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## VASCULAR FLORA OF THE GLASS MOUNTAIN REGION, MONO COUNTY, CALIFORNIA

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### ABSTRACT

The purpose of this study is to document the vascular flora of the Glass Mountain region of Mono County, California. Little focused botanical attention has been given to this remote volcanic mountain range between the Sierra Nevada and White Mountains of eastern California. The majority of collecting in the area was done from the 1960s through 1998 by Dean W. Taylor, Mary DeDecker, and Jack Reveal, providing good documentation of a few scattered localities of the range. This study circumscribes a large area around the Glass Mountain range, and attempts to catalog the diversity of vascular plants with vouchered collections from many habitat types throughout the region.

Field collecting and herbarium searches done from 1999 through 2002 have yielded 489 taxa (species, infraspecific taxa, and hybrids), building on the foundation of 181 taxa previously documented from the area. Sampling was done from low saltgrass meadows, through sagebrush series, into sub-alpine forests and meadows, and onto arid alpine peaks and ridges. An Annotated Catalog of the Flora lists the diversity of vascular plants documented in the region thus far. Vegetation descriptions, botanical collection history, numerical summaries, sensitive plants, and comparisons with other nearby floras are presented.

Key words: eastern Sierra Nevada, flora, floristics, Glass Mountain, Great Basin, rare plants.

### INTRODUCTION TO STUDY AREA

The Glass Mountain Region surrounds Glass Mountain Peak in southcentral Mono County, California (Fig. 1). It is the highest intermediate range between the central Sierra Nevada and the White Mountains. Approximately 27 km (16 mi) northeast of the community of Mammoth Lakes, and 20 km (12 mi) southwest of the hamlet of Benton (Fig. 2), the Glass Mountain mass extends 5 km (3 mi) southeast as a series of high volcanic ridges and domes (Glass Mountain Ridge) and west as the pumice plateau of Sentinel Meadow Research Natural Area (RNA). The study area encompasses approximately 725 km<sup>2</sup> (280 mi<sup>2</sup>), with an elevational range of 1952 m (6400 ft) at the base of Adobe Valley, to 3390 m (11,123 ft) at Glass Mountain peak.

In order to include as many distinct topographic and habitat types associated with the range as possible, the circumscribed study area includes slopes and bajadas extending in all directions below this main mountain mass (Fig. 3). Well defined paved roads (Highway 120 and Benton Crossing Road) delineate most of the north, east, and south edges of the study area. The upper Owens River-Deadman Creek drainages split the Glass Mountain region off from the rest of Long Valley. The western edge of the area is arbitrarily drawn from Owens River Road, up Highway 395 to Deadman Pass, and northeast on USFS Roads 1S05 and 1S06, terminating at Big Sand Flat and Highway 120.

These borders, although somewhat arbitrary, effectively segregate the Glass Mountain Region from Granite Mountain on the north, Adobe Valley (in part) on the northeast, the Benton Range on the east, Casa Diablo Mountain/Chidago Canyon on the south, Long Valley (in part) to the southwest, Mono Craters to the west, and the Mono Basin on the northwest. The alkaline sinks of Black Lake in Adobe Valley and Big and Little Alkali Lakes near the Hot Creek area of Long Valley border the study area but are not included within its boundaries.

Land administration and ownership involve several entities. The majority of the study area consists of public lands administered by U. S. Department of Agriculture Inyo National Forest (INF). Within their lands lie two Research Natural Areas: Indiana Summit and Sentinel Meadow. In addition to recreational use, INF regularly grants grazing and logging permits in several areas of the region. After INF, the next largest land administrator is the U. S. Department of the Interior Bureau of Land Management (BLM), overseeing lower elevations of Long Valley and Adobe Valley. The City of Los Angeles (Los Angeles Department of Water and Power) controls some lowlands adjacent to the Owens River in Long Valley. Finally, scattered throughout the range are small private inholdings, mostly ranches around the upper Owens River and Adobe Creek area. A few historical and active mines occur in the region, all associated with granitic substrates.

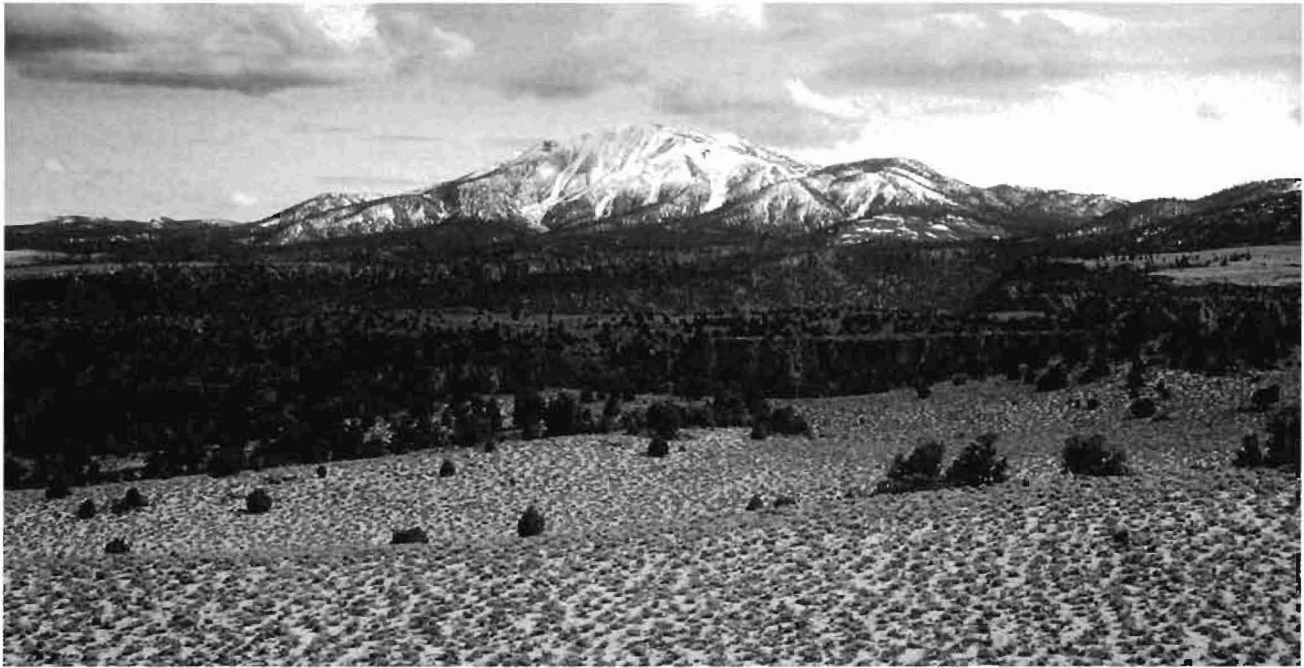


Fig. 1. Glass Mountain as seen from the north along Highway 120.

Road access into the region is excellent via numerous INF and logging roads densely interweaving the region. These roads, some of them more than 100 years old, are in different states of repair, from improved Mono County graded roads to narrow steep jeep trails. The only areas of the region not easily accessible by four-wheel drive vehicles are the Glass Mountain Peak and Ridge, Sentinel Meadow RNA, and the Black Mountain Ridge.

SURVEY METHODS

A total of 67 field collecting days were spent in the region from 1999 through 2002, with the majority of work done in 2000 and 2001. Although some taxa were in collectable condition in late April–early May, the best collecting times for the region were late May through September, with flowering and fruiting generally following a low- to high-elevation sequence. As

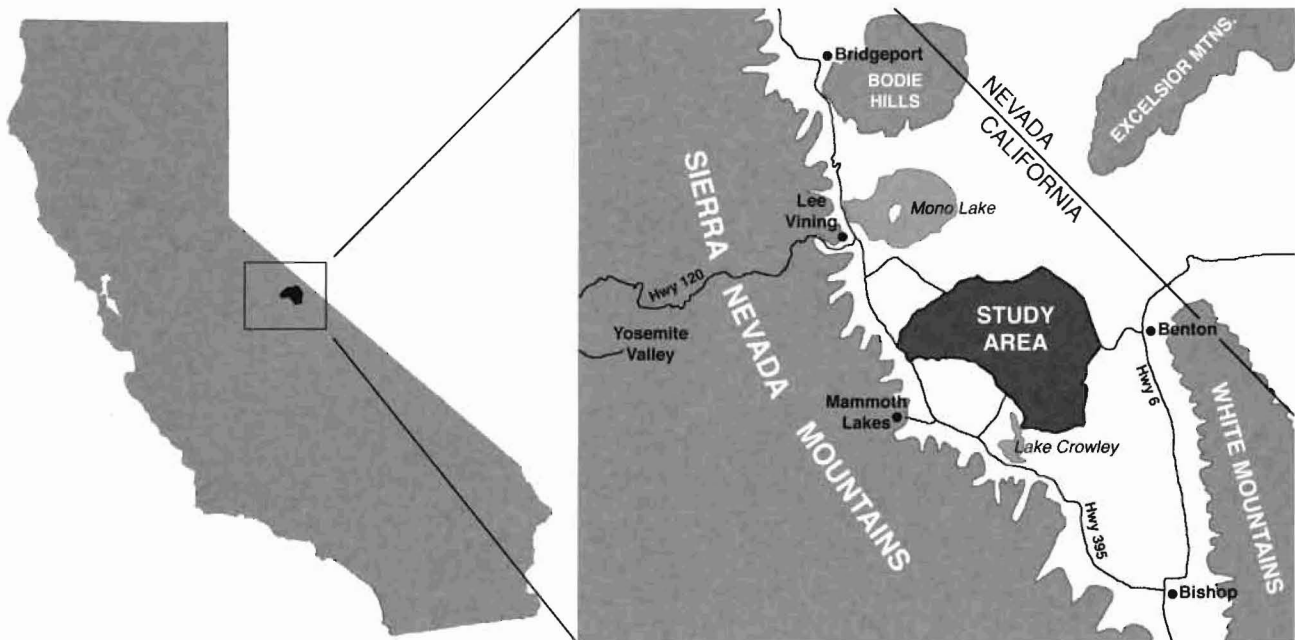


Fig. 2. Map of Glass Mountain study area in relation to surrounding areas.

