i>hispida</i> (Hook.) V.L. Harms
FPN-501	<i>Chrysopsis villosa</i> (Pursh) Nutt. ex DC. var. <i>villosa</i>	<i>Heterotheca villosa</i> (Pursh) Shinnery var. <i>villosa</i>
FPN-502	<i>Chrysothamnus humilis</i> Greene	<i>Ericameria humilis</i> (Greene) L.C. Anderson
FPN-502	<i>Chrysothamnus nauseosus</i> (Pall. ex Pursh) Britton var. <i>albicaulis</i> (Nutt.) Rydb. ....	..... ..... <i>Ericameria nauseosa</i> (Pall. ex Pursh) G.L. Nesom & G.I. Baird var. <i>speciosa</i> (Nutt.) G.L. Nesom & G.I. Baird
FPN-502	<i>Chrysothamnus nauseosus</i> (Pall. ex Pursh) Britton var. <i>artus</i> (A. Nelson) Cronquist	<i>Ericameria nauseosa</i> (Pall. ex Pursh) G.L. Nesom & G.I. Baird var. <i>oreophila</i> (A. Nels.) G.L. Nesom & G.I. Baird
FPN-502	<i>Chrysothamnus nauseosus</i> (Pall. ex Pursh) Britton var. <i>nanus</i> Cronquist .....	..... ..... <i>Ericameria nauseosa</i> (Pall. ex Pursh) G.L. Nesom & G.I. Baird var. <i>nana</i> (Cronquist) G.L. Nesom & G.I. Baird
FPN-502	<i>Chrysothamnus viscidiflorus</i> (Hook.) Nutt. var. <i>lanceolatus</i> (Nutt.) Greene .....	..... ..... <i>Ericameria viscidiflora</i> (Hook.) L.C. Anderson ssp. <i>lanceolata</i> (Nutt.) L.C. Anderson
FPN-502	<i>Chrysothamnus viscidiflorus</i> (Hook.) Nutt. var. <i>viscidiflorus</i> .....	..... ..... <i>Ericameria viscidiflora</i> (Hook.) L.C. Anderson ssp. <i>viscidiflora</i>
FPN-503	<i>Cirsium arvense</i> (L.) Scop. var. <i>arvense</i>	<i>Cirsium arvense</i> (L.) Scop.
FPN-503	<i>Cirsium arvense</i> (L.) Scop. var. <i>horridum</i> Wimm. & Grab.	<i>Cirsium arvense</i> (L.) Scop.
FPN-504	<i>Cirsium callilepis</i> (Greene) Jeps. var. <i>oregonense</i> (Petr.) J.T. Howell	<i>Cirsium callilepis</i> (Greene) Jeps.
FPN-504	<i>Cirsium utahense</i> Petr., misapplied	<i>Cirsium subniveum</i> Rydb.
FPN-505	<i>Cirsium hallii</i> (A. Gray) M.E. Jones	<i>Cirsium edule</i> Nutt.
FPN-506	<i>Conyza canadensis</i> (L.) Cronquist var. <i>glabrata</i> (A. Gray) Cronquist	<i>Conyza canadensis</i> (L.) Cronquist
FPN-506	<i>Coreopsis atkinsoniana</i> Douglas ex Lindl. ....	..... ..... <i>Coreopsis tinctoria</i> Nutt. var. <i>atkinsoniana</i> (Douglas ex Lindl.) H.M. Parker
FPN-508	<i>Crepis acuminata</i> Nutt. ssp. <i>acuminata</i>	<i>Crepis acuminata</i> Nutt.
FPN-508	<i>Crepis atribarba</i> A. Heller ssp. <i>atribarba</i> [misspelled in FPN]	<i>Crepis atribarba</i> A. Heller
FPN-508	<i>Crepis modocensis</i> Greene ssp. <i>modocensis</i>	<i>Crepis modocensis</i> Greene
FPN-509	<i>Crepis bakeri</i> Greene ssp. <i>bakeri</i>	<i>Crepis bakeri</i> Greene
FPN-509	<i>Crepis occidentalis</i> Nutt. ssp. <i>conjuncta</i> Babc. & Stebbins	<i>Crepis occidentalis</i> Nutt.
FPN-509	<i>Crepis occidentalis</i> Nutt. ssp. <i>costata</i> (A. Gray) Babc. & Stebbins	<i>Crepis occidentalis</i> Nutt.
FPN-509	<i>Crepis occidentalis</i> Nutt. ssp. <i>occidentalis</i>	<i>Crepis occidentalis</i> Nutt.
FPN-509	<i>Crepis occidentalis</i> Nutt. ssp. <i>pumila</i> (Rydb.) Babc. & Stebbins	<i>Crepis occidentalis</i> Nutt.
FPN-512	<i>Erechtites arguta</i> DC.	<i>Erechtites glomerata</i> (Desf. ex Poir.) DC.
FPN-513	<i>Erigeron acris</i> L. var. <i>asteroides</i> (Andrz. ex Besser) DC., misapplied .....	..... ..... <i>Erigeron acris</i> L. var. <i>kamtschaticus</i> (DC.) Herder
FPN-514	<i>Erigeron foliosus</i> Nutt. var. <i>hartwegii</i> (Greene) Jeps., misapplied .....	..... ..... <i>Erigeron foliosus</i> Nutt. var. <i>confinis</i> (Howell) Jeps.
FPN-514	<i>Erigeron peregrinus</i> (Pursh) Greene ssp. <i>callianthemus</i> (Greene) Cronquist .....	..... ..... <i>Erigeron peregrinus</i> (Pursh) Greene var. <i>callianthemus</i> (Greene) Cronquist
FPN-514	<i>Erigeron peregrinus</i> (Pursh) Greene ssp. <i>peregrinus</i>	<i>Erigeron peregrinus</i> (Pursh) Greene var. <i>peregrinus</i>

Table 1. Nomenclatural changes for Asteraceae (Sunflower Family) in Oregon, cont.(FPN = *Flora of the Pacific Northwest* by Hitchcock & Cronquist, 1973.)

