

Extinct and Extirpated Plants from Oregon

By JIMMY KAGAN and SUSAN VRILAKAS

Oregon is one of the most diverse states in the U.S., containing between six and ten nationally recognized ecoregions, depending on various ecoregion classifications. The state includes habitats which range from the moist and mild coast redwood forests of Curry County to the extremely dry playas of the Alvord Desert. Elevations range from coastal salt marshes at sea level, to alpine peaks over 9,000 feet. Each habitat provides unique opportunities for plant evolution.

Some areas, such as the Siskiyou Mountains of southwestern Oregon and the Willamette Mountains of northeastern Oregon, have combinations of features which promote plant endemism. These include unique soils and varied elevations in old and geographically isolated landscapes. These factors have resulted in entire suites of unique local species.

Fortunately, significant parts of Oregon, including the Siskiyou and Willamette Mountains, still resemble the presettlement conditions found when early settlers arrived at the end of the Oregon Trail. Unlike California, Hawaii and much of the eastern U.S., Oregon's biological diversity has better withstood the impact of the invasion of European culture. Other areas, such as the Willamette, Umpqua and Rogue River Valleys have very diverse floras and concentrated recent human development, resulting in vanishing habitats and species.

When the original Smithsonian publication, *Endangered and Threatened Plants of the United States* was printed in 1978 (Ayensu and DeFilippis, 1978), 182 plant species were included from Oregon, three of which were classified as extinct. In the following year, Siddall, et. al. (1979) published the booklet, *Rare, Threatened and Endangered Vascular Plants of Oregon*, which included 51 species thought to be either extinct or extirpated from Oregon. These potentially extinct or extirpated species were from habitats throughout Oregon, and a number had not been seen for over 50 years. Since that time, efforts of numerous botanists have resulted in the rediscovery of most of these species. Other species were found to be invalid by taxonomists and additional species have been added to the list. The remainder of this article is a discussion of the four taxa which are still thought to be potentially extinct, followed by descriptions of the 51 species listed by Siddall, et. al (1979).

Possibly Extinct Species as of 1 January 1993



Arenaria franklinii var. *thompsonii* (Thompson's sandwort) — This shrubby forb from sandy eastside habitats was first described by Peck in 1932, based on a 1928 specimen collected by J.W. Thompson, "near Arlington, dry sandy soil, sagebrush plains." An additional collection was made by Peck in 1933 on dry ground, Hermiston. This variety differs from var. *franklinii* in its smaller flowers (sepals less than 8 mm) and more open cyme.

Since then, many collections have been misidentified as this

taxon, in Oregon and Washington. The most recent work, Washington Natural Heritage Program Status Report (Gamon 1986) determined that the taxon is probably extinct, and has never been collected in Washington. However, until it is rediscovered, there remains the possibility that it is not a distinct variety, but intergrades into var. *franklinii*.

Due to confusion and misidentification, it is recommended that the Thompson and Peck specimens at the Peck Herbarium at Oregon State University be carefully examined before attempting to relocate *Arenaria franklinii* var. *franklinii*.



Astragalus kentrophyta var. *douglasii* (Douglas' milk-vetch) — This is an unusual subspecies of a widespread taxon. *Astragalus kentrophyta* is a small, low-growing, almost shrubby forb which occurs in variable habitats, from high-elevation alpine slopes to low-elevation sandy plains. This subspecies is typical of Oregon's possibly extinct species in that very little is known of it. It was first collected in 1830 or 1833 by David Douglas when he traveled up the Columbia River on his way to the herbarium. All that exists of this collection at the Torrey herbarium is a fragment of an upper stem, with nothing more than "Oregon" on its label. A duplicate collection states "Columbia River." Barneby (1964) interprets the site as near or within the Great Bend of the Columbia River. It is assumed that this is the bend at the Oregon-Washington border, where the river turns from heading south to west. The type collection (at NY) was made by Brandegee and Tweedy from the Walla Walla region, Washington Territory in June 1883.