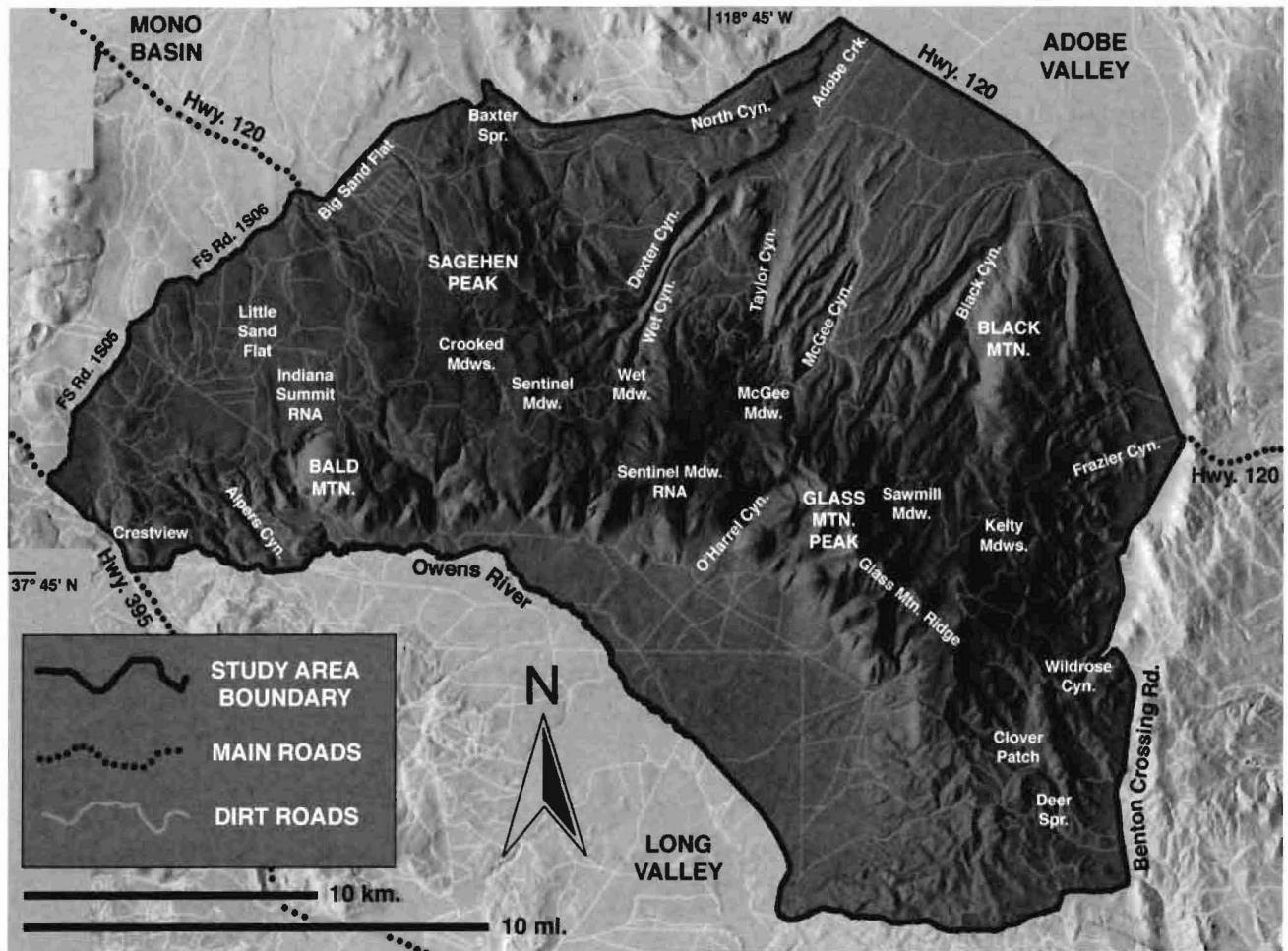


Fig. 3. Physiography of the Glass Mountain Region study area. Digital elevation model.

many different habitats as possible were documented, sometimes comprehensively (all vascular plants of a locality vouchered). Because of the prevalence of widespread species such as *Artemisia tridentata*, *Purshia tridentata*, *Elymus elymoides*, and some conifers, not all areas were comprehensively vouchered. In these cases the particular taxa collected always included clear descriptions of these associated species on the herbarium labels.

Standard herbarium voucher specimens were collected in flower and/or fruit, and usually pressed in the field. Associated data included exact locality (from 7.5' USGS quads), township and range, GPS coordinates (decimal degrees), general habitat, slope aspect, elevation, substrate, associated species, and phenotypic data (e.g., flower color, fruiting). All these data were entered into the Rancho Santa Ana Botanic Garden Herbarium (RSA-POM) specimen database and appear on all herbarium specimen labels. Determinations were made using *The Jepson Manual: Higher Plants of California* (Hickman 1993), and the *Intermountain Flora* series (Cronquist et al. 1972; Cronquist et al. 1977; Cronquist et al. 1984; Barneby 1989; Cronquist 1994;

Cronquist et al. 1997), and through comparison with specimens housed in RSA-POM. All nomenclature conforms strictly to Hickman (1993) with exception of new treatments in Polemoniaceae, as annotated in *The Jepson Desert Manual* (Baldwin et al. 2002). Specimens were mounted on standard herbarium sheets, and deposited at RSA-POM, with duplicates to be sent to UC/JEPS, New York Botanical Garden (NY), and in some cases to Inyo National Forest and BLM.

Herbarium searches were conducted to find and include previous collectors' efforts from the area. The Rancho Santa Ana Botanic Garden Herbarium (RSA-POM) was manually searched, producing 146 specimens. The University of California (UC) and Jepson Herbaria (JEPS) in Berkeley were first searched remotely via the SMASCH online database, and then visited personally to conduct additional searches and verify determinations of specimens, adding another 104 specimens to the data set. All specimens from these herbarium searches were verified by the author firsthand, and occasionally annotated with new determinations and/or updated nomenclature.

Field collecting and herbarium searches were com-



pleted in 2002. Efforts were made to visit as many different habitat types and localities as possible. Important areas needing additional exploration are the granitic peaks and slopes throughout the region, especially Black Mountain and the Wildrose Canyon/Kelty Canyon vicinity, which may still harbor new taxa specific to this substrate. The dense Jeffrey pine forests and slopes of the western part of the range have the potential to yield new vouchers (e.g., *Chrysolepis sempervirens*). Closer examination of the north-side meadows may add a few taxa to the flora. With the discovery of *Arabis pinzlae* near the Sierra crest (Constantine-Shull and Sawyer 2000), high-elevation Glass Mountain peaks and ridges could potentially support this taxon, known previously only from the White Mountains. Additional appropriate herbaria to search include the California Academy of Sciences Herbarium (CAS), and the New York Botanical Garden Herbarium (NY) which was searched online, but produced no specimens from the area not already represented as duplicates at RSA-POM or UC/JEPS.

#### PHYSICAL SETTING

##### *Physiography*

Digital elevation models (Fig. 3) provide a good reference from which to describe the major topographic features of the study area. The southwest edge of the range exhibits the most conspicuous relief of the area in the steep curved escarpment leading down from Glass Mountain Peak, Glass Mountain Ridge, and Sentinel Meadow RNA, into Long Valley. This was formed by the northeast arc of the Long Valley ring fracture caldera, which abruptly truncated and buried the preexisting lavas and tuffs of the range. The south edge of Bald Mountain was likewise sheared off and downfaulted. The Long Valley portion of the study area is relatively flat alluvial plain, with a few Pleistocene lake margin terraces, gently sloping towards Owens River (Mayo 1934).

The western quarter of the range exhibits relatively smooth topography of gently rolling forested hills. This reflects the recent eruptions of the Mono-Inyo Craters chain which have repeatedly coated the area with windblown pumice ash and gravel, effectively blanketing and smoothing-out any hard relief under dozens of meters of porous alluvium.

Along the north edge of the study area there are numerous deep canyons cutting northeast from the headwaters below Sentinel Meadow RNA and Glass Mountain Peak, all draining to Adobe Valley. The western edge of Adobe Valley is marked by a north-trending faulted system of granitic ridges and Peaks running from Sagehen Peak (2802 m) to Baxter Spring (Bailey 1989). Runoff from these headwaters collectively cut through Bishop Tuff formation, forming the

deep North Canyon, paralleling Highway 120. The conspicuous parallel narrow drainages of Dexter Canyon and Wet Canyon likewise cut through Bishop Tuff, and provide the majority of surface flow to Adobe Creek. Farther to the east lie Taylor Canyon and McGee Canyon, delivering their flows to Adobe Creek as well. Below the northeast flank of Glass Mountain peak, the two major canyons draining towards Adobe Valley are the Dry Fork and Wet Fork of Black Canyon.

On the east margin of the study area lies Black Mountain, a 7 km long granitic ridge northeast of Glass Mountain peak. Running north-south, Black Mountain exhibits the typical Great Basin structure of an east-tilted fault block (Hunt 1974). Many subsidiary "splinter faults" ripple the slopes east, creating a series of small rocky ridges leading down into the lowermost tip of Adobe Valley. Within this landform lie Klondike Canyon, Frazier Canyon, and Kelty Canyon. This granitic substrate continues south as occasional rocky outcrops and ridges throughout Kelty Meadows, Wildrose Canyon, Clover Patch, and the Deer Spring area.

##### *Major Drainages*

There are no direct snowmelt surface streams associated with the range, although the porous substrate of the Glass Mountain mass is a considerable groundwater reservoir, and feeds several perennial springfed streams and associated riparian zones. Many other "streams" appearing on USGS quads are subsurface drainages, traveling below the dry creekbeds and only apparent by the existence of phreatophytic indicator shrubs (e.g., *Salix exigua* and *Rosa woodsii*). Presumably in very wet years there would be intermittent surface flow, but these drainages appeared as dry washes during the study years of 1999–2002.

Several perennial streams drain into Long Valley. O'Harrel Canyon Creek originates from springs in the steep southwest-facing canyon below Glass Mountain peak. Wilfred Creek drains the Glass Mountain Ridge above. McLaughlin Creek originates from a cluster of springs near Sentinel Meadow, joins intermittent flows from Bald Mountain Spring, and flows across the heavily grazed bajada on the north edge of Long Valley.

Most prominent north-side perennial streams flow eventually to Adobe Valley where they coalesce into the River Springs ponds and eventually flow underground to Black Lake. Adobe Creek combines the flow from several springfed drainages: Dexter Canyon, Wet/Wild Cow Canyons, Taylor Canyon Spring, Sagehen/Baxter Springs, and McGee Canyon. Farther east the Sawmill Meadow/Black Canyon drainages join to

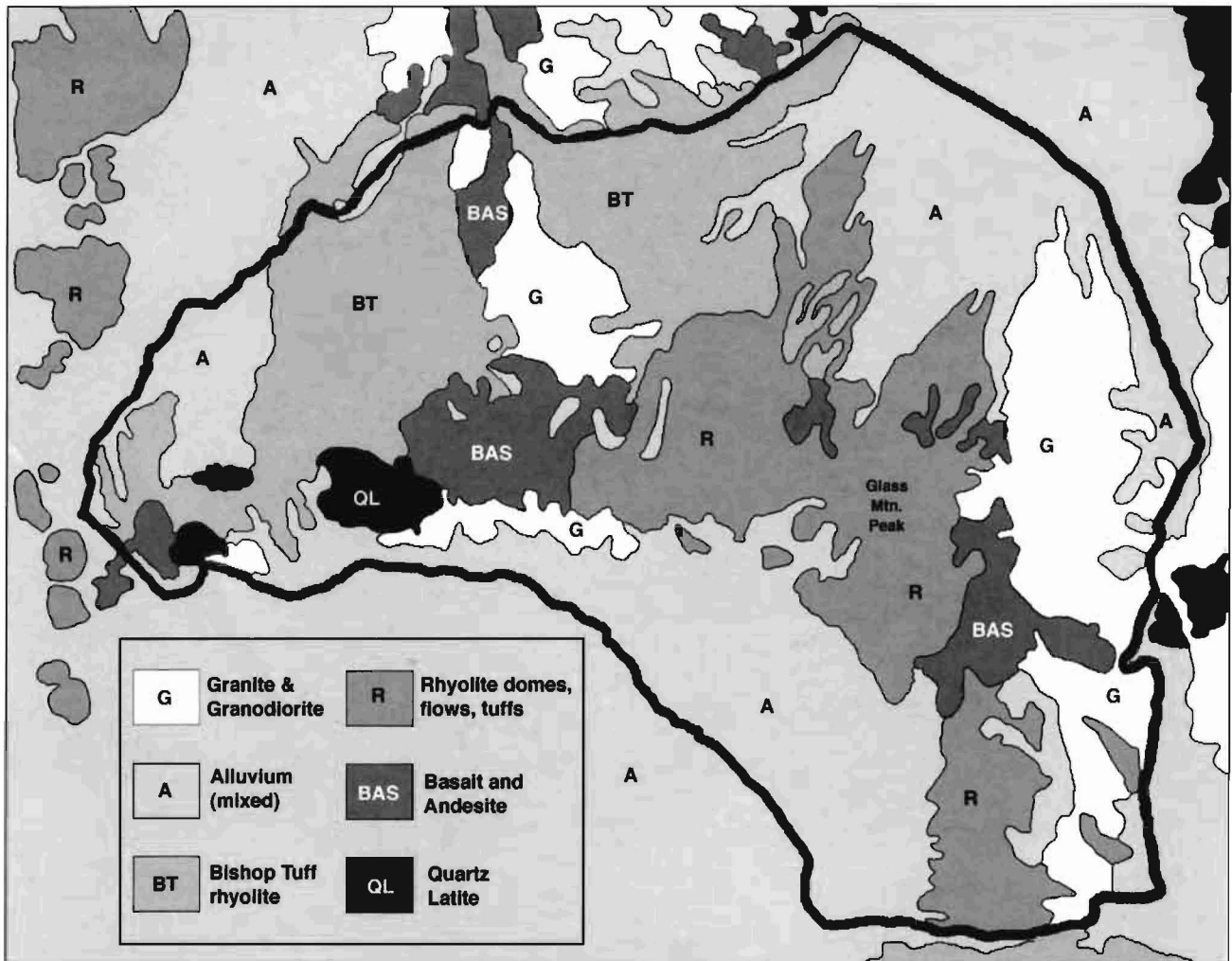


Fig. 4. Bedrock geology of the Glass Mountain Region. Adapted from Bailey (1989).

form Wet Fork, which goes underground before reaching Adobe Valley.