Page No.	Name in the <i>Flora of the Pacific Northwest</i>	Name in the <i>Oregon Vascular Plant Checklist</i>
FPN-515	<i>Erigeron peregrinus</i> (Pursh) Greene var. <i>angustifolius</i> (A. Gray) Cronquist	<i>Erigeron peregrinus</i> (Pursh) Greene var. <i>callianthemus</i> (Greene) Cronquist
FPN-515	<i>Erigeron peregrinus</i> (Pursh) Greene var. <i>eucallianthemus</i> Cronquist	<i>Erigeron peregrinus</i> (Pursh) Greene var. <i>callianthemus</i> (Greene) Cronquist
FPN-517	<i>Erigeron chrysopsidis</i> A. Gray ssp. <i>austiniae</i> (Greene) Cronquist	<i>Erigeron chrysopsidis</i> A. Gray var. <i>austiniae</i> (Greene) G.L. Nesom
FPN-517	<i>Erigeron chrysopsidis</i> A. Gray ssp. <i>chrysopsidis</i>	<i>Erigeron chrysopsidis</i> A. Gray var. <i>chrysopsidis</i>
FPN-520	<i>Erigeron pumilus</i> Nutt. ssp. <i>intermedius</i> Cronquist	<i>Erigeron pumilus</i> Nutt. var. <i>intermedius</i> Cronquist
FPN-520	<i>Erigeron pumilus</i> Nutt. var. <i>euintermedius</i> Cronquist	<i>Erigeron pumilus</i> Nutt. var. <i>intermedius</i> Cronquist
FPN-520	<i>Erigeron pumilus</i> Nutt. var. <i>gracilior</i> Cronquist	<i>Erigeron pumilus</i> Nutt. var. <i>intermedius</i> Cronquist
FPN-521	<i>Eupatorium occidentale</i> Hook.	<i>Ageratina occidentalis</i> (Hook.) R.M. King & H. Rob.
FPN-522	<i>Galinsoga ciliata</i> (Raf.) S.F. Blake	<i>Galinsoga quadriradiata</i> Ruiz & Pav.
FPN-522	<i>Gnaphalium purpureum</i> L. var. <i>purpureum</i>	<i>Gnaphalium purpureum</i> L.
FPN-522	<i>Gnaphalium viscosum</i> Kunth, misapplied	<i>Gnaphalium macounii</i> Greene
FPN-523	<i>Gnaphalium chilense</i> Spreng.	<i>Gnaphalium stramineum</i> Kunth
FPN-523	<i>Gnaphalium microcephalum</i> Nutt. var. <i>thermale</i> (E.E. Nelson) Cronquist	<i>Gnaphalium canescens</i> DC. ssp. <i>thermale</i> (E.E. Nelson) Stebbins & D.J. Keil
FPN-523	<i>Grindelia columbiana</i> (Piper) Rydb.	<i>Grindelia nana</i> Nutt. var. <i>discoidea</i> (Nutt.) A. Gray
FPN-523	<i>Grindelia integrifolia</i> DC. var. <i>integrifolia</i>	<i>Grindelia integrifolia</i> DC.
FPN-523	<i>Grindelia integrifolia</i> DC. var. <i>macrophylla</i> (Greene) Cronquist	<i>Grindelia stricta</i> DC. var. <i>stricta</i>
FPN-523	<i>Grindelia nana</i> Nutt. var. <i>integrifolia</i> Nutt.	<i>Grindelia nana</i> Nutt. var. <i>nana</i>
FPN-524	<i>Haplopappus bloomeri</i> A. Gray	<i>Ericameria bloomeri</i> (A. Gray) J.F. Macbr.
FPN-524	<i>Haplopappus macronema</i> A. Gray var. <i>macronema</i>	<i>Ericameria discoidea</i> (Nutt.) G.L. Nesom var. <i>discoidea</i>
FPN-524	<i>Haplopappus nanus</i> (Nutt.) D.C. Eaton	<i>Ericameria nana</i> Nutt.
FPN-524	<i>Haplopappus resinus</i> (Nutt.) A. Gray	<i>Ericameria resinosa</i> Nutt.
FPN-524	<i>Haplopappus suffruticosus</i> (Nutt.) A. Gray	<i>Ericameria suffruticosa</i> (Nutt.) G.L. Nesom
FPN-525	<i>Haplopappus acaulis</i> (Nutt.) A. Gray	<i>Stenotus acaulis</i> (Nutt.) Nutt.
FPN-525	<i>Haplopappus greenei</i> A. Gray	<i>Ericameria greenei</i> (A. Gray) G.L. Nesom
FPN-525	<i>Haplopappus lanuginosus</i> A. Gray var. <i>lanuginosus</i>	<i>Stenotus lanuginosus</i> (A. Gray) Greene var. <i>lanuginosus</i>
FPN-525	<i>Haplopappus lyallii</i> A. Gray	<i>Tonestus lyallii</i> (A. Gray) A. Nelson
FPN-525	<i>Haplopappus stenophyllus</i> A. Gray	<i>Stenotus stenophyllus</i> (A. Gray) Greene
FPN-526	<i>Haplopappus carthamoides</i> (Hook.) A. Gray var. <i>carthamoides</i>	<i>Pyrrocoma carthamoides</i> Hook. var. <i>carthamoides</i>
FPN-526	<i>Haplopappus carthamoides</i> (Hook.) A. Gray var. <i>cusickii</i> A. Gray	<i>Pyrrocoma carthamoides</i> Hook. var. <i>cusickii</i> (A. Gray) Kartesz & Gandhi
FPN-526	<i>Haplopappus hallii</i> A. Gray	<i>Columbiadoria hallii</i> (A. Gray) G.L. Nesom
FPN-526	<i>Haplopappus hirtus</i> A. Gray var. <i>hirtus</i>	<i>Pyrrocoma hirta</i> (A. Gray) Greene var. <i>hirta</i>
FPN-526	<i>Haplopappus hirtus</i> A. Gray var. <i>lanulosus</i> (Greene) M. Peck	<i>Pyrrocoma hirta</i> (A. Gray) Greene var. <i>lanulosa</i> (Greene) R.A. Mayes ex G.K. Br. & D.J. Keil
FPN-526	<i>Haplopappus hirtus</i> A. Gray var. <i>sonchifolius</i> (Greene) M. Peck	<i>Pyrrocoma hirta</i> (A. Gray) Greene var. <i>sonchifolia</i> (Greene) Kartesz & Gandhi
FPN-526	<i>Haplopappus radiatus</i> (Nutt.) Cronquist	<i>Pyrrocoma radiata</i> Nutt.
FPN-526	<i>Haplopappus uniflorus</i> (Hook.) Torr. & A. Gray var. <i>uniflorus</i>	<i>Pyrrocoma uniflora</i> (Hook.) Greene var. <i>uniflora</i>
FPN-527	<i>Haplopappus racemosus</i> (Nutt.) Torr. var. <i>glomerellus</i> A. Gray	<i>Pyrrocoma racemosa</i> (Nutt.) Torr. & A. Gray var. <i>paniculata</i> (Nutt.) Kartesz & Gandhi
FPN-527	<i>Haplopappus racemosus</i> (Nutt.) Torr. var. <i>racemosus</i>	<i>Pyrrocoma racemosa</i> (Nutt.) Torr. & A. Gray var. <i>racemosa</i>
FPN-529	<i>Helianthus nuttallii</i> Torr. & A. Gray var. <i>nuttallii</i>	<i>Helianthus nuttallii</i> Torr. & A. Gray ssp. <i>nuttallii</i>
FPN-529	<i>Hemizonia pungens</i> (Hook. & Arn.) Torr. & A. Gray var. <i>pungens</i>	<i>Centromadia pungens</i> (Hook. & Arn.) Greene ssp. <i>pungens</i>
FPN-529	<i>Hemizonia pungens</i> (Hook. & Arn.) Torr. & A. Gray var. <i>septentrionalis</i> (D.D. Keck) Cronquist	<i>Centromadia pungens</i> (Hook. & Arn.) Greene ssp. <i>septentrionalis</i> (D.D. Keck) B.G. Baldwin
FPN-530	<i>Hieracium vulgatum</i> Fr.	<i>Hieracium acuminatum</i> Jord.
FPN-531	<i>Hieracium albertinum</i> Farr	<i>Hieracium scouleri</i> Hook.
FPN-531	<i>Hieracium cynoglossoides</i> Arv.-Touv.	<i>Hieracium scouleri</i> Hook.