Although this was only collected twice, most taxonomists feel that it is a distinct and valid taxon, and not an anomaly. This taxon is distinguished from the other varieties of *A. kentrophyta* by its pod, which is ovate or lance-acuminate in profile and gently incurved into a definite beak as well as by its basifixid hairs (Barneby 1964).



Calochortus indecorus (Sexton Mt. Mariposa lily) This extinct species is known from only one fairly recent collection. Peck discovered the species and collected the type specimen in 1948 on Sexton Mountain, in northeastern Josephine County. It is an extremely showy, lavender-blue colored *Calochortus* which appears similar to *C. uniflorus*. The differing characteristics are that *C. indecorus* has more than one flower stem, lacks basal bulblets, is generally stouter and more erect, and has a much brighter flower color. Dr. Frank Lang of Southern Oregon State College and most other professional taxonomists believe that it is a distinct taxon and very narrow endemic which was probably recently destroyed. There is some reason to believe that Peck collected it near or on the site of the current location of Interstate 5. However, other local botanists believe that this may have been an aberrant patch of plants, perhaps a one-time hybridization (Callahan, pers. comm).

Dr. Lang, Southern Oregon State College botany classes, Frank Callahan, and other local botanists have spent countless unsuccessful hours attempting to relocate the species. Because these plants are apparently gone, the biology and origin of this species will probably remain a mystery.



Plagiobothrys lamprocarpus (shiny-fruited allocarya) — On June 2, 1921, C.V. Piper stopped at a wet spot on an old dirt road in Grants Pass and collected two species of *Plagiobothrys* which he did not recognize. Both of these were undescribed and apparently unknown to botanists. The larger had large white flowers and was named by Piper as *Allocarya coralllicarpa*, for the coral-like sculpting on the mature seeds; the smaller was named *A. lamprocarpa*. The genus was revised in 1932 by I.M. Johnston, at which time they became *Plagiobothrys lamprocarpus* and *P. hirtus* ssp. *coralllicarpus*. In 1989, Dr. Chambers renamed the latter *P. figuratus* ssp. *coralllicarpus*, to more accurately reflect its taxonomic relationships.

In the 48 years between 1934 and 1991, the moist bottomlands around Medford and Grants Pass were extensively searched for both taxa, but neither species was relocated. Then in the summer of 1991, Richard Brock, a local botanist from Ashland, Oregon relocated *P. figuratus* ssp. *coralllicarpus* in vernal pools near Pinehurst, in eastern Jackson County.

Plagiobothrys lamprocarpus has not been seen since the original collection. There are five specimens, located at Oregon State (OSC), Peck (WILLU) and Oregon (ORE) herbaria. The specimens are distinct from other *Plagiobothrys*, and it is apparently a species which has been lost.

In southwestern Oregon, *P. lamprocarpus* can be distinguished from other small (1-3 dm), slender, simple-stemmed, and erect *Plagiobothrys* species by its nutlets, which are usually only one or two (instead of the more typical four) and which have the ventral keel in a longitudinal groove.

Other species in Siddall, et. al's 1979 publication described as possibly extinct or extirpated from Oregon.

Agoseris elata — There are currently five reported locations in the northern and central Cascades of Oregon. However, there are now some taxonomic questions as to its distinctness from *A. grandiflora*.

Agrostis hendersonii — This taxon is currently recognized as *A. microphylla* var. *hendersonii*. It has not been seen in Oregon since Henderson's type collection from Gold Hill, Jackson County, 1930. There are recent reports of California collections, but it is considered endangered there.

Allium robinsonii — Last collected in Oregon near Boardman in 1940 by Peck, this species has been seen a number of times in Washington mainly along the Columbia River within the Hanford Nuclear Reservation. Disjunct populations have also been found in Ferry County in northeastern Washington. Until the Ferry County populations were discovered in 1975, it was believed that this species was limited to sand and gravel deposits along the Columbia River. These northern populations are from scabland habitats.