Deadman Creek/Owens River is the only major drainage emanating from outside the borders of the Glass Mountain Region. This strong perennial Sierran snowmelt creek defines the southwest edge of the study area, flowing to Lake Crowley, and eventually via two aqueducts to the faucets and hosebibs of the City of Los Angeles.

### Geology

Because of its proximity to the Long Valley Caldera, the geology of the Glass Mountain Region is well known and mapped. A good review of the geological history and structure, including a detailed map, appears in Bailey (1989) (Fig. 4).

The Glass Mountain mass was formed by numerous volcanic venting episodes burning up through the pre-existing Sierran granodiorite batholith, from 3.6 to 0.8 million years ago. These eruptions first deposited the basaltic and andesite flows and domes of McLaughlin

Springs, Glass Mountain Ridge, and Bald Mountain. Thereafter Glass Mountain itself arose through successive venting of high-silica rhyolite in overlapping domes, flows, and tuffs. Rising over 1000 m above the basement rock, Glass Mountain gets its name from the coarse black obsidian fragments scattered around the white pumice and rhyolite rocks on its summit and flanks.

Nothing has had a more profound affect on the physiography of the region as the catastrophic eruption of the Long Valley Caldera (approximately 730,000 years ago). In a series of violent episodes, a huge magma chamber under what is now Long Valley erupted through an elliptical "ring fracture," discharging to the surface approximately 600 km<sup>3</sup> of hot incandescent ash flows. This welded pyroclastic deposition formed the Bishop Tuff, inundating 1500 km<sup>2</sup> of the countryside south to Bishop, and north into the Mono Basin. This Bishop Tuff formation can be up to 200 m thick, and has a characteristic orange-pink color. It forms the bedrock through which Taylor Canyon, Wet Canyon, and

Table 1. Average seasonal temperatures °C (°F), in relation to elevation for three areas near the Glass Mountain Region. Source: Western Regional Climate Center 2002.

	Elevation: m (ft)	Average January temperature	Average July temperature
Mono Lake	1967 (6450)	-6.8 (19.7)	28.8 (83.9)
Montgomery Pass	2165 (7100)	-10.0 (14.0)	28.4 (83.2)
Bodie	2552 (8370)	-14.5 (5.9)	24.6 (76.4)

North Canyon have been cut. The discharge of this massive magma chamber resulted in the subsidence of the floor of Long Valley, truncating and burying the southwest edge of the Glass Mountain mass, and forming the steep curved escarpment leading from the valley floor up to the peak. In the post-caldera millenia, a shallow Pleistocene lake filled Long Valley, forming visible terraces around its margins (Mayo 1934).

Numerous post-caldera eruptions have had a significant effect on the Glass Mountain region. The conspicuous domes and ridges of the Mono Craters erupted from 40,000 years ago to as recently as AD 1365 (Sieh and Bursik 1986). Even more recent eruptions along the Inyo Craters chain have occurred as recently as 650–550 years ago (Miller 1985). The significance of these eruptions is that wind-blown ashfalls have repeatedly blanketed the west Glass Mountain region over millenia, coating the area with soft, exceptionally well-drained ashy pumice soil.

Today the geology of the region is dominated by a landscape of volcanic domes, flows, tuffs, and ashfalls around the periphery of the caldera margin. The dominant bedrock varies from rhyolite, to basalt, to quartz andesite. Granitic bedrock is common throughout the eastern slopes and hills of the area, around the Sagehen Meadow area, and along the north escarpment of Long Valley. Over all these different bedrocks can be found deep pumice ash and gravel, deposited by the prevailing westerly winds.

### Climate

The Glass Mountain region experiences typical Great Basin climatic regimes of freezing winters and hot summers. Most precipitation falls as snow in the winter months from November to March. Infrequent summer thunderstorms account for only a small amount of the yearly total. Prevailing winds are from the west, and are especially strong on exposed ridgelines and high elevations. No temperature stations exist in the region, but similar averages for the area can be inferred from three nearby localities, of which Bodie is the closest to Glass Mountain in elevation and topography (Table 1).

Few detailed long-term climatic records exist for the Glass Mountain Region. Only one precipitation station

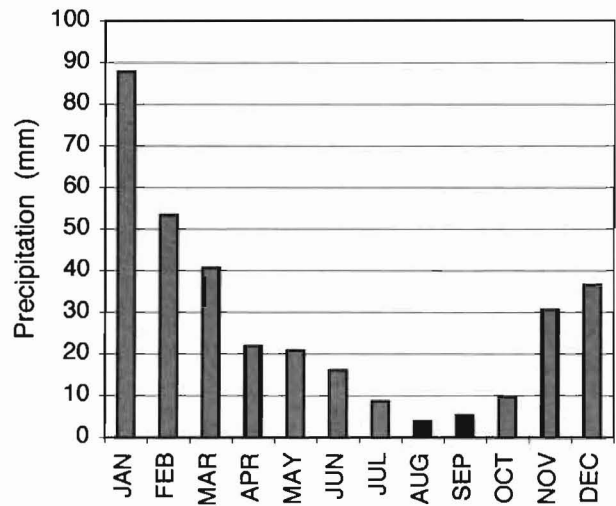


Fig. 5. Average monthly precipitation at Crestview (mm) from automated reporting station, Inyo National Forest, 1995–2002. Source: California Department of Water Resources (2002).

is active in the area, located in Jeffrey pine forest, elevation 2318 m (7600 ft) at Crestview on the far southwest corner of the study area. An automated reporting station operated by INF, Crestview has recorded hourly precipitation (with some gaps) from 1995 to present (California Department of Water Resources 2002). These records indicate average yearly precipitation of 35.3 cm (13.19 in.) for the 7-year period, with heaviest accumulated precipitation in November–March (Fig. 5). This short reporting period includes two “El Niño” events (1995 and 1998) and may therefore reflect skewed averages for annual precipitation.

Other adjacent areas have better long-term recording stations and can provide concordant climatic data from which to infer conditions in the Glass Mountain area (Table 2). From these data, it is possible to estimate precipitation patterns across the region:

Low areas around Long Valley and Adobe Valley:  $\pm$  15–25 cm (6–10 in.)/yr.

Mid-elevation forests and slopes:  $\pm$  25–45 cm (10–18 in.)/yr.

Table 2. Average annual precipitation for seven areas in and around the Glass Mountain Region, in relation to elevation. Sources: California Department of Water Resources 2002; Western Regional Climate Center 2002.

	Elevation	Average annual precipitation
Bodie	2511 m (8370 ft)	32.8 cm (12.9 in.)
Crestview	2280 m (7600 ft)	33.5 cm (13.2 in.)
Lake Crowley Dam	2040 m (6800 ft)	24.6 cm (9.7 in.)
Mammoth Pass	2790 m (9300 ft)	110.2 cm (43.4 in.)
Mono Lake	1911 m (6370 ft)	37.1 cm (14.6 in.)
Montgomery Pass	2130 m (7100 ft)	17.3 cm (6.8 in.)
White Mountain	3741 m (12,470 ft)	51.1 cm (20.1 in.)

Glass Mountain Peak and Ridges:  $\pm$  45–59 cm (18–22 in.)/yr.

#### HUMAN HISTORY

Paiute Indians from the Mono Basin and Owens Valley seasonally inhabited areas of the region before the arrival of European settlers. Evidence of habitations exist in the form of “house ring” foundations in the Pinyon woodland areas of the east-side of the region. Pinyon nuts (*Pinus monophylla*) were the most important food staple of these groups, and seasonal trips were made for harvesting and processing. Paiutes also harvested the grain of Indian rice grass (*Achnatherum hymenoides*), Great Basin wild rye (*Leymus cinereus*) and desert needlegrass (*Achnatherum speciosum*) (Liljeblad and Fowler 1986). In the Jeffrey pine forests of the west side of the range there can be found shallow trenches dug around the larger trees. These were used up until the early 1900s to gather larvae of the pandora moth, *Coloradia pandora*, which in alternate years feeds on Jeffrey pine needles. Baked and dried, they were also an important part of the Paiute diet (Schoenherr 1992).

By the mid-1800s white settlement began in the Owens Valley and Mono Basin. Ranching became common in the sagebrush slopes and meadows, and hardrock mining was expanding throughout the greater region. The boom town of Bodie was in full swing in the late 1880s, and required large amounts of timber for building and charcoal production. Eyeing the vast slopes of Jeffrey pine forest in the Glass Mountain Region, a company was formed to build a 32-mile railroad to Mono Mills, where lumber was abundant (Wright 1993). This resulted in the grading of a web of logging roads deep into the region, and heavy cutting of the old growth Jeffrey pines. Many old stumps can be seen in what is now second-growth forest. Logging, on a much reduced scale, continues to this day, usually from permitted firewood cutting and INF thinning operations.

Two Research Natural Areas (RNA), administered by Inyo National Forest, are within the Glass Mountain Region. RNAs are selected to preserve outstanding examples of natural ecosystems for research and educational use, and to protect habitats of rare and endangered species (Keeler-Wolf 1990). Indiana Summit RNA was established in 1932 as California’s first RNA. Its target element is the extensive pure stand of Jeffrey pine in the western part of the region. Sentinel Meadow RNA, established in 1983, covers the large pumice plateau and slopes west of Glass Mountain peak. The target elements here were lodgepole pine and limber pine. Good synopses of ecological surveys for both of these areas appear in Keeler-Wolf (1990).

Other contemporary uses of the region are wide-

spread cattle ranching, sheep grazing, occasional mines, and recreation. There are several INF campgrounds in the area, and numerous four-wheel drive trails throughout the region. Occasionally hunters, campers, all-terrain vehicle riders, fishermen, and shepherds are encountered in the field, but the region is never heavily used at any one time, except by cows and sheep.

#### BOTANICAL HISTORY

Many areas around the Glass Mountain region have benefited from thorough floristic inventories. Notable among these are the published floras of the White Mountains (Lloyd and Mitchell 1973; Morefield et al. 1988); the Valentine Eastern Sierra Reserve (Howald 1981); the Fish Slough vicinity (Forbes et al. 1988); the Upper Walker River region (Lavin 1983); the Sweetwater Mountains (Hunter and Johnson 1983); the Rock Creek Lake Basin (Pierson 1938); and the Bishop Creek drainage (Crowther and Crowther 2002). Significant floras published as theses or not formally published include the Bodie Hills (Messick 1982), the Glass Creek/San Joaquin Ridge area (Constantine-Shull 2000), the June Mountain vicinity (M. Bagley unpubl.); Mammoth Mountain (A. M. Howald unpubl.); and the H. M. Hall RNA (D. W. Taylor unpubl.).