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FPN-533	<i>Iva xanthiifolia</i> Nutt.	<i>Cyclachaena xanthiifolia</i> (Nutt.) Fresen.
FPN-534	<i>Lactuca pulchella</i> (Pursh) DC.	<i>Lactuca tatarica</i> (L.) C.A. Mey. ssp. <i>pulchella</i> (Pursh) Stebbins
FPN-535	<i>Lapsana apogonoides</i> Maxim.	<i>Lapsanastrum apogonoides</i> (Maxim.) J.H. Pak & K. Bremer
FPN-535	<i>Lasthenia minor</i> (DC.) Ornduff var. <i>maritima</i> (A. Gray) Cronquist	<i>Lasthenia maritima</i> (A. Gray) M.C. Vasey
FPN-536	<i>Leontodon nudicaulis</i> (L.) M, rat ssp. <i>taraxacoides</i> (Vill.) Schinz & Thell.	<i>Leontodon taraxacoides</i> (Vill.) Mérat ssp. <i>taraxacoides</i>
FPN-536	<i>Luina nardosmia</i> (A. Gray) Cronquist var. <i>glabrata</i> (Piper) Cronquist	<i>Cacaliopsis nardosmia</i> (A. Gray) A. Gray ssp. <i>glabrata</i> (Piper) Piper
FPN-536	<i>Luina stricta</i> (Greene) B.L. Rob.	<i>Rainiera stricta</i> (Greene) Greene
FPN-537	<i>Lygodesmia spinosa</i> Nutt.	<i>Pleiacanthus spinosus</i> (Nutt.) Rydb.
FPN-537	<i>Machaeranthera shastensis</i> A. Gray var. <i>eradiata</i> (A. Gray) Cronquist & D.D. Keck	<i>Machaeranthera canescens</i> (Pursh) A. Gray var. <i>shastensis</i> (A. Gray) B.L. Turner
FPN-537	<i>Machaeranthera shastensis</i> A. Gray var. <i>glossophylla</i> (Piper) Cronquist & D.D. Keck	<i>Machaeranthera canescens</i> (Pursh) A. Gray var. <i>canescens</i>
FPN-538	<i>Machaeranthera shastensis</i> A. Gray var. <i>latifolia</i> (Cronquist) Cronquist & D.D. Keck	<i>Machaeranthera canescens</i> (Pursh) A. Gray var. <i>canescens</i>
FPN-538	<i>Madia minima</i> (A. Gray) D.D. Keck	<i>Hemizonella minima</i> (A. Gray) A. Gray
FPN-538	<i>Madia sativa</i> Molina var. <i>sativa</i>	<i>Madia sativa</i> Molina
FPN-539	<i>Madia elegans</i> D. Don ex Lindl. var. <i>densifolia</i> (Greene) Jeps.	<i>Madia elegans</i> D. Don ex Lindl.
FPN-539	<i>Madia elegans</i> D. Don ex Lindl. var. <i>elegans</i>	<i>Madia elegans</i> D. Don ex Lindl.
FPN-539	<i>Madia madioides</i> (Nutt.) Greene	<i>Anisocarpus madioides</i> Nutt.
FPN-539	<i>Madia sativa</i> Molina var. <i>congesta</i> Torr. & A. Gray	<i>Madia sativa</i> Molina
FPN-540	<i>Matricaria chamomilla</i> L., misapplied	<i>Matricaria recutita</i> L.
FPN-540	<i>Matricaria matricarioides</i> (Less.) Porter	<i>Matricaria discoidea</i> DC.
FPN-540	<i>Microseris lindleyi</i> (DC.) A. Gray	<i>Uropappus lindleyi</i> (DC.) Nutt.
FPN-540	<i>Microseris troximoides</i> A. Gray	<i>Nothocalais troximoides</i> (A. Gray) Greene
FPN-541	<i>Microseris alpestris</i> (A. Gray) Q. Jones ex Cronquist	<i>Nothocalais alpestris</i> (A. Gray) K.L. Chambers
FPN-543	<i>Rudbeckia occidentalis</i> Nutt. var. <i>occidentalis</i>	<i>Rudbeckia occidentalis</i> Nutt.
FPN-546	<i>Senecio foetidus</i> Howell var. <i>foetidus</i>	<i>Senecio hydrophiloides</i> Rydb.
FPN-546	<i>Senecio foetidus</i> Howell var. <i>hydrophiloides</i> (Rydb.) T.M. Barkley	<i>Senecio hydrophiloides</i> Rydb.
FPN-548	<i>Senecio integerrimus</i> Nutt. var. <i>vaseyi</i> (Greenm.) Cronquist	<i>Senecio integerrimus</i> Nutt. var. <i>exaltatus</i> (Nutt.) Cronquist
FPN-549	<i>Solidago occidentalis</i> (Nutt.) Torr. & A. Gray	<i>Euthamia occidentalis</i> Nutt.
FPN-550	<i>Solidago gigantea</i> Aiton var. <i>serotina</i> (Kuntze) Cronquist	<i>Solidago gigantea</i> Aiton
FPN-550	<i>Solidago missouriensis</i> Nutt. var. <i>extraria</i> A. Gray	<i>Solidago missouriensis</i> Nutt.
FPN-550	<i>Solidago missouriensis</i> Nutt. var. <i>missouriensis</i>	<i>Solidago missouriensis</i> Nutt.
FPN-550	<i>Solidago missouriensis</i> Nutt. var. <i>tolmieana</i> (A. Gray) Cronquist	<i>Solidago missouriensis</i> Nutt.
FPN-551	<i>Solidago multiradiata</i> Aiton var. <i>scopulorum</i> A. Gray	<i>Solidago multiradiata</i> Aiton
FPN-551	<i>Solidago spathulata</i> DC. var. <i>nana</i> (A. Gray) Cronquist	<i>Solidago simplex</i> Kunth var. <i>nana</i> (A. Gray) G.S. Ringius
FPN-551	<i>Solidago spathulata</i> DC. var. <i>neomexicana</i> (A. Gray) Cronquist	<i>Solidago simplex</i> Kunth var. <i>simplex</i>
FPN-551	<i>Solidago spathulata</i> DC. var. <i>spathulata</i>	<i>Solidago simplex</i> Kunth var. <i>spathulata</i> (DC.) Cronquist
FPN-551	<i>Sonchus uliginosus</i> M. Bieb.	<i>Sonchus arvensis</i> L. var. <i>glabrescens</i> Günther, Grab. & Wimm.
FPN-552	<i>Stephanomeria tenuifolia</i> (Raf.) H.M. Hall var. <i>myrioclada</i> (D.C. Eaton) Cronquist	<i>Stephanomeria tenuifolia</i> (Raf.) H.M. Hall
FPN-552	<i>Stephanomeria tenuifolia</i> (Raf.) H.M. Hall var. <i>tenuifolia</i>	<i>Stephanomeria tenuifolia</i> (Raf.) H.M. Hall
FPN-552	<i>Stylocline filaginea</i> (A. Gray) A. Gray	<i>Ancistrocarphus filagineus</i> A. Gray
FPN-553	<i>Tanacetum douglasii</i> DC.	<i>Tanacetum camphoratum</i> Less.
FPN-553	<i>Tanacetum potentilloides</i> A. Gray var. <i>potentilloides</i>	<i>Sphaeromeria potentilloides</i> (A. Gray) A. Heller var. <i>potentilloides</i>
FPN-553	<i>Taraxacum laevigatum</i> (Willd.) DC.	<i>Taraxacum officinale</i> Weber ex F.H. Wigg.
FPN-555	<i>Townsendia montana</i> M.E. Jones var. <i>montana</i>	<i>Townsendia montana</i> M.E. Jones

The Siskiyou Field Institute: Supporting Science Education and Research in the Siskiyou Mountains and the Greater Klamath Region

Jennifer Kaye Marsden and Erik S. Jules

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The Siskiyou Mountains and the greater Klamath Region have long been known among ecologists as one of the most botanically diverse areas in North America. This part of northwestern California and southwestern Oregon, often called the Klamath-Siskiyou, includes an exceptional diversity in geological forms, topography, and climate, all of which contribute to the presence of a unique array of ecological communities. More than 3500 taxa of vascular plants occur in this region, including 281 endemic taxa (Smith and Sawyer 1988). The late Robert Whittaker, pioneering ecologist from Cornell University and the New York Botanical Garden, formally quantified Siskiyou plant diversity and brought the region to the attention of the field of ecology (Whittaker 1960, 1961). More recently, two of the best-known botanists of this region, Arthur Kruckeberg and Frank Lang (1997), wrote that

....nowhere is such a rich display of landforms, geology, and an indigenous, richly endemic biota more grandly displayed in the American West.

The richness in the Klamath-Siskiyou region's botanical diversity led the International Union for the Conservation of Nature to declare the region an Area of Global Botanical Significance in 1997. In a more recent study (Dellasalla et al. 1997), the World Wildlife Fund (WWF) identified the Klamath-

Siskiyou as one of the ten richest temperate conifer forest ecoregions in the world (based on species richness, endemism, and beta diversity). WWF also selected the region to be one of their five conservation priorities in North America as extensive logging, mining, livestock grazing, and road building activities threaten to undermine the region's globally unique character. These designations result from years of research by numerous biologists and geologists who have come to study the uniqueness of the region (e.g., Whittaker 1954, Kruckeberg 1984, Smith and Sawyer 1988, Bury 1997).

In the midst of such uniqueness, however, people living in the region have generally not had the opportunity to participate in the ongoing dialogue among scientists who work here, and in fact, many local residents are unaware of the outstanding ecological characteristics of the region. In the spring of 1997, the Siskiyou Regional Education Project (i.e., Siskiyou Project) coordinated the First Conference on Siskiyou Ecology in order to begin to address this problem and to provide a forum for researchers to convene and share their knowledge with each other. The conference was held in the Illinois River Valley of southwestern Oregon and was considered highly successful in building bridges between the scientific and local communities, encouraging more scientific research in the area, and educating participants about the ecological significance of the Siskiyou



Students in the Siskiyou Field Institute Nature Writing course explore Rough and Ready Creek.
Photo by Barbara Ullian.



Flower of *Darlingtonia californica*, California pitcher plant (photo copyright L. Vorobik)



Fruit of *Darlingtonia californica*, California pitcher plant (photo copyright L. Vorobik)



Pitcher plant fen at Days Gulch (photo copyright L. Vorobik)

and the Klamath Region. More than 300 people attended, including community members of all ages and skill levels, academic researchers, students, and federal agency scientists. As well, the majority of these people participated in field trips during the conference. It was clear from the written evaluations we received that participants greatly valued educational opportunities in the field.

By helping to build professional connections between scientists who study the region, SFI hopes to stimulate ongoing high quality research. At the 1997 conference, many scientists expressed a sense of solidarity derived from meeting together in one place for the first time. A wide array of information was shared on past and current research. As well, the presentations allowed all participants to learn about the wide variety of research happening in the region. Among many other talks, Arthur Kruckeberg, Emeritus Professor at the University of Washington, gave a keynote address on the natural history of serpentine vegetation, a culmination of his lifelong work on serpentine ecology (*e.g.*, Kruckeberg 1954, Kruckeberg 1984). Dominick Dellasalla unveiled WWF's global assessment of North American biological diversity, lending further quantitative evidence for the exceptional diversity found in the Klamath-Siskiyou. Four separate presentations were given concerning the oft-debated issue: Port Orford cedar (*Chamaecyparis lawsoniana*) and its associated fatal root pathogen, *Phytophthora lateralis*. The presenters on Port Orford cedar (Donald Goheen, USDA Forest Service; Tom Jimerson, USDA Forest Service; Rich Nawa, Siskiyou Project; Donald Zobel, Oregon State University) voiced a wide range of perspectives. Several students gave presentations of original research, including a talk by Susan Nyoka on the pollination of California pitcher plant (*Darlingtonia californica*), and a talk by John Cromwell on pollinator partitioning in the genus *Lewisia*. The enormous amount of scientific interest in the region was evident at the conference, as well as in the 204-page *Proceedings of the First Conference on Siskiyou Ecology* published by the Siskiyou Project [*available for \$15 from the Siskiyou Project*]. SFI will host the next conference on Siskiyou Ecology in 2002.