Amsinckia carinata — Known only from a single site, "...near Harper [OR] alt 1100 ft," *A. carinata* was collected in 1896 by Leiberg, and was believed to be extinct until rediscovered in 1985 by Elaine Joyal, the Vale District BLM botanist at the time. After deciding to make a concerted effort to rediscover this species, she travelled to the Gray Herbarium of Harvard University and located Leiberg's original journals. She listed the other species Leiberg collected with *A. carinata*. As a result of these investigations, Joyal determined that Leiberg often mixed feet and meters in the elevation notes on the labels of his specimens. Therefore, she decided to search some of the volcanic knobs surrounding Harper instead of the valley bottomlands, and thus relocated the species.

Androsace elongata ssp. *acuta* — This subspecies continues to be known in Oregon only from an 1887 Thomas Howell collection from the Rogue River Valley, Oregon. It is more common in California.

Arabis serpentinicola — This species, like a number of other southwestern Oregon *Arabis* taxon, is a source of taxonomic confusion. Duane Goforth, in an unpublished manuscript, merged this taxon with *A. aculeolata* into *A. macdonaldiana*. Some local botanists believe that *A. serpentinicola* may still exist on Red Mountain in Curry County, Oregon. Others feel that it was never distinct enough to deserve species status. It will not be possible to evaluate its status until a revision of the taxonomy of this group of *Arabis* species is published.

Arabis suffrutescens var. *horizontalis* — Until this variety was rediscovered in 1984, it was thought to be extinct, having been last collected in 1950 in Oregon and 1951 in California. Wayne Rolle, Rogue River National Forest's botanist, relocated four populations on the rim of Crater Lake.



Arnica viscosa — The last known collection in Oregon was from Moraine lake, south of South Sister, Deschutes County in 1959. It was relocated in this area in 1980 and at about the same time another population was found near Sawtooth Mt. in Douglas County. It is currently known from three sites in the Oregon Cascades, but is more abundant in California.

Aster vialis — This species was not seen between 1933 and 1979, and during this interval was thought to be extinct. Georgia Mason first rediscovered the species at Mount Pisgah in Eugene and others have found additional populations in the Lane and northern Douglas County area. A total of 37 populations is now known.

Astragalus applegatei — This is a very unusual milk-vetch, which was only twice collected by Peck, both in the late 1930s. One site, the type location, was at Keno, the second was labeled "Klamath Falls." The habitat was described as a meadow, and the species had not been seen or collected since. James Kagan of the Oregon Natural Heritage Program rediscovered a population in southern Klamath Falls in 1983. There are still only two populations known in the world for this milk-vetch.

Astragalus peckii — Suspected to be extinct, this species was rediscovered in 1980 at Bull Flat, near Tumalo in Deschutes

County. It was found by Jack Kennison, then the summer botanist for the Deschutes National Forest. Ten major populations are now known for this species.

Astragalus robbinsii var. *alpiniformis* — Last collected in 1946 on Hurricane Creek in the Willowa Mountains, this species was suspected to be extinct until its rediscovery in 1987 by James Kagan and Peter Zika, Oregon Natural Heritage Program. This taxon was not only relocated, it was found to be common in the major limestone drainages in the Eagle Cap Wilderness Area.

Calochortus longebarbatus var. *longebarbatus* — This species was considered possibly extirpated from Oregon, because it was not collected after 1961. Since 1979, it has been rediscovered on the Warm Springs Reservation in Wasco County, and on the Winema National Forest in Klamath County. There are now 27 recorded occurrences in Oregon. Over the last five years, this taxon has also been widely collected in Washington and California.

Castilleja levisecta — The last Oregon collection of this showy species was made in 1938 in Linn County. The state status for this species, extirpated from Oregon, has not changed since 1979, and it does not appear likely that it ever will. Through the years extensive searches have been made for the golden Indian paintbrush in the Willamette Valley and adjacent valley margin areas, without success. There is very little remaining upland grassland habitat which has not been farmed or developed in the Willamette Valley. Extant populations of *C. levisecta* can still be found in western Washington and British Columbia.