The Glass Mountain Region, by contrast, has had a limited botanical collecting history. Herbarium searches at RSA-POM and UC/JEPS have yielded 250 collections from the area, documenting 181 taxa prior to this study. Although 29 different collectors have visited the area, little focused study was done until the 1960s. Up until that decade, most collection was done on an ad-hoc basis and was mostly restricted to roadside sites, especially along what is now Highway 395 between Crestview and Deadman Pass, along Highway 120 at Big Sand Flat, and occasionally around the Long Valley area. Earliest notable collectors include H. M. Hall, visiting Gaspip Spring; J. T. Howell in Long Valley; and Victor Duran, who, on his way to the White Mountains, discovered what would be named *Lupinus duranii* on Big Sand Flat (Reveal 1972). Arthur Cronquist was one of the first botanists to ascend Glass Mountain Peak in 1973, where he collected type material for *Cryptantha alpicola* Cronq. (here treated as *C. humilis* (A. Gray) Payson).

In the early 1960s, Jack L. Reveal, while working for the USFS in the Mono Basin, made several forays into the interior of the region, documenting many new occurrences (Reveal 1972). Often accompanied by D. Mason or James Reveal, he collected at Big Sand Flat, and into the north-side drainages including Black Canyon, Sagehen Meadow, Wet Meadow, McGee Canyon, and Johnny Meadows.



Table 3. Chronological summary of botanical collection in the Glass Mountain Region, from herbarium vouchers at RSA-POM, UC, and JEPS.

1922	H. M. Hall UC
1927	H. M. Hall UC
1929	H. M. Hall RSA; UC
1931	C. B. Wolf RSA
1932	V. Duran RSA; UC
1937	Renner JEPS
1938	L. Constance JEPS
1938	J. T. Howell RSA
1947	R. Ferris RSA
1947	P. A. Munz RSA
1948	J. & L. Roos RSA
1952	L. Constance JEPS
1952	R. S. Ferris RSA
1954	P. A. Munz RSA
1955	M. DeDecker RSA
1957	R. S. Ferris & W. R. Ernst UC; JEPS
1957	L. R. Heckard RSA
1957	J. M. Tucker UC
1958	M. DeDecker RSA
1959	W. M. Klein RSA
1962	Jack L. Reveal RSA; UC
1962	Jack L. Reveal & D. Mason RSA; UC
1962	James L. Reveal RSA
1963	Jack L. Reveal & D. Mason UC
1963	Jack L. Reveal & James L. Reveal RSA; UC
1963	J. H. Thomas RSA
1966	N. H. Holmgren RSA; UC
1968	L. S. Rose RSA
1968	R. C. Wilson RSA
1972	R. & M. Spellenberg UC
1973	A. Cronquist RSA; UC
1974	M. DeDecker RSA
1975	M. DeDecker RSA
1976	C. Davidson RSA
1976	M. DeDecker RSA
1977	D. E. Breedlove RSA
1977	M. DeDecker RSA; UC
1977	D. W. Taylor JEPS; UC
1978	M. DeDecker RSA
1980	D. W. Taylor JEPS
1981	K. A. Teare JEPS
1982	D. W. Taylor RSA; JEPS; UC
1984	M. DeDecker RSA
1984	V. L. Yadon UC
1986	D. W. Taylor JEPS
1987	G. K. Helmkamp RSA
1988	G. L. Clifton JEPS
1988	D. W. Taylor JEPS
1989	M. DeDecker RSA
1998	D. W. Taylor UC; JEPS
1999	M. Honer RSA
2000	M. Honer RSA
2000	M. Honer & S. Hetzler RSA
2000	M. Honer & K. Miller RSA
2001	M. Honer RSA
2001	M. Honer & D. Guiliani RSA
2001	M. Honer & S. Hetzler & D. Guiliani RSA
2002	M. Honer RSA
2002	M. Honer & S. Hetzler RSA

Mary DeDecker, the intrepid Eastern Sierra botanist and writer, was the next collector to make significant documentation in the region. As a contract worker for Inyo National Forest in 1974 and 1975, DeDecker compiled a checklist of the vascular plants of the Obsidian Plateau Lodgepole RNA, later renamed Sentinel Meadow RNA (M. DeDecker unpubl.). In 1984, assisted by Bristlecone Chapter CNPS members, she made many new vouchers from the meadows and granitic slopes around Sawmill Meadow and the Black Canyon drainages.

In 1977, Dean W. Taylor arrived in the region to do an ecological survey of the Indiana Summit RNA (Keeler-Wolf 1990), achieving good documentation around the extensive virgin Jeffrey pine forests of this area. In addition to quantifying densities and cover of the target species *Pinus jeffreyi*, Taylor described much of the ecology, natural history, and vegetation types of the RNA. That year he also repeatedly ascended Glass Mountain peak, and collected at Crooked Meadows, Big Sand Flat, Little Sand Flat, and Clark Canyon. Pursuing an ongoing interest in compiling a flora of Mono County, Taylor has repeatedly visited the area throughout the 1980s and 1990s, documenting many species from Watterson Canyon, Glass Mountain Ridge, Kelty Meadows, Benton Crossing in Long Valley, and most recently at Sawmill Meadow.

Steve Talley also performed an ecological survey of the Sentinel Meadow RNA in 1978, building on the baseline data compiled by Mary DeDecker (Keeler-Wolf 1990). Although none of his collections have been found at RSA-POM or UC/JEPS, he summarized basic ecological and vegetation types for the area, in addition to quantifying density and cover of the two target species, *Pinus contorta* ssp. *murrayana*, and *Pinus flexilis*.

The current study retraces many of the paths of the early collectors, and builds upon their initial findings. A summary of botanical collection in the region to date is presented in Table 3. Figure 6 maps collection localities by major collectors in the area.

#### VEGETATION

Distribution and grouping of plants is determined by the interaction of many biotic and abiotic factors. Over time, researchers have recognized many different recurring assemblages of plants and have attempted to classify them variously as “formations,” “vegetation types,” “plant communities,” “alliances,” “series,” and “associations.” Unfortunately, few localities share the exact same species compositions across the landscape. Intergradation between vegetation types further confounds exact classification: “The problem of fuzzy boundaries is characteristic of vegetation science” (Sawyer and Keeler-Wolf 1995). Nevertheless, several



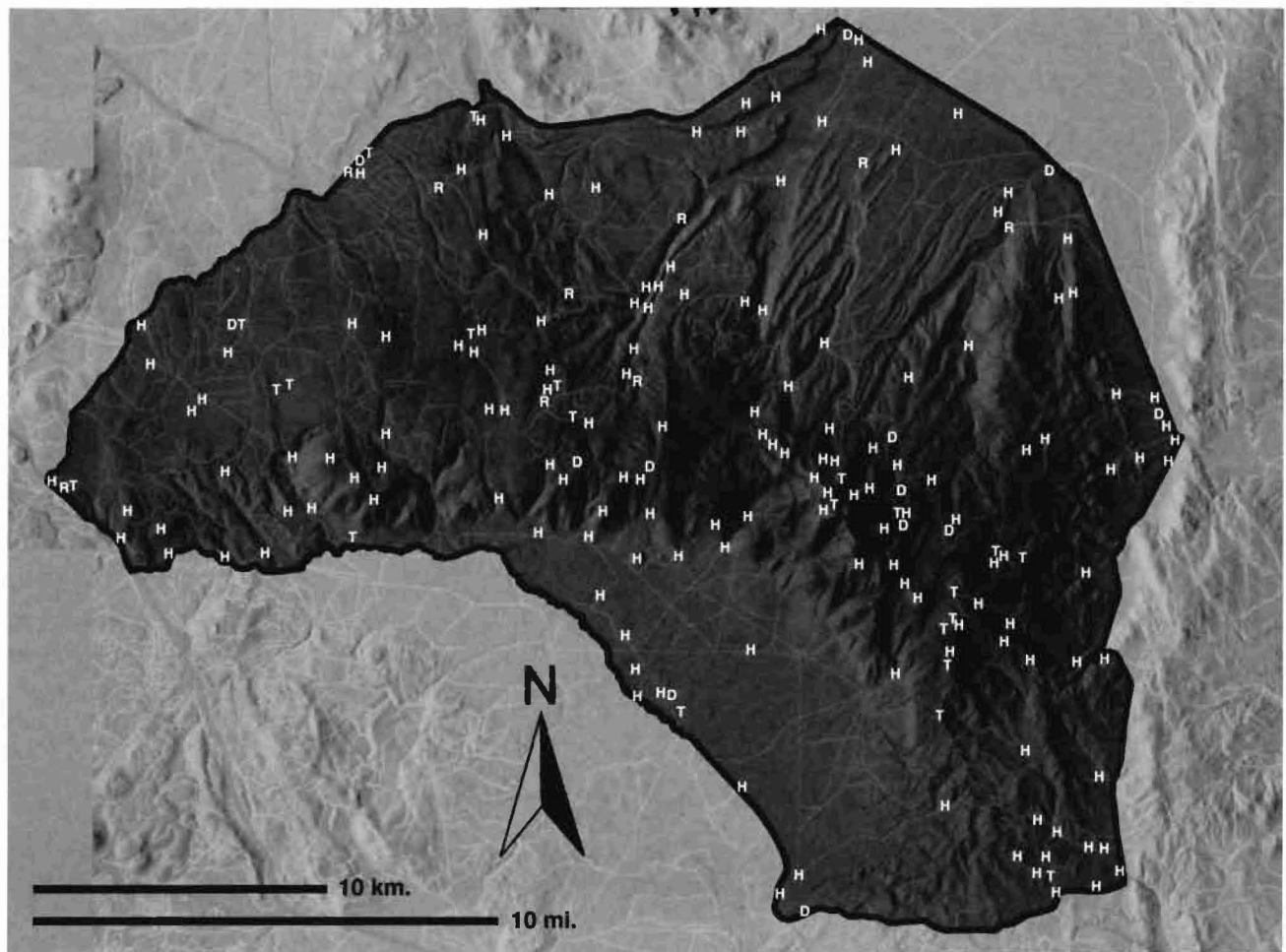


Fig. 6. Collection localities of four major collectors in the Glass Mountain Region. **R** = Jack L. Reveal, 1962–1963; **D** = Mary DeDecker, 1955–1989; **T** = Dean W. Taylor, 1977–1998; **H** = Michael Honer, 1999–2002.

identifiable vegetation types occurring in the western United States can be found in the Glass Mountain Region. Listing them and their constituent species can be useful as a predictor of occurrence and habitat of many particular species.

Many different classification systems have been implemented in the last 100 years. A good contemporary system in use in California is *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995). This system uses the “dominance rule” to identify the one or two species with the most cover in the vegetation. These dominant species are used to name “series,” the basic vegetation unit. Within each series are lists of “associations,” or species commonly associated with the dominant plant. It is difficult to assign all of the associations encountered in the Glass Mountain Region into the series in this system. However, since this system is in wide use and is constantly being revised and improved, it is important to include the relevant series in the following vegetation descriptions.

For ease of description and interpretation, this study will sort vegetation into four basic groups:

- (a) *Shrublands*.
- (b) *Woodlands and Forests*.
- (c) *Riparian Zones and Meadows*.
- (d) *Special Habitats*.

Under each category are descriptions of general vegetation types encountered in the Glass Mountain Region *in italics*, followed by the “best fit” to the series described in *A Manual of California Vegetation* (parenthetically). Also listed are DOMINANT SPECIES, SHRUBS AND TREES, GRASSES, and FORBS.

#### *Shrublands*

*Low-elevation Sagebrush scrub*.—Sagebrush scrub is the most ubiquitous vegetation type throughout the region, dominating all low valleys and slopes, and running up into Pinyon woodlands and forest understory. Flourishing on well-drained sandy and gravelly soils, this assemblage is dominated by its namesake, Great Basin Sagebrush, *Artemisia tridentata* ssp. *tridentata*. Typically open in cover, Sagebrush scrub is often a mosaic of different perennial shrubs with a high di-

versity of annuals occurring on sandy openings. Frequently grazed and disturbed, it is best represented at borders of Adobe Valley, along Benton Crossing Road, and low hills north of Sagehen Peak (Big sagebrush series; Bitterbrush series, Rubber rabbitbrush series).