In 1998 the Siskiyou Project initiated the Siskiyou Field Institute (SFI), which offers science-based, field-oriented education programs each summer, as well as conferences and other educational forums periodically. SFI is currently cosponsored by the Native Plant Society of Oregon, Southern Oregon University (SOU) Biology Department, USDI Oregon Caves National Monument, and the Siskiyou National Forest. The thread tying all SFI programs together is their focus on the natural history of the Siskiyou and the greater Klamath Region, and hands-on learning in the field. Courses are designed for a range of participants, both in age and skill level, including youth, nonscientist adults, advanced naturalists, professional scientists, and students. These programs bring together scientists and community members, as well as people from throughout the region and beyond, all of whom are interested in studying the Klamath-Siskiyou.

More than 300 people participated in SFI programs in 1998, filling 24 multi-day courses and one-day workshops, and we continue to expand each year. Many of our programs focused on the unique flora of the region. Following are descriptions of

course offerings from previous years. In 1998 and 1999, Art Kruckeberg and Bob Coleman taught a six-day course on *Geobotany of the Siskiyou*, which integrated botanical and geological observations to enhance ecological studies. Field trips and lectures were used to develop skills in recognizing major plant communities, understanding plant evolution in relation to geologic settings, and determining key biogeochemical cycles in the region. In a two-day field and lab course on *Siskiyou Sedges*, Bruce Newhouse and Barb Wilson familiarized students with the unique combination of bract and perigynia which make *Carex* such an unforgettable genus. Students participating in *Beginning Plant Identification* with Rhoda Love spent three days learning to distinguish many common and rare plants of the Siskiyou and developed an awareness of relationships between floral elements and their ecological requirements. Tom Atzet and Darren Borgias taught a three-day course on *Fire Ecology of Southwest Oregon* in which students examined the principles of fire ecology and successional development of forests and woodlands in response to environmental variables and fire. Participants in Frank Callahan's course on *Conifers of the Siskiyou* explored areas of great conifer diversity, learning to distinguish the trees as well as their ecological characteristics. SFI participants also investigated the symbiotic world of fungi and algae with Steve Jessup who taught *Lichens of the Klamath Mountains*, which included seven days of excursions to study a diverse array of species. Each field trip was followed by a laboratory session where principles of identification were taught and practiced.

Other past courses have explored the Siskiyou through the creative arts, including a three day *Nature Sketching* course taught by Frank Lang in which students studied the natural features of the region by drawing plants, animals and landscapes. In *Nature Writing in the Siskiyou*, David Rains Wallace, author of *The Klamath Knot*, combined reading and discussions with field trips to provide a practical and theoretical approach to writing about the area.

One special one-day workshop was *Ethnobotany: Native Plants and Folklore*, taught by John Roth. This workshop introduced participants to a wide variety of plant lore and uses while visiting several sites within the Illinois Valley. In *Native Grasses and their Habitats in the Siskiyou Mountains* taught by Wayne Rolle, students learned sight recognition of common local grasses and discussed the ecology and management of native grasslands in the region. Participants in *Botanizing Fiddler Mountain* and *Botanizing the Days Gulch and Babyfoot Lake* with Linda Ann Vorobik and Veva Stansell explored the botanical diversity of these unique areas. David Baker and Orville Camp facilitated a workshop on *Retaining Ecosystem Integrity through Natural Selection*, which included visits to privately owned parcels where the forestry technique termed "natural selection" is practiced. Participants in *Native Seed Collection and Propagation* led by Graig and Barbara Delbol, of the Althouse Nursery, learned to spot seed-bearing trees and shrubs, assess seed ripeness, and how to process seeds.

Courses specifically for youth included *Wonders of Wetlands* and *Within the Forest* taught by Linda Mullens and Beth Paschall. Students, aged 6-13, investigated natural habitats, learning about the flora and fauna and their interrelationships.



Prof. Bob Coleman with students in the Geo-Botany of the Siskiyou course.

SFI programs continue to grow and in 2001 we will offer field sessions in both the western and eastern Siskiyou. We hope to encourage both young people and adults to spend more time exploring the natural features of the Klamath-Siskiyou, to engage in cooperative ecological studies in the region, and to pursue courses of study or professions focused on the natural world. An important need in our community is to develop life-long learning opportunities, mentor, and work experience programs for youth and adults. Currently there are few educational activities available for youth during the summer months in southwest Oregon. We are working with local educators, youth-oriented organizations, and the Environmental Education program at SOU, to offer natural history programs for young people. We also plan to coordinate and offer programs in local and regional classrooms by the scientists and educators who participate in SFI.

In addition, there are few educational forums for adults in the region. Local people have the unique opportunity to receive college credit from Southern Oregon University for some SFI courses without having to leave the Illinois Valley, a huge plus for a rural community. Taught by experts in many fields, these courses offer community members the opportunity to take part in a bioregionally based science forum. To encourage participation, we offer financial aid to youth and adults alike. For the past three years, we have been able to give scholarships to every-



Dr. Dan Luoma presenting a talk on fungi during the Conference on Siskiyou Ecology.



Lewisia cotyledon, cliff maids (photo copyright L. Vorobik)

one who has requested them (over 70 people) and hope to be able to continue to do so.

Another benefit to the region and local community is that SFI encourages and fosters partnerships between community groups, natural resource agencies, and educational institutions. Our vision is that the alliances that develop will lead to more cooperative efforts in the future. SFI is a good example of such partnerships. Another example of local community partnerships is the Illinois River Festival. It is organized by members of local social service agencies, nonprofit organizations, natural resource

agencies, and schools. The goal of the festival is to foster awareness of both the Illinois River and the culture of the native peoples who once lived here and shared community values. [*The Illinois River Festival takes place in June; contact SFI for this year's dates.*]

The parent organization of SFI, the Siskiyou Project, is a nonprofit grass roots group with a nationwide network, which has been working for protection of the Klamath-Siskiyou bioregion since 1983. The Siskiyou Project combines science, education and advocacy to preserve the ecological integrity of this biologically unique region. In collaboration with the Wildlands Project and Reed Noss, the Siskiyou Project is producing a Klamath-Siskiyou Biodiversity Conservation Plan. The Siskiyou Project envisions and works toward a human community that lives in this place in a way that encourages local economic



Dr. Art Kruckeberg discussing botanical diversity during a field trip.

diversity and sustainability, and which interacts with the land, forest and rivers in a knowledgeable and respectful way.

SFI's programs are fostering a greater appreciation of the ecological significance of the Siskiyou and the greater Klamath region. We hope the knowledge and personal connections gained through SFI will encourage people to work together to protect the ecological integrity of the region.

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2001 SFI Courses and Workshops

For more information about SFI and 2001 courses, please contact the Siskiyou Field Institute, P.O. Box 220, Cave Junction, OR, 97523. Phone: (541) 592-4459. E-mail to institute@siskiyou.org. Web address: www.siskiyou.org.

June 15-22: Western Siskiyou

Liverworts of the Klamath Mountains
Crash Course in Identifying Plant Families
Natural History of Bats
Butterflies of the Western Siskiyou
Making Plant Medicine
Siskiyou Trails: A Natural History
Geo-Ecology of the Klamath-Siskiyou Ecoregion
Conservation Biology in the Field
Serpentine Plant Ecology
Botanizing Babyfoot Lake
Siskiyou Wildflowers
Birds and Botany
Salmon Snorkeling
Botanizing Fiddler Mountain
History of Mining in the Waldo Vicinity

June 16: Banquet and Keynote Presentation

Dr. Mike Messler will discuss Pollination of Rare Plants of the Klamath-Siskiyou.

July 20-22: Eastern Siskiyou

Ethnobotany of the Cascade-Siskiyou Natl. Monument
Making Plant Medicine
Vascular Flora of the Cascade-Siskiyou Natl. Monument
Ecological Overview of the Eastern Siskiyou
Clash of Ecoregions: Butterflies on the Edge of Eden
Wetland Plants of the Eastern Siskiyou
Birds of the Cascade-Siskiyou Natl. Monument
Insects of Southern Oregon



Flowers of *Lewisia cotyledon*, cliff maids.