Cicuta bulbifera — This species has only been collected twice in Oregon, both by Klamath Lake. It was first found by Cusick in 1902, and last collected in 1950 by Peck on Upper Klamath Lake. No one has reported seeing this large wetland umbel in Oregon since.

Cypripedium calceolus var. *parviflorum* — Peck (1954) mentions that he saw a garden specimen, which was taken from the wild on Peavine Mt., Josephine County. There have been no more recent reports and no collections exist for this yellow lady slipper in Oregon.

Erigeron decumbens var. *decumbens* — Last collected in 1934, east of Springfield, this species was rediscovered in 1980 at Willow Creek by James Kagan and at William Finley National Wildlife Refuge by Bob Meinke, currently the program leader of the Plant Conservation Biology Program at the Oregon Department of Agriculture. Even though it has since been rediscovered at a number of other locations in the Willamette Valley, all populations are small, and the species is still threatened with extinction.

Erigeron decumbens var. *robustior* — Strother and Ferlatte (1988) concluded that all the southern Oregon collections originally considered to be *E. decumbens* var. *robustior* are a variety of *E. eatonii*. *Erigeron decumbens* var. *robustior* is restricted to northern California coastal habitats, and has never been collected in Oregon.

Erigeron engelmannii var. *davisii* — Until 1991, there was only

one known location of *E. engelmannii* var. *davisii* in Oregon, a Willowa County site not seen since 1979. Three new populations were located by Marty Stein in Hells Canyon in Oregon in 1991. At least 12 new sites were located on the Idaho portion of Hells Canyon during 1991 and 1992 Idaho Natural Heritage Program surveys.

Erigeron petrophilus — Before 1980, *E. petrophilus* was only known from a 1935 Thompson's collection, at Red Mountain, Jackson County. Since being recollected at Red Mountain in 1980, it has been reported from three other areas along the California border near the Jackson-Josephine County line.

Lobelia dortmanna — Known in Oregon from one old collection (N.P. Gale, no date) from the Metolius River, this circumboreal species was rediscovered in 1992 by Kathryn Cooper, a National Forest Service botanist. It was found along a shallow lakeshore on the Sisters Ranger District of the Deschutes National Forest.

Lomatium nelsonianum — This rare desert parsley was known only from three collections made in 1917, 1931 and 1945, from the Rogue River Canyon. In a letter from Dr. Lincoln Constance, University of California at Berkeley, to the Oregon Natural Heritage Program, he states his opinion that this species is not a valid taxon, but "a mixture of *Lomatium hallii* and *L. dissectum*."

Lomatium peckianum — This is one of the few species which have gone from being thought extirpated or extinct to too common to track. It had not been collected from 1927 until it was rediscovered by Virginia Crosby of the BLM in 1983. In 1992, it was dropped off the Oregon Natural Heritage Program Watch List, due to its abundance along the California, Oregon, Nevada border.

Lomatium salmoniflorum — This species remains possibly extirpated from Oregon. Peck collected it once in 1914, near The Dalles. Most of its range is in Washington and Idaho.

Lupinus cusickii var. *abortivus* — Both this variety and *L. cusickii* var. *brachypodus* have been submerged under the *L. lepidus-caespitosus* complex by Dr. Steve Broich, Oregon State University, in an as yet unpublished study for the Oregon Department of Agriculture. Both of these are no longer considered good taxa.

Lupinus cusickii var. *brachypodus* — see above.

Lupinus mucronulatus — This species is considered by David Dunn (Kartesz 1980) to be a synonym of *L. onustus*, a more common species from California.

Microseris douglasii var. *douglasii* — No new locality information has been reported on this California taxon since Thomas Howell's collection "on high hills opposite Ashland" in 1889.

Nama lobbii — Collected in 1899 by Leiberg on the slopes of Mt. Pitt (now called Mt. McLoughlin), this taxon was not collected for over 90 years. It turns out that this species is fairly common in the southern Oregon Cascades, and is no longer considered rare or endangered.

Nemacladus capillaris — Peck collected this species 26 miles east of Ashland on the Ashland-Klamath Falls Highway in 1920. Since then, there have been no other reported locations in Oregon.