DOMINANT: *Artemisia tridentata* ssp. *tridentata*. SHRUBS AND TREES: *Chrysothamnus nauseosus*, *C. viscidiflorus*, *Ephedra viridis*, *Grayia spinosa*, *Linanthus pungens*, *Phlox stansburyi*, *Prunus andersonii*, *Purshia tridentata* ssp. *tridentata* (often co-dominant). GRASSES: *Achnatherum hymenoides*, *Bromus tectorum*, *Elymus elymoides* subsp., *Hesperostipa comata*, *Leymus cinereus*. FORBS: *Abronia turbinata*, *Aliciella* spp., *Astragalus casei*, *Camissonia* spp., *Chaenactis xantiana*, *Cryptantha confertiflora*, *C. pterocarya*, *C. watsonii*, *Eriastrum* spp., *Eriogonum* spp., *Gayophytum* spp., *Gilia* spp., *Lupinus argenteus* var. *heteranthus*, *Mentzelia congesta*, *Oxytheca dendroidea*, *Phacelia bicolor*.

*Mid-elevation Sagebrush scrub.*—This vegetation type is very similar to Sagebrush scrub, but at higher rockier elevations (2600–2900 m), with different exposures (hence different moisture gradients), and different associations. Dominated by *Artemisia tridentata* ssp. *vaseyana*, important associated species are *Symphoricarpos rotundifolius*, *Silene bernardina*, *Chrysothamnus parryi* subsp., *Monardella odoratissima*, and *Tetradymia canescens*. It is best represented on slopes between Clover Patch and Kely Meadows, McLaughlin Springs area, and Bald Mountain (no equivalent Sawyer and Keeler-Wolf series or association).

DOMINANT: *Artemisia tridentata* ssp. *vaseyana*. SHRUBS AND TREES: *Purshia tridentata*, *Ceanothus velutinus* (often becoming co-dominant on mesic north and east slopes), *Chrysothamnus parryi* subsp., *C. viscidiflorus* subsp., *Eriogonum microthecum* var. *ambiguum*, *E. umbellatum* var. *nevadense*, *Grayia spinosa*, *Linanthus pungens*, *Monardella odoratissima* ssp. *pallida*, *Populus tremuloides* (often becoming dominant on mesic east-facing slopes), *Ribes cereum*, *Symphoricarpos rotundifolius* (often becoming co-dominant), *Tetradymia canescens*. GRASSES: *Achnatherum hymenoides*, *Elymus elymoides* subsp., *Hesperostipa comata*, *Leymus cinereus*. FORBS: *Angelica lineariloba*, *Castilleja applegatei* ssp. *pinetorum*, *Crepis intermedia*, *Cymopterus terebinthus* ssp. *californicus*, *Linum lewisii*, *Lupinus argenteus* subsp., *Macleranthera canescens*, *Silene bernardina*, *Stephanomeria tenuifolia*.

#### Woodlands and Forests

*Pinyon woodland.*—Dominated by open woodlands of pinyon pine (*Pinus monophylla*), this vegetation is common on low rocky slopes and ridges throughout

the perimeter of the region (2000–2400 m), and best developed on (but not restricted to) rocky granitic substrate. Rarified Sagebrush scrub associations are common in the understory. Pinyon woodlands can best be seen along the granite ridges of Klondike Canyon and other east-side slopes (Singleleaf pinyon series).

DOMINANT: *Pinus monophylla*. SHRUBS AND TREES: Sagebrush scrub (most spp. listed above), *Amelanchier utahensis*, *Eriogonum umbellatum*, *Ribes cereum*, *R. velutinum*. GRASSES: *Achnatherum speciosum*, *Melica stricta*. FORBS: *Arenaria macradenia* ssp. *ferrisiae*, *Astragalus purshii*, *Castilleja angustifolia*, *Cryptantha* spp., *Erigeron aphanactis*, *E. breweri* var. *porphyreticus*, *Opuntia erinacea*, *Penstemon patens*, *Phacelia vallis-mortae*, *Phoenicaulis cheiranthoides*.

*Mixed coniferous forests.*—The coniferous forested flats and slopes of the region occur from the Pinyon zone up to Glass Mountain peak. Species distributions follow a general elevation/habitat sequence (with much intergradation) from low to high elevations:

Jeffrey pine:	2200 m–2600 m
Lodgepole pine:	2200 m–3100 m
Limber pine:	2700 m–3100 m
Whitebark pine:	3100 m–3300 m+

Understory species vary by habitat. Mesic stream and meadow species are associated with the Lodgepole series throughout the region.

*Jeffrey pine forest.*—A large pure forest of *Pinus jeffreyi* is conspicuous from the western edge of the study area along Highway 395, clear to Wet Meadow, where it becomes less continuous and of a more open woodland structure. Individual trees can be seen occasionally in Sagebrush scrub as far south and east as Benton Crossing Road. Quantitatively documented by Dean W. Taylor as target element of the ecological survey of Indiana Summit RNA (Keeler-Wolf 1990), most of this forest has been extensively logged and transported by rail across the Mono Basin to Bodie, where it now exists as the timbers and siding of ghost town bars, brothels, and stamp mills (Jeffrey pine series).

DOMINANT: *Pinus jeffreyi*. SHRUBS AND TREES: *Abies concolor* (occasional), *Artemisia tridentata*, *Leptosiphon nuttallii* ssp. *pubescens*, *Linanthus pungens*, *Juniperus occidentalis* ssp. *australis* (occasional), *Purshia tridentata* (dominant understory shrub). GRASSES: *Achnatherum occidentale* ssp. *californicum*, *Elymus elymoides* ssp. *elymoides*. FORBS: *Gayophytum diffusum*, *Lupinus duranii*.

*Lodgepole pine forest.*—*Pinus contorta* subsp. *murrayana* is scattered throughout the region along mid-elevation streamsides, to locally abundant and often

encroaching around meadows. It is also common to abundant on dry upland slopes between Jeffrey pine forests and the limber pine zone. With such wide distribution and habitat types, the Lodgepole pine series can have widely varying associations, from diverse wet meadow understory, to scant dry forbs on slopes. It is best represented around Wet Meadow, McGee Meadow, and on north-facing slopes adjacent to Sentinel Meadow RNA (Lodgepole pine series).

DOMINANT: *Pinus contorta* ssp. *murrayana*.

Meadow/Streamside association: SHRUBS AND TREES: *Betula occidentalis*, *Ribes cereum*, *R. inerme*, *Rosa woodsii*, *Salix* spp. GRASSES: *Agrostis scabra*, *Elymus trachycaulis*, *Phleum alpinum*. FORBS: *Achillea millefolium*, *Antennaria rosea*, *Aster occidentalis*, *Carex* spp., *Collomia linearis*, *Dodecatheon* spp., *Eleocharis pauciflora*, *Geum macrophyllum*, *Juncus* spp., *Lupinus lepidus* var. *confertus*, *Mimulus primuloides*, *Penstemon rydbergii*, *Polemonium occidentale*, *Potentilla* spp., *Rumex pauciflorus*, *Sidalcea oregana*, *Smilacina stellata*, *Sphenosciadium capitellatum*, *Stellaria longipes*, *Thalictrum sparsiflorum*, *Trifolium longipes*.

Dry slope association: SHRUBS AND TREES: *Artemisia tridentata* subsp., *Juniperus occidentalis* ssp. *australis* (occasional), *Linanthus pungens*, *Purshia tridentata*, *Ribes cereum*, *Symphoricarpos rotundifolius*. GRASSES: *Trisetum spicatum*, *Koeleria macrantha*. FORBS: *Arabis lyallii*, *Ericameria suffruticosa*.

*Limber pine woodlands*.—*Pinus flexilis* woodland is common along higher slopes and exposed ridgelines throughout the region. Best developed on north- and east-facing slopes just below Sentinel Meadow RNA and Glass Mountain peak, this series is often transitional between lodgepole and whitebark pine series. Rare individuals can be seen in lower elevation scrub. Krummholzed dwarfed stands are common on the ridges overlooking Long Valley. The understory is usually scant (Limber pine series).

DOMINANT: *Pinus flexilis*. SHRUBS AND TREES: *Cercocarpus ledifolius* ssp. *intermontanus*, *Linanthus pungens*, *Leptosiphon nuttallii*, *Juniperus occidentalis* ssp. *australis* (occasional), *Pinus albicaulis*, *P. contorta* ssp. *murrayana*. GRASSES: *Achnatherum occidentale* ssp. *californicum*, *Elymus elymoides* subsp., *Koeleria macrantha*, *Muhlenbergia richardsonis*. FORBS: *Chrysothamnus parryi* subsp., *Ericameria suffruticosa*, *Eriogonum lobbii*, *Holodiscus microphylla*, *Phlox condensata*, *Raillardella argentea*.

*Whitebark pine woodland*.—Common on pumice slopes and exposed ridges above 3000 m, *Pinus albicaulis* is the only true alpine tree in the region. On the high dry windswept summit plateau of Glass Mountain peak, it forms dense clonal stands only 1.5 m high. Taller individuals cling to rocky ridges and north- and

east-facing slopes. It is best represented on Glass Mountain Peak and ridges, quickly disappearing downslope (Whitebark pine series).

DOMINANT: *Pinus albicaulis*. SHRUBS AND TREES: *Cercocarpus ledifolius*, *Chrysothamnus parryi* ssp. *monocephalus*, *Ericameria suffruticosa*, *Pinus flexilis*. GRASSES: *Muhlenbergia richardsonis*, *Trisetum spicatum*. FORBS: *Calyptridium umbellatum*, *Eriogonum lobbii*, *Eriophyllum lanatum* var. *integri-folium*, *Penstemon davidsonii*, *Raillardella argentea*.

*Aspen woodlands*.—Widespread and locally abundant throughout the region, *Populus tremuloides* groves are restricted to relatively mesic sites along wet streamsides, seeps, and springs. Aspens are also co-dominant with lodgepoles around meadow margins. On north and east exposures in mid-elevation Sagebrush scrub which hold snow late in the season, aspens persist as short shrubby dense colonies (Aspen series).

DOMINANT: *Populus tremuloides* (Includes many associations of Riparian Zones and Montane Meadows). SHRUBS AND TREES: *Pinus contorta* ssp. *murrayana*, *Ribes cereum*, *Rosa woodsii* var. *ultramontana*, *Symphoricarpos rotundifolius*, *Salix* spp. GRASSES: *Bromus carinatus*, *Deschampsia cespitosa*, *Elymus elymoides* ssp. *californicus*, *E. trachycaulis*, *Koeleria macrantha*. FORBS: *Allium bisceptrum*, *Aquilegia formosa*, *Collomia linearis*, *Ipomopsis aggregata* ssp. *formosissima*, *Lupinus arbustus*, *Phacelia humilis*.

#### Riparian Zones and Meadows

*Streamside riparian zones*.—Riparian zone vegetation is restricted to perennial springfed streams flowing across many habitats from 2000 m at valley floors to 2700 m in the subalpine zone. Composed of phreatophytic and obligate wetland species, riparian zones vary from 1 m across to 30 m wide, flowing within shady coniferous forest down through open Sagebrush scrub. *Salix* spp. are dominant throughout these zones, as is *Rosa woodsii* var. *ultramontana*. The ground layer is usually dominated by *Carex* spp. and grasses (Narrowleaf willow series; Mixed willow series; Subalpine wetland shrub habitat).