Some Sedges (*Carex*) Never Found in Oregon

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Keli Kuykendall

Carex Working Group, Herbarium, Dept. Botany & Plant Pathology, Oregon State University, Corvallis, OR 97331

The *Carex* Working Group has focused on the distribution and taxonomy of Oregon sedges (*Carex*) since 1992. In 1993 we produced a Preliminary Atlas, showing maps with county records for each *Carex*, based on existing collections in museums and a few literature reports. At the time we knew there were misidentified specimens, and thus some distribution records were errors. In the process of revising the atlas, we annotated and databased approximately 6000 dried collections in Corvallis (mostly loans, donations, and materials at the herbaria ORE, OSC and WILLU). The *Carex* Working Group also went afield and into the greenhouse to fill gaps in our knowledge (Tipton 1996). The result is a new Atlas of Oregon *Carex* (Wilson et al. 1999). A handful of *Carex* species in our Preliminary Atlas were not included in the 1999 Atlas, as none had an herbarium voucher. Our attempts to substantiate literature reports led us to a trail of lost specimens, obscure synonymy, and misidentifications. Below we review the evidence for and against the "Oregon citizenship" of each of these plants. Authors and taxonomy generally follow the most recent references (e.g., Kartesz 1994, Mastrogioseppe 1993, Cronquist et al. 1977, Hitchcock and Cronquist 1973), with exceptions noted. The discussion of each sedge includes modern ideas of where the plant occurs, journals or floras that credited them to Oregon, and reidentifications of voucher collections, citing relevant herbaria. Acronyms for herbaria are standard (Holmgren et al. 1990), or are explained in the acknowledgments.

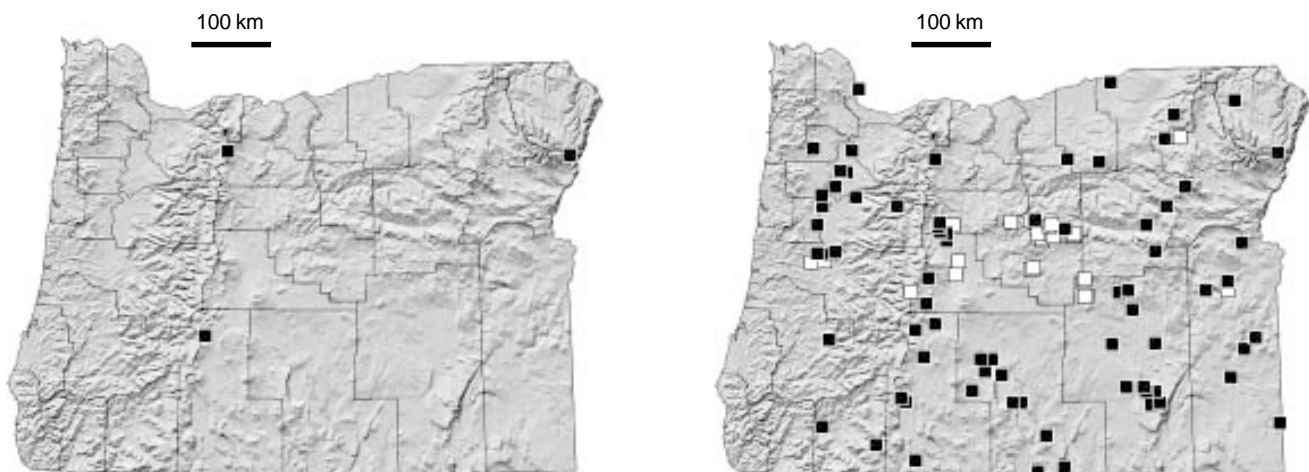
Carex albonigra Mack. is an alpine sedge ranging from California to Alaska and east to Colorado. *Carex* Working Group

(1993) tentatively included *C. albonigra* in a list of rare Oregon sedges, based on Peck (1961) reporting it from "high mountains of eastern Oregon." Investigating further, we found neither a Peck voucher collection, nor any map data in Peck's private geographic card file (at OSC) to indicate he saw an Oregon collection. Apparently Peck placed a number of species in his Oregon flora as speculation. For example, he reported *Subularia aquatica*, which was documented with specimens from adjacent states, but was never collected in Oregon. Similarly, it seems that Peck was predicting *C. albonigra* would be found in Oregon one day. Unfortunately he never mentioned in his flora which species were documented with vouchers and which were not. What Peck (1941, 1961) said was:

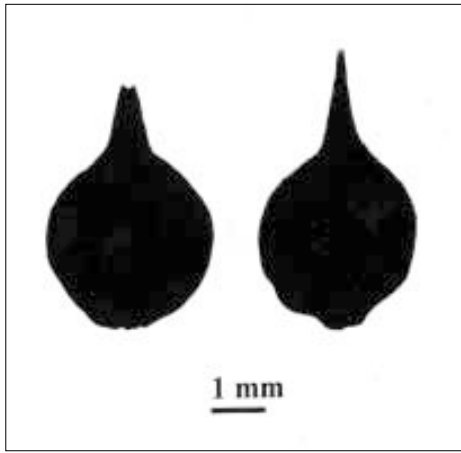
With relatively few exceptions, the descriptions of species [in his Flora of Oregon] have been drawn directly from specimens in hand that have been collected wholly or in part within our own territory. When the collections were from outside the state, we admitted the species only on what we considered very reliable authority.

Murray (1969) studied *C. albonigra* and its relatives, yet never found an Oregon specimen. The *Carex* Working Group found vouchers from no closer than Custer Co., Idaho (Brainerd et al. 1995), and we are excluding the species from our flora.

Carex brevior (Dew.) Mack. has been collected in north-eastern Washington and southeastern British Columbia, but generally is known from east of the continental divide, and is widespread in eastern North America. Ireland (1968) reported



Range maps of *C. lasiocarpa* var. *americana* (L) and *C. pellita* (R) in Oregon (from Wilson et al. 1999).



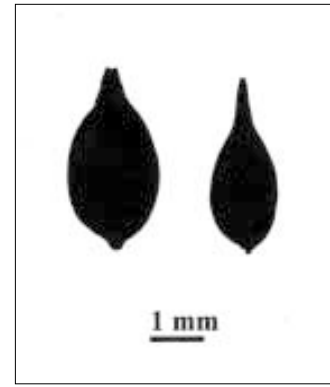
Perigynia of *Carex brevior* (L), *C. stramineiformis* (R).

it from two sites in the Three Sisters region of the Cascade Mountains. Although Peck (1961) stated it was known from: “dry open ground, northern Oregon,” his card catalogue had no entry for the species. Peck’s herbarium (WILLU, archived in Corvallis) has only one collection of *C. brevior*, collected in Minnesota, not Oregon. Oregon collections called *C. brevior* were reidentified as *C. stramineiformis* (ORE, OSC, WTU), *C. breweri* var. *breweri* (ORE), *C. microptera* (ORE), and *C. feta* (ORE).

Carex brevior is easily mistaken for *C. stramineiformis* using a problematic perigynial nerve character in Hitchcock and Cronquist (1973). A more reliable character is the slender beak of *C. stramineiformis*, compared to the broad beak of *C. brevior*

***Carex breweri* Boott var. *paddoensis* (Suks.) Cronquist** grows in the Cascade Mountains of Washington, from Mt. Adams north. Disjunct populations are also known from high slopes in the cordillera of several states to the east of Oregon. Peck (1961) reported it from Oregon (as *C. engelmannii*) on the “alpine summits of the Cascade Mountains.” Two isotypes from Mt. Adams, Washington are at ORE, but we have yet to find an Oregon collection labeled as this variety to support Peck’s claim or Ireland’s (1968) report from Middle Sister (Deschutes Co.). All the Oregon collections and populations we have seen are the more southern variety *C. breweri* var. *breweri*, with 3-nerved scales. Mature collections of var. *paddoensis* have scales with one nerve, but immature collections of either variety do not show the nerves well. Although Mason (1980) never found *C. breweri* in the Wallowa Mountains, we believe var. *paddoensis* is possible there, based on our experience with it on calcareous alpine substrates in central Idaho.