Phacelia leonis — The only specimen from Oregon, Thomas Howell's 1884 collection from Waldo, Josephine County, is in fact not this species but *P. peckii* (K.L. Chambers, pers. comm.). California locations for *P. leonis* are just across the border from Oregon, but as yet there are no reported Oregon locations.

Phacelia malvaefolia — Another Thomas Howell collection made in 1884 at Chetco, Curry County is Oregon's only known sighting. It is primarily a California species.

Phacelia minutissima — There is only one collection from Oregon, made by Peck at Buckhorn Springs, Wallowa County in 1934, which has not been relocated in spite of two recent searches. It is known only from six recent reports from Idaho, Nevada and Washington.

Plagiobothrys hirtus var. *corallicarpus* — see *Plagiobothrys lamprocarpus* (above).

Plagiobothrys hirtus var. *hirtus* — This taxon is now called *P. hirtus* (Chambers 1989) and had not been seen since 1961 until rediscovered near Sutherlin in 1983 by James Kagan.



Plantago macrocarpa — Collected four times from the Oregon coast, three from the Yachats area and one from Yaquina Head, this species has not been seen since 1959. It can be distinguished from the other large, native, perennial *Plantago* taxa by its all basal leaves, glabrous corolla tube and large (6-8 mm) two-seeded fruits.

Pleuropogon oregonus — Only known from two areas, west of Adel in Lake County and near Union, Union county, *P. oregonus* was considered extinct because it had not been seen since 1936. In 1982, a population was found by James Kagan near Adel, most likely the same place where Peck made his 1936 collection. Cusick's 1886 collection from Hog Valley near Union was relocated in 1986 by Andrew Kratz after some historical sleuthing and talking with Union County old-timers who remembered the old local name for one of the creek valleys.

Ranunculus reconditus — This species was thought extinct until it was rediscovered in 1980 in the Columbia Hills of Washington by Keith Chamberlain. Dave Gross relocated *R. reconditus* five years later, on Mill Creek Ridge, southwest of The Dalles.

Sanicula tracyi — This species is known in Oregon only from a 1930 Kildale (9621, DS) collection in the vicinity of Waldo, Josephine County. In 1983, Tom Jimmerson, the ecologist for the Six Rivers National Forest (pers. comm.) reported to the Oregon Natural Heritage Program that Kildale's specimen was mislabeled, and that *S. tracyi* was never documented in

Oregon. There has been no additional information on this species in Oregon.

Senecio porteri — This species has not been reported in Oregon since 1899 when it was collected by Cusick from "alpine ridges of the Wallowa Mts., near the lake." The species is currently known only from the Rocky Mountains in Colorado. Extensive searches in 1987, 1988 and 1991 for this distinct, one-flowered *Senecio* have yielded no recent collections.

Sidalcea malachroides — The last Oregon collection for this species was made near Pistol River, Curry County, in 1938. Very little is known about this *Sidalcea* which has dense racemes, with large (7-12mm long) rose or white colored flowers. Peck (1961) described it as occurring on "open slopes, southwestern Curry County."

Sidalcea malvaeflora ssp. *nana* — Not collected between 1952 and 1981, it is now thought too common in Jackson and Josephine Counties to be included on the Rare, Threatened and Endangered Species lists.

Sidalcea setosa ssp. *querceta* — This subspecies is known from the type location at Oak Flat, Curry County in 1953, based on three collections. It is now considered a synonym of *S. oregana* ssp. *spicata* (Dimling, pers. comm.).

Silene nuda ssp. *insectivora* — Although not seen between 1956 and 1982, there are now over 15 known populations from an area in southeastern Klamath County. The first of these was discovered by Virginia Crosby, then the BLM Lakeview District botanist.

Silene spaldingii — The last Oregon collection was made in 1898 by Cusick from the Wallowa Lake area of Wallowa County. It was rediscovered in this area in 1980 by Bonnie Heidel, but "lost" again until rediscovered in 1989 by James Kagan. There are now 12 known populations.