DOMINANTS: *Carex aquatilis*, *C. nebrascensis*, *Salix exigua*, *S. geyeriana*, *S. lutea*. SHRUBS AND TREES: *Betula occidentalis*, *Pinus contorta* ssp. *murrayana*, *Populus tremuloides*, *Ribes cereum* var. *cer-eum*, *Rosa woodsii* var. *ultramontana*, *Symphoricarpos rotundifolius*. GRASSES: *Alopecurus aequalis*, *Deschampsia cespitosa*, *Hordeum brachyantherum*, *Muhlenbergia richardsonis*. FORBS: *Achillea millefolium*, *Aconitum columbianum*, *Aquilegia formosa*, *Arnica chamissonis* ssp. *foliosa*, *A. mollis*, *Aster lanceolatus* ssp. *hesperius*, *Carex* spp., *Castilleja miniata*, *Cirsium vulgare*, *Delphinium glaucum*, *Dodecatheon* spp., *Epi-*

*lobium angustifolium* ssp. *circumvagum*, *E. ciliatum*, *Equisetum arvense*, *Geum macrophyllum*, *Juncus* spp., *Platanthera leucostachys*, *Polemonium occidentale*, *Rorippa nasturtium-aquaticum*, *Rumex salicifolius* var. *denticulatus*, *Scirpus microcarpus*, *Senecio triangularis*, *Smilacina stellata*, *Sphenosciadium capitellatum*, *Thalictrum sparsiflorum*, *Trifolium longipes*, *T. montanum*, *Urtica dioica* ssp. *holosericea*.

*Montane meadows*.—Several seasonally wet meadows exist around the region, usually adjacent to springs and seeps in forest openings. Frequently bordered by aspens and encroaching lodgepole pines, these meadows are dominated by abundant herbs, especially *Carex*, *Eleocharis*, and grasses. Emergent shrubs including *Ribes* spp., and *Salix* spp., are common. Best represented by large north-side meadows including Sawmill Meadow, Wet Meadow, McGee Meadow, these vegetation types are prized for cattle forage, and show many symptoms of this disturbance, including headcutting and trampling (Montane meadow habitat; Sedge series; Spikerush series).

**DOMINANTS:** *Carex aquatilis*, *C. heteroneura*, *C. lanuginosa*, *C. nebrascensis*, *C. utriculata*, *Eleocharis pauciflorus*. **SHRUBS AND TREES:** *Artemisia cana* ssp. *bolanderi*, *Pinus contorta* ssp. *murrayana*, *Populus tremuloides*, *Ribes inerme*, *Salix planifolia*, *S. geyeriana*. **GRASSES:** *Agrostis scabra*, *Deschampsia cespitosa*, *Elymus elymoides* ssp. *californicus*, *E. trachycaulis*, *Muhlenbergia filiformis*, *M. richardsonis*, *Phleum alpinum*, *Poa pratensis*, *Trisetum spicatum*. **FORBS:** *Achillea millefolium*, *Agoseris glauca* var. *monticola*, *Allium validum*, *Antennaria rosea*, *Aquilegia formosa*, *Arnica mollis*, *Aster occidentalis*, *Castilleja miniata*, *Cirsium scariosum*, *Collomia linearis*, *Dodecatheon alpinum*, *Epilobium angustifolium*, *E. ciliatum*, *Equisetum arvense*, *Gentianopsis simplex*, *Geum macrophyllum*, *Iris missouriensis*, *Lilium parvum*, *Lupinus lepidus* var. *confertus*, *Mimulus primuloides*, *Parnassia californica*, *Penstemon rydbergii* var. *oreocharis*, *Perideridia* spp., *Platanthera leucostachys*, *Polemonium occidentale*, *Polygonum douglasii*, *Potentilla gracilis* subsp., *Pyrola minor*, *Rumex paucifolius*, *Sidalcea oregana* ssp. *spicata*, *Solidago multiradiata*, *Sphenosciadium capitellatum*, *Stellaria longipes*, *Taraxacum officinale*, *Thalictrum sparsiflorum*, *Trifolium longipes* var. *nevadense*, *Trimorpha lonchophylla*, *Veratrum californicum*, *Veronica americana*.

### Special Habitats

*High altitude pumice plateaus and ridges*.—Wind-swept pumice flats and slopes above 3000 m support a unique alpine flora. Best described as Parry rabbitbrush series, this sparse depauperate vegetation grows on well drained, often stony pavement with fine soil.

Most precipitation on these high plateaus falls as snow, but may be quickly blown off eastward by the strong prevailing winds of these high elevations. It is best developed on Glass Mountain summit plateau, 3300 m (close to Parry rabbitbrush series).

**DOMINANT:** *Chrysothamnus parryi* ssp. *monocephalus* (occasional only). **SHRUBS AND TREES:** *Pinus albicaulis*, *Ribes cereum*. **GRASSES:** *Muhlenbergia richardsonis*, *Trisetum spicatum*. **FORBS:** *Arenaria kingii* ssp. *glabrescens*, *Astragalus monoensis*, *Carex helleri*, *Chaenactis douglasii*, *Cryptantha humilis*, *Cymopterus cinereus*, *Ericameria suffruticosa*, *Erigeron pygmaeus*, *Eriogonum rosense*, *Eriophyllum lanatum* var. *integrifolium*, *Ipomopsis congesta* ssp. *montana*, *Mimulus mephiticus*, *Raillardella argentea*, *Silene sargentii*.

*Sand flats*.—Several large “sand flats” of nearly shrubless gravelly pumice soil surrounded by Jeffrey pine forest occur around 2400 m in the western half of the region. Exceptionally well drained soil on these flats support a sparse layer of herbs which make up a distinctive series, not described in Sawyer and Keeler-Wolf (1995). No real dominant species prevails, except for in wet years when *Mimulus mephiticus* can form large showy widespread blooms. This vegetation is best represented and well documented at Big Sand Flat, along Highway 120 (no equivalent Sawyer and Keeler-Wolf series).

**IMPORTANT SPECIES:** *Calyptridium umbellatum*, *Hulsea vestita*, *Lupinus duranii*, *Mimulus mephiticus*. **SHRUBS AND TREES:** *Chrysothamnus parryi* ssp. *asper* (main subshrub—occasional only). **GRASSES:** *Achnatherum occidentale* ssp. *californicum*, *Elymus elymoides* ssp. *elymoides*, *Muhlenbergia richardsonis*, *Poa secunda* ssp. *juncifolia*. **FORBS:** *Abronia turbinate*, *Cryptantha circumscissa*, *Eriogonum spergulinum* ssp. *reddingianum*, *Gayophytum diffusum* ssp. *parviflorum*, *Phacelia hastata* var. *compacta*, *Thelypodium crispum*.

*Cobbly windswept flats*.—Small microhabitats found occasionally in the eastern granitic half of the region support a unique flora dominated by cushion-type plants. Soils are usually fine and silty between windswept cobbles. Sagebrush scrub and/or Pinyon woodland closely surround these flats. *Stenotus acaulis* is the indicator species, and *Artemisia arbuscula* is often (not always) present. It is best seen on open windward granitic ridgelines between Clover Patch and Kely Meadows, and scattered localities in Frazier and Klondike Canyons (no equivalent Sawyer and Keeler-Wolf series).

**IMPORTANT SPECIES:** *Allium atrorubens*, *Am-sinckia menziesii* var. *intermedia*, *Arenaria kingii* var. *glabrescens*, *Artemisia arbuscula*, *Astragalus purshii* var. *tinctus*, *Cryptantha* spp., *Erigeron clokeyi*, *Erio-*



*gonum caespitosum*, *E. ovalifolium* var. *nivale*, *Lomatium nevadense* var. *nevadense*, *Stenotus acaulis* (indicator species, restricted to these sites).

**Alkaline meadows.**—The best developed alkaline meadows are in Long Valley around 2000 m. Usually adjacent to low sandy sagebrush hillocks, these wet “saltgrass meadows” are fed from perennial streams spreading out across the valley floor, slowly meandering to the Owens River. Saltgrass, *Distichlis spicata*, is the dominant widespread plant. Other important halophytic plants include *Carex praegracilis*, *Triglochin concinna* var. *debilis*, and *Pyrrocoma racemosa* var. *sessiliflora* (Saltgrass series).

**DOMINANT:** *Distichlis spicata*. **SHRUBS AND TREES:** *Artemisia tridentata* ssp. *tridentata*, *Sarcobatus vermiculatus* (only occasional in Long Valley). **GRASSES:** *Hordeum brachyantherum*, *H. jubatum*, *Poa secunda* ssp. *juncifolia*, *Puccinellia lemmonii*. **FORBS:** *Astragalus canadensis* var. *brevidens*, *Carex praegracilis*, *Glaux maritima*, *Goodmania luteola*, *Hutchinsia procumbens*, *Ivesia kingii* var. *kingii*, *Juncus balticus*, *Nitrophila occidentalis*, *Pyrrocoma racemosa* var. *sessiliflora*, *Sisyrinchium halophilum*, *Sphaeromeria potentilloides*, *Triglochin concinna* var. *debilis*.

**Introduced grasslands.**—A recent introduced vegetation type to the Glass Mountain Region is easily recognized as the cheatgrass series. Dominated by dense cover of the Eurasian invasive grass *Bromus tectorum*, it is best experienced on the steep burnt slopes on the north edge of Long Valley, from O’Harrel Canyon to Bald Mountain. What was once Pinyon woodland with Sagebrush scrub understory is now a nearly continuous sea of *Bromus*. Only occasional emergent recovering shrubs can be seen. Because of its short lifecycle, flammability, aggressive competition, and high productivity, the cheatgrass series is expected to persist and expand its range on these slopes and beyond, propelled in its hegemony by the increased fire periodicity it causes (Billings 1990) (Cheatgrass series).

**DOMINANT:** *Bromus tectorum*. **SHRUBS AND TREES:** *Artemisia tridentata* (recovering), *Pinus monophylla*, *Prunus andersonii* (recovering), *Purshia tridentata* (seldom recovering). **GRASSES:** *Achnatherum hymenoides*, *Bromus carinatus*, *Elymus elymoides* ssp. *elymoides*, *Hesperostipa comata*. **FORBS:** *Anisocoma acaulis*, *Chaenactis xantiana*, *Gilia modocensis*, *Layia glandulosa*, *Mentzelia congesta*, *Plagiobothrys kingii*, *Tiquilia nuttallii*.

## FLORA

### Numerical Summary

Field work and herbarium searches have yielded 489 vascular plant taxa (species, subspecies, varieties,

Table 4. Numerical summary of the Glass Mountain Region flora.

	Genera	Taxa	% of total flora
Total Flora:			
Families			55
Genera			220
Taxa (species, subsp., vars., hybrids)			489
Native/Non-native			
Native	475		97.1
Non-native	14		2.9
Lifeform			
Annuals	108		22.1
Perennial herbs <sup>a</sup>	260		53.2
Biennial herbs	17		3.5
Suffruticose perennials	16		3.3
Small shrubs	43		8.8
Large shrubs	14		2.9
Trees	10		2
Geophytes	27		5.5
Parasitic perennial herbs	7		1.4
Parasitic annuals	1		0.2
Aquatic perennial herbs	4		0.8
Aquatic annuals	1		0.2
Succulent shrubs	1		0.2
Ten Largest Families			
Asteraceae	37	87	17.8
Poaceae	23	46	9.4
Brassicaceae	16	37	7.6
Polygonaceae	6	31	6.3
Fabaceae	3	25	5.1
Scrophulariaceae	10	23	4.7
Polemoniaceae	12	22	4.5
Cyperaceae	3	21	4.3
Rosaceae	11	17	3.5
Onagraceae	4	15	3
Total of Ten Largest Families	125	324	66.3
All Other Families	94	165	33.7

<sup>a</sup> Some categories are cross-listed (e.g., Perennial herbs also listed as Geophytes, Parasitic perennial herbs, Aquatic perennial herbs).

hybrids) for the region. These represent 55 families (sensu Baldwin et al. 2002), and 220 genera. The largest families include Asteraceae, Poaceae, Brassicaceae, and Polygonaceae. The largest genera in the region include *Eriogonum* (22 taxa), *Carex* (18), *Arabis* (14), *Astragalus* (11), and *Lupinus* (11). Other important genera are *Artemisia*, *Chrysothamnus*, *Salix*, *Achnatherum*, *Agrostis*, *Elymus*, and *Pinus*. Table 4 summarizes the numerical values of this Flora, including the 10 largest families.