***Carex brunnescens* (Pers.) Poir.** is a circumboreal species, occurring in Eurasia, Greenland, Canada and colder portions of the United States, including Washington. Fernald (1950) and Kartesz (1999) reported it from Oregon (as the synonym ssp. or var. *sphaerostachya*). Peck (1961) described its habitat as: “wet places in high mountains,” while Mason (1980) reported it from open woods and streambanks in the Wallowa Mountains. Hitchcock and Cronquist (1973), perhaps following earlier authors, reported *C. brunnescens* from “wet places” in the Cascade Mountains of “southern Oregon.” Mackenzie (1931) was more



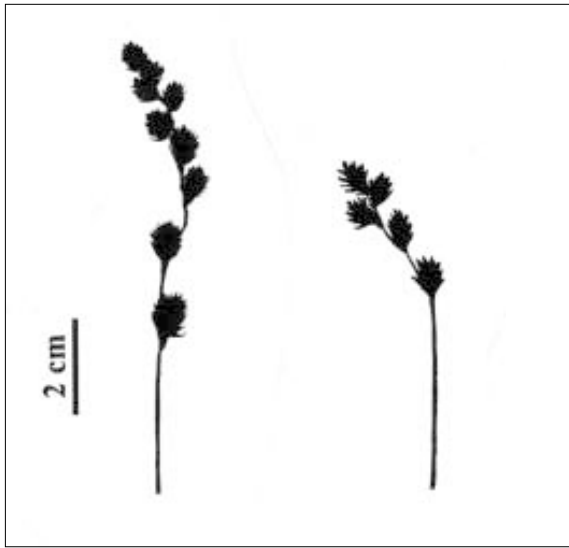
Perigynia of *C. brunnescens* (L), *C. laeviculmis* (R).

explicit: “boggy thickets and woods in acid soils...specimens examined from...Oregon.” Howell (1903) noted *C. brunnescens* “in wet places, Oregon to British Columbia and the eastern states.” Despite the long literary legacy, when we examined the vouchers at hand, we found everything was incorrectly identified. Most collections were *C. laeviculmis* (CLNP, GH, ORE, OSC, WILLU), although a few were *C. praeceptorium* (OSC) or *C. canescens* (ORE).

A long-standing confusion of immature *Carex laeviculmis* with *C. brunnescens* is partially explained by an emphasis on perigynium size in identification keys. The perigynium beak is a better character for distinguishing the two when mature. *Carex laeviculmis* beaks are 0.5-1.0 mm long, narrow, and curve slightly outward in the field, while *C. brunnescens* beaks are usually less than 0.5 mm long, broad based, and straight. We feel that it is possible *C. brunnescens* may yet be discovered in Oregon, high on Mt. Hood, or in the Wallowa Mts.

***Carex elynoides* Holm** is an alpine sedge common in Utah, and known from Colorado to Montana, Idaho and Nevada. It resembles *C. nardina* and *C. filifolia*. Brainerd et al. (1995) reported a collection of *C. elynoides* from Steens Mountain, Harney Co., which was later examined and reidentified as *C. subnigricans* (CIC). Mansfield (1995) did not include *C. elynoides* in his flora of Steens Mountain.

***Carex foenea* Willd.** (var. *foenea*) is found across Canada from British Columbia and the Yukon to Labrador. In the northern U.S. it ranges as far south as Connecticut, Montana and Idaho. The *Carex* Working Group (1993) credited this plant to Oregon. But the name is a particularly confusing one. Svenson (1938) believed *C. foenea* (var. *foenea*) belonged to section *Arenariae*, and was synonymous with *C. siccata* Dewey. Following that taxonomy, Kartesz (1999) continues to list the species for Oregon. Gleason and Cronquist (1991) and Tony Reznicek (pers. comm.) believe that interpretation was incorrect, and *C. foenea* (var. *foenea*) is the best name for what we have long called *C. aenea* Fernald (sect. *Ovales*) in local floras (e.g., Hitchcock and Cronquist 1973). (Some other twists of fate were involved, like the destruction of the Berlin herbarium specimens of Willdenow in World War II, and the entanglement of eastern plants called *C. argyrantha* Tuckerman (sect. *Ovales*) in the synonymy.) Despite all the name-calling, the *Carex* Working Group was unable to locate any vouchers of *C. foenea* (*C. aenea*), *C.*



Inflorescence of *C. argyrantha* (L) and *C. foenea* (R).

argyrantha or *C. siccata* from Oregon. A number of Oregon specimens formerly identified as *C. siccata* are discussed under that species. One collection originally labeled *C. siccata* was annotated to *C. foenea* in 1947, but is actually *C. praeegracilis* (GH).

These three taxa are readily separated. *Carex siccata* is rhizomatous, while the others are cespitose. *Carex argyrantha* has perigynia with an abrupt transition to a narrow beak, while *C. foenea* has no distinct beak, but a broad gradually tapered apex

***Carex foenea* Willd. var. *tuberculata* F. J. Herm.** was described by Hermann (1968) from five collections, in Washington, Colorado, New Mexico, and Alberta. No mention was made of Oregon specimens, and Oregon was not discussed in the article. When Hermann (1970) wrote his Rocky Mountain *Carex* treatment, he implied the habitat was "dry (occasionally moist) to sterile, open habitats (but also occurring in lodgepole pine, spruce, and aspen stands) at lower to middle elevations (but up to 13,000 ft. in Colorado)." Two years after the original description of the taxon, Hermann (1970) revised his range statement to: "Alberta to Washington and Oregon, and southeastward to Colorado." *Carex foenea* var. *tuberculata* is synonymous



Perigynia of *C. argyrantha* (L) and *C. foenea* (R).

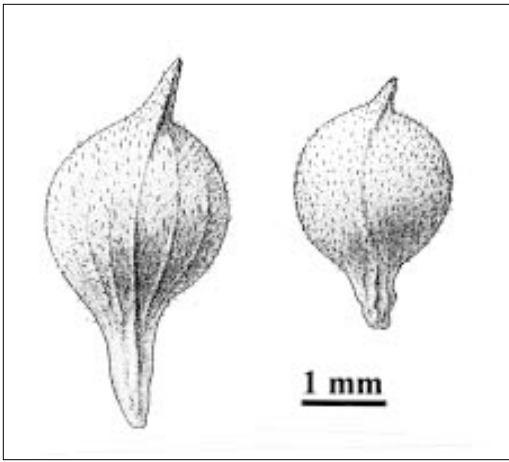
with *C. siccata*, (Cronquist et al. 1977; A. A. Reznicek, pers. comm., Kartesz 1999), but we have not located a specimen to support Hermann's (1970) range statement. If found, the voucher would represent the first Oregon collection of *C. siccata*.

***Carex globosa* Boott** is endemic to western California and adjacent Mexico. Howell (1903) reported the species from: "California to Washington." Modern surveys found the plant as far north along the coast as Del Norte County, California (Zika et al. 1998). No specimens are yet known from Oregon or Washington. We assume Howell confused the plant with more widespread species like *C. rossii*. Kuykendall et al. (1997) reviewed the situation, noting that most Oregon collections annotated to *C. globosa* were eventually recognized as a new species, *C. serpenticola* (ORE, OSC). The two are differentiated by large perigynia 3.9-5.1 mm long, with stipes 1.2-2.3 mm long in *C. globosa*; vs. small perigynia 3.1-3.6 mm long, with stipes 0.4-0.8 mm long in *C. serpenticola*.

***Carex haydenii* Dewey** (sect. *Acutae*) is a wetland sedge from the eastern United States, found west to South Dakota and Missouri. Peck (1961) listed "*C. haydenii* Olney...wet ground at high altitudes in the Wallowa Mountains." The source of this remarkable typographical error is quite a different alpine sedge, (not mentioned by Peck 1961), but with a similar name: *Carex haydeniana* Olney (sect. *Ovales*). *Carex haydeniana* grows in the Wallowa Mountains of Oregon and across the mountains of the western United States. We never found a collection of *C. haydenii* from Oregon. The inflorescences of the two differ; in *C. haydeniana* the spikes are in a head-like cluster, while *C. haydeniana* has an elongate array of spikes.

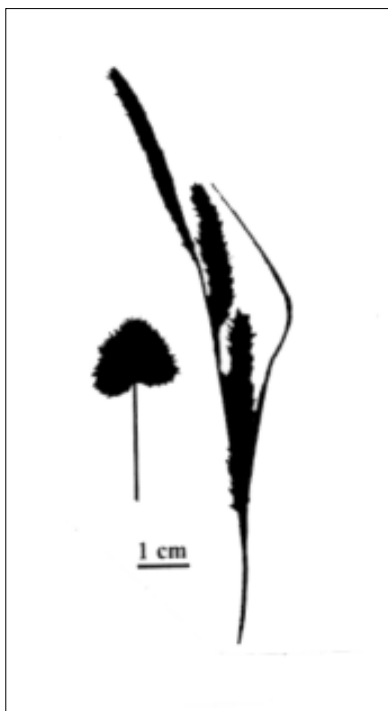
***Carex helleri* Mack.** is endemic to California and Nevada, where it is found near or above treeline. *Carex* Working Group (1993) tentatively placed *C. helleri* on a list of rare Oregon sedges, based on specimens from Steens Mountain, Harney Co. (OSC). However we later reidentified all collections as *C. atrata* var. *erecta*, and the recent flora of Steens Mountain does not include *C. helleri* (Mansfield 1995). *Carex atrata* var. *erecta* has loosely clustered spikes, and the lowest spike is often well separated from the terminal spikes; in contrast *C. helleri* has all spikes closely aggregated at the tip of the stem.