Synthyris missurica ssp. *hirsuta* — Last collected in 1881, and only known from the type collection, this was recently submerged under *S. stellata*, a Columbia gorge endemic, by C.G. Schaack (1983). He determined that the original specimen was misidentified and mislabeled.

Thelypodium howellii ssp. *spectabilis* — This taxon was collected six times in eastern Oregon before 1952. In 1969, Al-Shehbaz relocated J.T. Howell's 1952 collection site at North Powder, and found another population nearby, along Wolf Creek. In 1972 a dam was built on Wolf Creek, and the creek was modified into a series of irrigation ditches. *Thelypodium howellii* ssp. *spectabilis* was not seen again and believed to be extinct until it was rediscovered by Jimmy Kagan in 1980, along one of the drainage ditches which was all that remained of Wolf Creek. It is currently known from six very small populations in Baker Valley.

Since 1979, our knowledge of the distribution of Oregon's rarest plants has expanded greatly. The number of professional and amateur botanists has swelled, and has helped in the rediscovery of most of the plants thought to be extinct or extirpated in Oregon. We may never know what happened to the few plants still lost.

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Recent Taxonomic Changes for Oregon Ferns and Fern Allies

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Readers of *Kalmiopsis* were recently treated to a synopsis of taxonomic changes affecting flowering plants in Oregon (Chambers, 1992). The present article has been written to update readers on nomenclatural changes recently proposed for the seedless vascular plants, which include not only ferns, but also horsetails, club-mosses, and their relatives. Together these groups are often referred to as the ferns and fern allies. Many new names have been incorporated in the new *Jepson Manual* for California (Hickman, 1993), as well as the treatment of ferns and fern allies in Volume II of *Flora of North America* (FNA), due out in September 1993. Publication of the FNA treatment of ferns and fern allies at this time is most fortunate, for there has been a great deal of new and exciting biosystematic research in this group in recent years. As a result, even some fairly modern taxonomic references, such as *Flora of the Pacific Northwest* (Hitchcock and Cronquist, 1973), are now substantially out-of-date with regard to the ferns and their allies. Table 1 (page 22) lists name changes for Hitchcock and Cronquist (1973).

Several features of the ferns and fern allies have traditionally caused difficulties for taxonomists. One feature is the relative lack of substantial differences in spore-producing structures (i.e. the sporangia and associated indusia) among closely related species. While sporangia may differ substantially among genera (even this is not always the case), differences among related species are usually minor, if any. Typically morphological differences in congeneric ferns must be sought in vegetative characteristics. Compare this with flowering plants, where often the flowers and fruits are the primary focus of evolutionary selection and thus are the primary sources of useful morphological distinctions. Second, there are high levels of parallelism, or convergent evolution, among the ferns and fern

allies. Convergent evolution is where two unrelated evolutionary lines share a common morphological feature that has evolved independently. Morphological parallelisms have made it particularly difficult to classify ferns at higher taxonomic ranks, such as genera and families.

Despite these inherent difficulties with traditional taxonomic evidence, many of the new changes in fern taxonomy are the result of careful analysis of morphology, with a focus on characters that are phylogenetically informative, rather than confusing. At the same time, fern systematists have recently employed the modern research methods now utilized by flowering plant systematists. These include scanning electron microscopy (especially to study spore ornamentation), chromosome counts, isoenzyme studies, and DNA analysis. These techniques are typically used together to corroborate or refute hypotheses based upon morphological evidence. All of the name changes described below are founded upon real, visible macromorphological evidence, though in some cases the differences may seem rather cryptic. In most cases, changes in interpretation have been confirmed by the use of these other types of chemical or micromorphological data. This article is organized by taxonomic level, first discussing changes at the family level, followed by new generic names, and last, changes in species' names.

The Demise of the Common Fern Family, the Traditional Polypodiaceae

A big change for readers most familiar with *Flora of the Pacific Northwest* (Hitchcock and Cronquist, 1973) is the splitting of the common fern family, Polypodiaceae, into a number of