### Non-Native Taxa

Non-native (“introduced”) taxa account for only 2.9% of the total flora. Of the 14 taxa documented in the Glass Mountain Region, most exist in disturbed and ruderal areas (*Salsola tagus*; *Descurainia sophia*), and meadows (*Cirsium vulgare*; *Taraxacum officina-*



Table 5. Floras used in comparison with Glass Mountain Region.

Flora	Reference	Total taxa	Taxa common with Glass Mtn.
Bishop Creek	Crowther and Crowther 2002	858	333
Bodie Hills	Messick 1982	452	253
Toiyabe Mountains	D. Charlet 1994 <sup>a</sup>	689	243
White Mountains	Morefield et al. 1988; Morefield et al. 1989	1055	333
Yosemite National Park	Botti 2001	1426	272

<sup>a</sup> Toiyabe Mountains Flora, Lander and Nye Counties, Nevada. Unpublished checklist.

le). Non-native taxa are designated in the Annotated Catalog with an asterisk (\*).

The most conspicuously invasive introduced plant is cheatgrass, *Bromus tectorum*, which has invaded large areas of the north edge of Long Valley. Introduced in the late 1800s in British Columbia, cheatgrass quickly spread south into the Great Basin, finding a niche in overgrazed Sagebrush scrub (Billings 1990). A hardy winter annual from Eurasia, *B. tectorum* completes its life cycle by late May, when it drops its seeds, dries up, and becomes brittle tinder for fires. Native shrubs such as *Artemisia tridentata* and *Purshia tridentata* get incinerated by these fires and are slow to reestablish, but *Bromus* survives well and proliferates, increasing the periodicity of such fires. As a result, what was once intact native Sagebrush scrub and Pinyon woodland is now a sea of Introduced grassland. These grassy burnt slopes reach up into the Jeffrey pine belt, which now exists under threat by such fires.

#### Comparative Floristics

Several floristic inventories have been completed for areas surrounding the Glass Mountain Region. Although a rigorous analysis between floras is beyond the scope of this paper, comparing floristic composition between these areas and Glass Mountain can provide a generalized view of the diversity of Glass Mountain in relation to these surrounding regions. A good way to evaluate overall similarity between floras is by using the Sørensen Similarity Index (SI), which uses taxon presence/absence data to render similarity on a scale of 0 to 100. This index is commonly used because it gives weight to species in common between areas, rather than those that are unique to each area (Kent and Coker 1992). Easy to calculate, SI is expressed as:  $SI = 2C/A + B \times 100\%$ ; where C = number of taxa common to both areas, A = number of taxa in one area, and B = number of taxa in the other area.

Five nearby floras were selected to compare with the Glass Mountain Region. These were chosen for 1) proximity to Glass Mountain, 2) availability of reasonably complete species lists, and 3) representation of similar and/or different floristic provinces. Table 5

lists the comparative floras used for this paper, citations, total taxa, and taxa in common with the Glass Mountain Region. Optimal comparisons require similar sample size (total surface area of floras) but, with the exception of the Bodie Hills, this was not feasible. The five floras chosen have widely varying elevational ranges, moisture gradients, substrates, species richness, and presumably different intensities of botanical documentation. Nevertheless, they can provide useful data with which to generate general comparisons with the Glass Mountain Region. Figure 7 summarizes the results.

Not surprisingly, the Bodie Hills Flora is the most similar (SI = 54) to the Glass Mountain Region. This may be accounted for by similar size, elevation range, position in the rainshadow side of the Sierra Nevada, and mostly volcanic substrate. The next most similar flora is the Bishop Creek drainage (SI = 49), which has similar east-side exposure, but with a richer flora, wider elevational range and moisture gradients, more non-native taxa, and predominantly granitic substrate. The White Mountains are in third position of similarity (SI = 43), differing from Glass Mountain by having a larger study area, greater elevation range, and many more diverse substrates. The Toiyabe Mountains were chosen to represent the Great Basin floristic province. Although having similar elevational ranges to Glass Mountain, they have a much larger sampling area and larger flora, rendering their similarity at 41. Finally, Yosemite National Park was selected to represent west-side Sierra flora. Again, a much larger sample area, very high elevational ranges, higher annual precipitation, and very rich flora with strong cismontane components renders the similarity to Glass Mountain at only 28.

All five east-side floras, when compared with each other, have an averaged similarity of 44.9. Comparing these five floras as a group to the west-side Yosemite National Park yields an averaged similarity of 31.2. This reinforces stronger affinities of east-side floras, including the Glass Mountain Region, with the Great Basin floristic province rather than with the more mesic cismontane affinities of the west-slope of the Sierra Nevada floristic province.

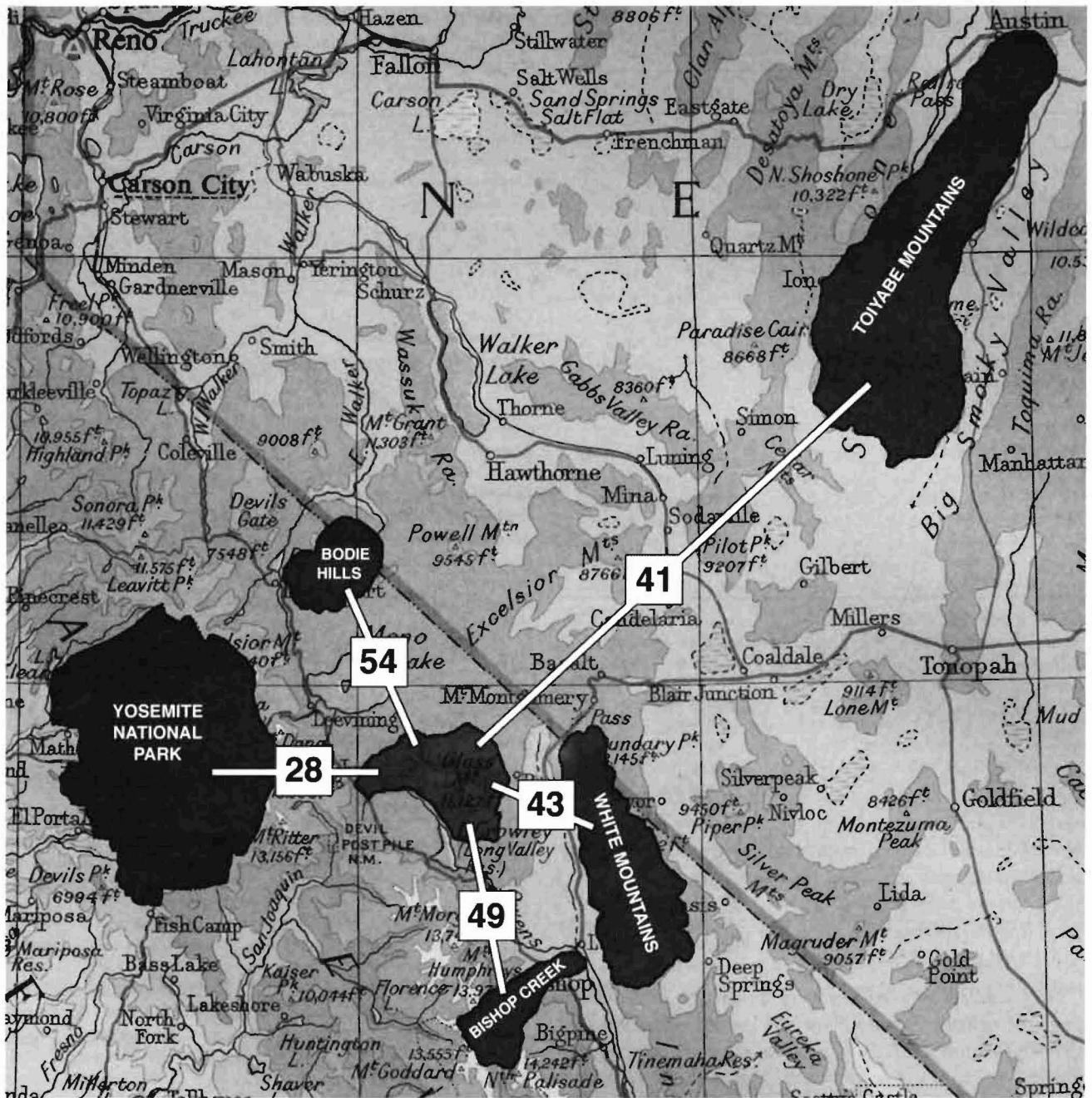


Fig. 7. Map of floras used in comparison with the Glass Mountain flora, with percent similarity (Sorensen's) for each area to Glass Mountain. Map © Bartholomew Ltd reproduced by kind permission of HarperCollins Publishers [www.bartholomewmaps.com](http://www.bartholomewmaps.com).

*Sensitive Taxa*

“Sensitive Taxa” is a general term for taxa that are rare, endangered, and/or of limited geographical distribution. Different state, federal, and private organizations have different criteria and rating systems for sensitive plants. These include the California Department of Fish and Game, US Fish and Wildlife Service, US Forest Service, Bureau of Land Management, and California Native Plant Society. A good cross-referenced source for sensitive plants of different status is the *Inventory of Rare and Endangered Plants of California* (CNPS 2001).

This volume lists hundreds of taxa within the state, with annotations about occurrences, threats, taxonomic reference sources, and a specific rating system for rarity and threats. Although CNPS listing holds no direct statutory status, it is still the basis for ongoing legal action due to its widely cited documentation of sensitive plants throughout the state.

Twenty one taxa of special status are documented within the Glass Mountain Region. Two are California State listed as Rare, *Astragalus monoensis* var. *mon-*

Table 6. Sensitive plants from Glass Mountain Region, CNPS Inventory (CNPS 2001).

Taxon	CNPS list <sup>a</sup>	CA state lists <sup>b</sup>
<i>Allium atrovirens</i> var. <i>atrovirens</i>	2	
<i>Arabis bodiensis</i>	1B	
<i>Arabis cobrensis</i>	2	
<i>Arabis microphylla</i> var. <i>microphylla</i>	4	
<i>Astragalus inyoensis</i>	4	
<i>Astragalus johannis-howellii</i>	1B	Rare
<i>Astragalus lemmonii</i>	1B	
<i>Astragalus monoensis</i> var. <i>monoensis</i>	1B	Rare
<i>Astragalus oophorus</i> var. <i>oophorus</i>	4	
<i>Camissonia boothii</i> ssp. <i>boothii</i>	2	
<i>Carex scirpoidea</i> ssp. <i>pseudoscirpoidea</i>	2	
<i>Chaenactis douglasii</i> var. <i>alpina</i>	2	
<i>Dodecatheon pulchellum</i>	4	
<i>Eriogonum microthecum</i> var. <i>alpinum</i>	4	
<i>Goodmania luteola</i>	4	
<i>Iva nevadensis</i>	4	
<i>Ivesia kingii</i> var. <i>kingii</i>	1B	
<i>Lupinus duranii</i>	1B	
<i>Penstemon cinicola</i>	4	
<i>Senecio hydrophiloides</i>	4	
<i>Viola aurea</i>	2	

<sup>a</sup> CNPS List: 1B: Plants rare, threatened, or endangered in California and elsewhere. 2: Plants rare, threatened, or endangered in California, but more common elsewhere. 4: Plants of limited distribution—a watch list.

<sup>b</sup> CA State List: Designated Rare by California Fish and Game Commission.

*ensis* and *Astragalus johannis-howellii*. Table 6 summarizes sensitive taxa from Glass Mountain listed in the CNPS publication, with varying degrees of rarity and/or threat.

#### Taxa Reported from the Region but not Vouchered at RSA-POM or UC/JEPS

This study bases its data on fieldwork and vouchered collections verified by the author firsthand at RSA-POM and UC/JEPS. Several sources (sometimes referred to as “grey literature”) allude to taxa that were not found in these herbarium searches. Although these taxa do not appear in the Annotated Catalog they are listed in Table 7, without taxonomic judgement, as a guide to what to look for and document in further explorations of the region.