***Carex lanuginosa* Michx.** is mentioned here because it was the name used for many years for the common sedge we now call *C. pellita* Muhl. ex Willd. *Carex lanuginosa* no longer appears on our checklist of Oregon *Carex*, because of nomenclatural difficulties. Botanists probing the names and type collections found that *C. lanuginosa* actually is synonymous with *C. lasiocarpa* var. *americana* (Gleason and Cronquist 1991). The latter is a rare plant in Oregon, and difficult to distinguish from *C. pellita*. The only reliable characters appear to be vegetative. The flattened leaves and lower inflorescence bracts of *C. pellita* are considerably wider than the inrolled leaves and bracts of *C. lasiocarpa* var. *americana*. (See range maps on page 22.)



Perigynia of *C. globosa* (L), *C. serpenticola* (R) (from Zika *et al.* 1998).

Carex laxiflora* Lam. var. *laxiflora is found in habitats described as “rich woods and banks in dry loamy soil” by Wiegand (1922). He called the plant *C. anceps* Muhl. (now considered synonymous with *C. laxiflora*). Wiegand gave its range from Nova Scotia to Washington D.C., west to Wisconsin, Illinois, and disjunct in Oregon. Mackenzie (1935) corrected Wiegand, saying “Erroneously recorded from Oregon,” but we have not seen the collections viewed by Wiegand and Mackenzie (possibly at BH, CU, or GH). However, other Oregon sheets bearing a label “*Carex laxiflora*” are what a biogeographer would expect: out-dated label names on collections of the only western member of sect. Laxiflorae. Originally labeled *C. laxiflora* var. *plantaginea*, some of these collections (ORE, OSC) served as Mackenzie’s lectotype or isolectotype for *C. hendersonii* L. H. Bailey.



Inflorescences of *C. haydeniana* (L), *C. haydenii* (R).

Carex lenticularis* Michx. var. *lenticularis is a variety common in boreal and eastern North America. In this region it does not approach closer than Montana and central Idaho (Standley 1985). Standley noted three other varieties are known from Oregon: *C. lenticularis* vars. *impressa*, var. *limnophila*, and var. *lipocarpa*. The collections of *C. lenticularis* var. *lenticularis* noted by *Carex* Working Group (1993) are all errors for one of the other three varieties (CIC, ID, ORE, OSC, WS, WTU).

Reports of *C. lenticularis* var. *lenticularis* from Oregon may continue until the appearance of the Oregon Flora, because the standard references (e.g., Hitchcock and Cronquist 1973) do not offer key characters for non-coastal plants (var. *lipocarpa* and var. *impressa*, which have purple-black pistillate scales), and lump them under var. *lenticularis*, (which has brown pistillate scales).

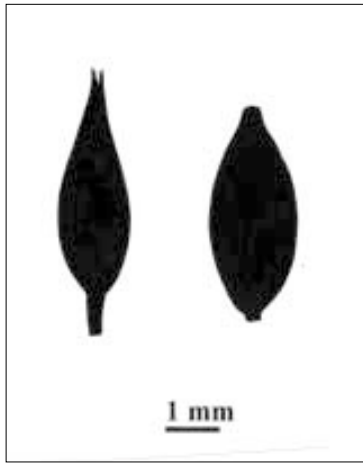
***Carex leporina* L.** is a European sedge that has not been collected in North America. Peck (1961) reported it from “wet meadows, western Oregon” under the synonym *C. tracyi* Mack. All Oregon records of *C. leporina* (OSC, WILLU) we now refer to a different European species: *C. ovalis* Gooden.

***Carex luzulifolia* W. Boott** is endemic to the high Cascades and Sierra Nevada of California. Howell (1903) reported it from: “high mountains, California to southern Oregon,” but the vouchers were all *C. luzulina* (ORE, WILLU). The two species are recognized by their perigynia: *C. luzulifolia* has perigynia 1.7-2.5 mm wide, with a broad flat margin around the fruit; *C. luzulina* has perigynia 0.9-1.6 mm wide, lacking a flat margin.

***Carex mariposana* L. H. Bailey ex Mack.** is from the mountains of California and Nevada, and is part of the taxonomically troubling group of broomsedges (sect. Ouales). *Carex* Working Group (1993) put *C. mariposana* on their list of rare Oregon sedges, based on collections we later redetermined as *C. microptera* (OSC) and *C. abrupta* (OSC). An illustration of *C. mariposana* can be found in Mastrogiuseppe (1993).

***Carex muricata* L.** (sect. Bracteosae) is a European sedge (similar to *C. spicata* Huds.) that is introduced and naturalized from Ontario to Pennsylvania (Gleason and Cronquist 1991). Reznicek and Ball (1980) clarified the gnarled confusion that contributed to the incorrect use of the name *C. muricata* for Oregon plants (e.g., Hitchcock and Cronquist 1973; Cronquist *et al.* 1977). Our native Oregon sedge is now *C. echinata* ssp. *echinata* (sect. Stellulatae). *Carex muricata* has male flowers at the tips of the spikes, and *C. echinata* has male flowers at the base of the spikes.

***Carex occidentalis* L. H. Bailey** ranges from Wyoming to New Mexico and west to California. *Carex* Working Group (1993) originally placed it on their list of rare Oregon sedges, based on verbal reports that it grew on Steens Mountain, Harney County. These populations were later determined to be immature *C. vallicola*, and Mansfield (1995) did not include *C. occidentalis* in his Steens Mountain flora.

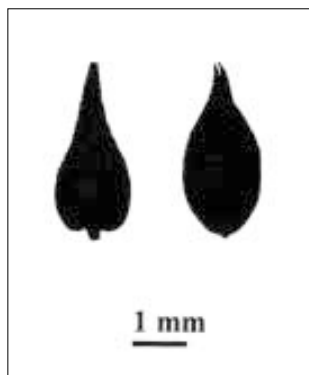


Perigynia of *C. nigricans* (L), *C. rupestris* (R).

***Carex paupercula* Michx.** (= *C. magellanica* Lam. ssp. *irrigua* (Wahl.) Hultén) is a boreal sedge distributed across Eurasia, Alaska, and east to the Atlantic. It has been collected in northern portions of Washington, Idaho and Montana (Brainerd et al. 1995). Brooks (1994) reported this species in Hells Canyon National Recreation Area of the Wallowa-Whitman National Forest. Brooks (pers. comm.) claimed her report was founded on an Idaho citation (Bingham 1987) in the southern Seven Devils Mountains, decidedly beyond our state's borders (*Christ 8618*, Idaho Co., ID, ?NY).

Carex paupercula looks like *C. limosa* and *C. pluriflora*, and all three taxa have densely papillate perigynia. However, only *C. paupercula* has lanceolate scales much longer and more slender than the perigynia; the other two species have ovate or elliptic scales ca. as long and wide as the perigynia. *Carex limosa* has brown scales that do not wrap around the margin of the perigynia, while *C. pluriflora* has black scales that do wrap around the lower margin of the perigynia.

***Carex podocarpa* R. Br.** is found primarily in the arctic latitudes of western Canada, Alaska, and adjacent Asia. It has been collected as far south as the mountains of Montana and Idaho. Peck (1961) recorded this from "high altitudes in the Blue Mountains;" Hultén (1968) and Murray (1970) show it in Oregon as well. The Oregon records we found were misidentified *C. spectabilis* (OSC, WILLU), *C. paysonis* (OSC, RM, WILLU,



Perigynia of *C. cusickii* (L), *C. sartwellii* (R).

WS), or *C. nigricans* (OSC).

Murray (1970) labeled a Wallowa Co. collection (*Maguire & Holmgren 27080C* UTC) as *C. podocarpa*, but in the same publication cited a duplicate collection as *C. paysonis* (*Maguire & Holmgren 27080C*NY). Maguire and Holmgren also collected *C. spectabilis* (*Maguire & Holmgren 27080B* CS, UTC) at this site (Murray 1970). The staff at UTC herbarium in Logan, Utah, could not find the Oregon record of *C. podocarpa* when we requested a loan of the collection, and suggested it might have been annotated to a different species.

Separation of *Carex podocarpa* from *C. paysonis* and *C. spectabilis* is problematic. *Carex spectabilis* is unique in this triad in having awned scales, but this character is not present on all scales (Murray 1970). Plants with strongly nerved perigynia are either *C. spectabilis* or *C. paysonis*, but not all perigynia are nerved in *C. spectabilis*. Rhizomatous and phyllopodic plants are *C. paysonis*, with many leafy sheaths at the base of the stem. The other two are more or less cespitose and aphyllopodic, with a few blade-bearing sheaths on the lower or middle stem. The pistillate spikes of *C. podocarpa* are on long drooping peduncles, while the other two often have sessile or erect spikes. There are also subtle, hard to describe differences in the taper to the beaks of the perigynia for all three.

***Carex rostrata* Stokes ex With.** is a circumboreal wetland sedge scattered from Alaska to Newfoundland, and rarely south to Washington and Montana. Kovalchik (1992) explained that the name *C. rostrata* is misapplied in Oregon, and our plants are the related, broader-leaved species *C. utriculata* Boott. All Oregon reports of *C. rostrata* (e.g., Peck, 1961; Hitchcock et al. 1969) can be referred to *C. utriculata*.

***Carex rupestris* All.** circles the pole, and in our region occurs south to British Columbia, Montana, Utah and New Mexico. *Carex* Working Group (1993) originally placed *C. rupestris* on their list of rare Oregon sedges, based on a single collection we later reidentified as *C. nigricans* (OSC). The two are separable by their perigynia, which are stalked and reflexed in *C. nigricans*, and erect and stalkless in *C. rupestris*.

***Carex sartwellii* Dewey** (var. *sartwellii*) is common in the northern Great Plains, and is found as far west as Montana. Kartesz (1999) lists it for Oregon, based on the range maps in *Carex* Working Group (1993). The only specimen was recently redetermined as *C. cusickii* (ORE). *Carex sartwellii* is rhizomatous, and has a spikate inflorescence bearing unstalked perigynia, and thus is easy to distinguish from *C. cusickii*, which is cespitose, and has a paniculate inflorescence with stalked perigynia.

***Carex scopulorum* Holm var. *prionophylla* (Holm) L. A. Standley** is a tall plant found in the mountains of Washington, Idaho and Montana. Peck (1961) reported it (as *C. miserabilis*) from "wet mountain meadows, eastern Oregon." Hitchcock and Cronquist (1973) reported it (as *C. prionophylla*) from north-eastern Oregon. The *Carex* Working Group (1993) recorded it from Linn, Union and Wallowa Counties. We believe the Linn County record was a mapping mistake based on a Marion Co. record at WILLU. That and all other specimens we saw were

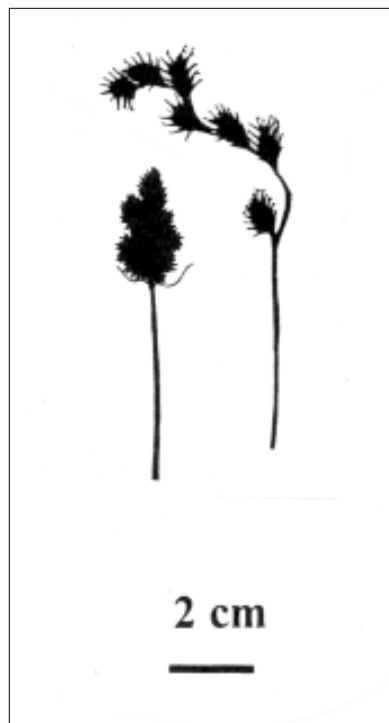
recently reidentified as *C. scopulorum* var. *bracteosa* (ORE, OSC, WILLU, WS). Standley (1985) monographed northwestern members of section *Acutae*, which includes this species. In the process she annotated Peck 17997 (WILLU) to *C. scopulorum* var. *prionophylla*. We disagree with her determination, for the plant is tall but does not otherwise match well with Idaho material that we have seen and Standley has annotated. For example, Peck's collection lacks the long bladeless sheaths characteristic of var. *prionophylla*. Curiously, Standley may have had her own doubts about the record, for she did not mention Peck's collection or Oregon in her summary of the distribution of the var. *prionophylla* (Standley 1985).

Carex scopulorum var. *scopulorum* is endemic to the southern Rocky Mountains, from Wyoming to New Mexico. Two other varieties are found in the Pacific Northwest (Standley 1985). Prior to Standley's monograph, some standard references (e.g., Hitchcock and Cronquist 1973) did not distinguish between the varieties, thus many older specimen labels do not specify a variety. The unfortunate result is that if one of the three varieties is not specified, botanists generally assume the variety is the typical one, in this case var. *scopulorum*. This *implied* variety can be incorrectly assumed by reading Peck (1941, 1961), who referred to *C. scopulorum* from "high altitudes in the Cascade Mountains." We have examined more than 30 Oregon collections that could be interpreted as *C. scopulorum* var. *scopulorum* based on their labels, but all were var. *bracteosa* (CIC, ID, ORE, OSC, WILLU, WS, WTU), *C. atrata* var. *erecta* (ID) or *C. paysonis* (ID, ORE).

Carex siccata Dewey ranges between Maine and Mackenzie (Northwest Territories), south to Washington and Arizona. It was reported by Howell (1903): "in dry ground, California to British Columbia and New York," but K. K. Mackenzie (1931) did not find an Oregon collection. Hermann (1970) reported it (as *C. foenea* var. *tuberculata*) from Oregon, and he was the source for a subsequent report by Kartesz (1999). *Carex* Working Group (1993) showed *C. siccata* in Deschutes and Harney Counties, but these vouchers were later found to be misidentified *C. praegracilis* (GH, ORE, WILLU) or *C. hoodii* (CIC).

Carex tenera Dewey prefers open terrain, and ranges between British Columbia and New Mexico, and east to Nova Scotia and Georgia. Peck (1961) reported it from "dry ground, Oregon," but his voucher, from Josephine Co., is *C. subfusca* (WILLU). *Carex tenera* is similar to *C. bebbii* in our area, and there are small technical differences that separate them, but usually the inflorescence will suffice for identification. The lower spikes of *C. tenera* are well-separated (and usually flexuous), while the spikes are congested in *C. bebbii*.

Carex umbellata Schk. ex Willd. is from eastern North America, but is sporadically reported as far west as British Columbia. Howell (1903) gave its range as "Oregon to the eastern states." Reports from Clackamas and Lincoln counties (*Carex* Working Group 1993) were based on specimens now referred to *Carex rossii* (ORE) or *C. brevicaulis* (OSC).



Inflorescences of *C. bebbii* (L), *C. tenera* (R).

The sedges mentioned above were all reported in scientific literature, or were based on misidentified collections. Several *Carex* were reported from Oregon electronically, in databases of the The Nature Conservancy's Natural Heritage Program, the Biota of North America Program, or early drafts of the Oregon Flora Project. None of those database reports had any supporting documentation in literature or herbaria we checked. Thus we consider each of these database names misapplied to the Oregon flora: *Carex bonanzensis* Britt., *C. lupulina* Muhl. ex Willd., *C. platyphylla* Carey, and *C. senta* Boott.

Acknowledgments

The *Carex* Working Group is a remarkably energetic group of botanists who have contributed in countless ways to this research. We appreciate the help of all its members (listed in Wilson et al. 1999) over the years. The NPSO has funded much of the group's work, and we are grateful. Curators at the following institutions provided loans or access to materials: BM, CAS, CIC, CU, DAO, GH, HSC, ID, K, MICH, MO, MONTU, NY, ORE, OSC, RM, RSA, SOSC, UC, US, UTC, WILLU, WS, and WTU. For allowing us to review specimens, we thank the staff at Oregon herbaria not listed in Holmgren et al. (1990), including Roseburg and Coos Bay Districts of the Bureau of Land Management, Wallowa-Whitman, Fremont, Mt. Hood, Ochoco, Rogue River, and Siskiyou National Forests, Crater Lake National Park (CLNP), Oregon Caves National Monument, Reed College, and the Douglas County Museum of History and Natural History.

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Keli Kuykendall of Corvallis is one of the founding members of the *Carex* Working Group, and helped research and produce the Atlas of Oregon *Carex*.

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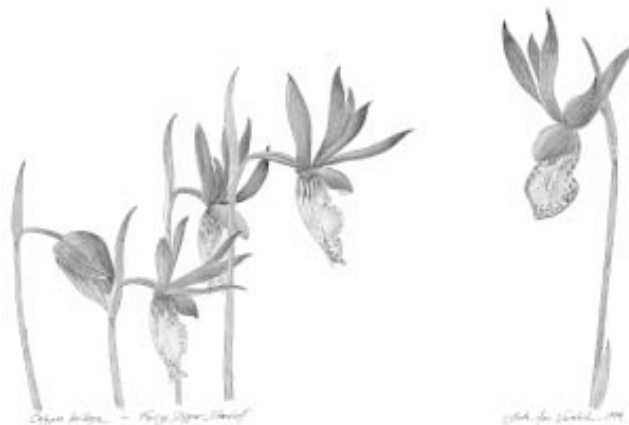
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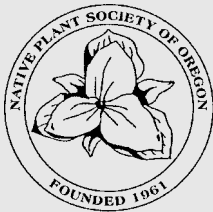
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