#### ANNOTATED CATALOG OF THE VASCULAR FLORA

The following list includes all taxa documented for the Glass Mountain Region from fieldwork and herbarium searches at RSA-POM and UC/JEPS, as of November 2002. For ease of reference all classifications and nomenclature strictly follow *The Jepson Manual* (Hickman 1993). Families are ordered as they appear in the *Manual*. The only names not conforming to the *Manual* are in Polemoniaceae, as annotated in the *Jep-*

Table 7. Taxa reported from Glass Mountain Region, but not vouchered at RSA-POM or UC/JEPS. Sources: Calflora 2001; Constantine-Shull and Sawyer 2000; M. DeDecker unpubl.; DeDecker 1984; Keeler-Wolf 1990.

<sup>a</sup> <i>Arabis pinzliae</i>
<i>Aster ascendens</i>
<i>Astragalus andersonii</i>
<i>Camissonia boothii</i> ssp. <i>intermedia</i>
<i>Carex rossii</i>
<i>Carex stramineiformis</i>
<i>Chenopodium incognitum</i>
<i>Chorizanthe brevicornu</i> var. <i>brevicornu</i>
<i>Chrysolepis sempervirens</i>
<i>Cryptantha muricata</i>
<i>Descurainia obtusa</i> ssp. <i>adenophora</i>
<i>Ericameria discoidea</i>
<i>Erysimum capitatum</i> ssp. <i>perenne</i>
<i>Festuca kingii</i>
<i>Festuca ovina</i>
<i>Gilia salicicola</i>
<i>Lupinus breweri</i> var. <i>grandiflorus</i>
<i>Lupinus pratensis</i> var. <i>eristachyus</i>
<i>Machaeranthera canescens</i> var. <i>shastensis</i>
<i>Monolepis pusilla</i>
<i>Pellaea breweri</i>
<i>Phlox diffusa</i>
<i>Pinus monticola</i>
<i>Poa cusickii</i> ssp. <i>epilis</i>
<i>Poa wheeleri</i>
<i>Populus trichocarpa</i>
<i>Ribes roezlii</i>
<i>Streptanthus tortuosus</i> var. <i>orbiculatus</i>
<i>Swertia radiata</i>
<i>Thalictrum fendleri</i>
<i>Tsuga mertensiana</i>

<sup>a</sup> *Arabis pinzliae*: Vouchered from White Mountains and San Joaquin Ridge; expected on high ridges of Glass Mountain, which is situated between the two ranges. (Constantine-Shull and Sawyer 2000).

*son Desert Manual* (Baldwin et al. 2002). Representative specimens listed can be found at RSA, unless designated by “POM,” “UC,” or “JEPS.” An asterisk (\*) denotes non-native taxa.

#### FERNS AND FERN ALLIES

##### DRYOPTERIDACEAE

CYSTOPTERIS FRAGILIS (L.) Bernh. Perennial herb. Uncommon from protected granitic rock cracks and bases, E side of range. *Honer 1367, 31 Jul 2001*.

##### EQUISETACEAE

EQUISETUM ARVENSE L. Perennial herb. Locally abundant in shady understory around meadows and streams. *Honer 570, 16 Aug 2000*.

##### OPHIOGLOSSACEAE

BOTRYCHIUM SIMPLEX Hitchc. Perennial herb. Rare. Documented from one locality on wet meadow margin of “Sky Meadow” on granitic E side of region. *DeDecker 5644, 15 Jul 1984*.

## SELAGINELLACEAE

SELAGINELLA WATSONII (L.) Underw. Perennial herb. Uncommon on high elevation N-facing outcrops. Documented from one occurrence on N slope of Sentinel Meadow RNA, 2957 m. *Honer & Hertzler 1772, 9 Jul 2002.*

## GYMNOSPERMS

## CUPRESSACEAE

JUNIPERUS OCCIDENTALIS Hook. var. AUSTRALIS (Vasek) A. Holmgren & N. Holmgren Tree. Occasional individuals scattered throughout region. Generally found on rocky slopes and canyonsides, 2200–3000 m. Minor component of Jeffrey and lodgepole forests. Sometimes to 20 m high. *DeDecker 3686, 23 Aug 1974; Honer et al. 1161, 5 Jul 2001.*

JUNIPERUS OSTEOSPERMA (Torr.) Little Tree or large shrub. Uncommon, widely scattered individuals documented from dry rocky pinyon zone in Adobe Valley, N edge of region. *Honer 1528, 27 Aug 2001.*

## EPHEDRACEAE

EPHEDRA VIRIDIS Coville Small shrub. Occasional in Sagebrush scrub, especially on E and N sides of region. *Honer 238, 13 Jun 2000.*

## PINACEAE

ABIES CONCOLOR (Gordon & Glend.) Lindley Tree. Uncommon individuals scattered in Jeffrey pine forest, Crestview to O'Harrel Canyon. Never a major forest component. *Honer 1238, 22 Jul 2001.*

PINUS ALBICAULIS Engelm. Tree. Common conifer on exposed rocky ridgelines and pumice plateaus above 3000 m. Dominant tree on Glass Mtn. summit plateau, often krummholzed into large clonal shrubs. Scattering downslope into *P. flexilis* and *P. contorta* woodlands. *DeDecker 3690, 23 Aug 1974; Honer 202, 12 Jun 2000.*

PINUS CONTORTA Loudon ssp. MURRAYANA (Grev. & Balf.) Critchf. Tree. Common tree throughout region, becoming locally abundant on dry slopes and around meadows, 2600–3100 m. Extensive undisturbed stands across Sentinel Meadow RNA and adjacent N slopes. Often encroaching around meadow margins. *Honer 404B, 20 Jul 2000.*

PINUS FLEXILIS E. James Tree. Common tree on exposed ridgelines and slopes, sometimes forming small stands. Found throughout higher elevations of range, 2700–3100 m. Scattering downslope into *P. contorta* forest. *Honer 438, 24 Jul 2000.*

PINUS JEFFREYI Grev. & Balf. Tree. Abundant and conspicuous on W side of range from Hwy. 395 to Crooked Meadows in a nearly pure dense forest. Common farther E throughout range intermixed with *P. contorta*. Only occasional on granitic E side of range. Heavily logged in late 1800s from Mono Mills S, now persisting as second growth forest. USFS replanting effort underway in several localities. Rarely collected (by botanists). *James Reveal 339, 12 Jun 1962 UC; Honer 1048, 29 Jun 2001.*

PINUS MONOPHYLLA Torr. & Frém. Tree. Common on lower elevations throughout region, 2000–2400 m, forming distinct woodlands on granitic E side. Mast year of cone production observed in summer 2002. *Honer 1718, 4 Jul 2002.*

## ANGIOSPERMS—DICOTYLEDONS

## AMARANTHACEAE

AMARANTHUS BLITOIDES S. Watson Annual. Occasional ruderal weed along disturbed edges of Benton Crossing Road. Expected elsewhere. *Honer 1558, 27 Aug 2001.*

## APIACEAE

ANGELICA LINEARILOBA A. Gray Perennial herb. Common and showy throughout range on more mesic E-facing slopes of Sagebrush scrub, and occasional on protected rocky cliffs. *Honer 333, 16 Jul 2000.*

CICUTA DOUGLASHII (DC.) J. Coulter & Rose Perennial herb. Rare, documented from one locality along heavily grazed meadow along Adobe Creek. *Honer 1536, 27 Aug 2001.*

CYMOPTERUS CINERARIUS A. Gray Perennial herb. Occasional and inconspicuous on pumice soil; high elevations around Glass Mtn. peak and ridge. *Taylor 6689, 28 Jul 1977 JEPS; Honer 1079, 1 Jul 2001.*

CYMOPTERUS TEREBINTHINUS (Hook.) Jones var. CALIFORNICUS (J. Coulter & Rose) Jepson Perennial herb. Occasional in open areas of scrub ca. 2500 m on slopes overlooking Long Valley around Bald Mtn. and Sentinel Meadow RNA. *Honer 335, 17 Jul 2000.*

HERACLEUM LANATUM Michaux Perennial herb. Rare. Documented from one streamside locality along Deadman Creek. *Honer 1247, 22 Jul 2001.*

LOMATIUM DISSECTUM (Torr. & A. Gray) Mathias & Constance var. MULTIFIDUM (Torr. & A. Gray) Mathias & Constance Perennial herb. Uncommon in scrub ca. 2500 m. Documented from one locality near Ford Spring. *Honer 920, 20 Jun 2001.*

LOMATIUM NEVADENSE (S. Watson) J. M. Coult. & Rose var. NEVADENSE Geophyte. Common but inconspicuous on open rocky granitic and basaltic soils in sagebrush and Pinyon woodland, E side of range. *Honer 873, 6 Jun 2001.*

LOMATIUM NEVADENSE (S. Watson) J. M. Coult. & Rose var. PARISHII (J. M. Coult. & Rose) Jepson Geophyte. Uncommon on open granitic soil in grazed Pinyon woodland, E side of range. *Honer 733, 27 May 2001.*

PERIDERIDIA LEMMONII (J. Coulter & Rose) Chuang & Constance Geophyte. Locally common along dry meadow edges and under lodgepoles at Sawmill Meadow. *Honer 444, 25 Jul 2000.*

PERIDERIDIA PARISHII (J. M. Coult. & Rose) A. Nelson & J. F. Macbr. ssp. LATIFOLIA (A. Gray) Chuang & Constance Geophyte. Locally abundant above seeps and streams in meadows on N side of range. *Honer 1492, 26 Aug 2001.*

PERIDERIDIA PARISHII (J. M. Coult. & Rose) A. Nelson & J. F. Macbr. ssp. PARISHII Geophyte. Locally common along meadow edges. Documented from Sawmill Meadow, expected elsewhere. *Honer & Guiliani 1380, 1 Aug 2001.*

SPHENOSCIADIUM CAPITELLATUM A. Gray Perennial herb. Common along shady riparian zones and meadows. *Honer 1285, 24 Jul 2001.*

## ASCLEPIADACEAE

ASCLEPIAS SPECIOSA Torr. Perennial herb. Rare; documented from one locality on steep S-facing pumice slope in Jeffrey pine woodland in O'Harrel Canyon. *Honer 375, 19 Jul 2000.*

## ASTERACEAE

ACHILLEA MILLEFOLIUM L. Perennial herb. Common on moist meadow edges and streambanks throughout range. *Honer 1128, 4 Jul 2001.*

AGERATINA OCCIDENTALIS (Hook.) R. King & H. Robinson Perennial herb. Rare; documented from one locality on steep loose pumice alluvium above Wet Canyon. *Honer 1277, 24 Jul 2001.*

AGOSERIS GLAUCA (Pursh) Raf. var. GLAUCA Perennial herb. Occasional along borders of meadows throughout range. *Honer 911, 7 Jun 2001.*

AGOSERIS GLAUCA (Pursh) Raf. var. LACINIATA (D. Eaton) F. J. Smiley Perennial herb. Locally abundant in dry meadows. *Honer 416, 21 Jul 2000.*

AGOSERIS GLAUCA (Pursh) Raf. var. MONTICOLA (E. Greene) O. Jones



- Perennial herb. Occasional to locally common on dry meadows and streambanks. Rare dwarfed individuals on Glass Mtn. Peak. *DeDecker 5623, 15 Jul 1984; Honer et al. 1404, 2 Aug 2001.*
- AMBROSIA ACANTHICARPA* Hook. Annual. Occasional to locally abundant on disturbed road edges and heavily grazed areas. *Honer 1268, 23 Jul 2001.*
- ANAPHALIS MARGARITACEA* (L.) Benth. & Hook. Perennial herb. Rare on wet spring margins. Documented from one locality in O'Harrel Canyon. *Honer 373, 19 Jul 2000.*
- ANISOCOMA ACAULIS* Torr. & A. Gray Annual. Occasional on soft loose soil in open disturbed areas of Sagebrush scrub. Often in burn areas. *Honer 091, 11 Jun 1999.*
- ANTENNARIA CORYMBOSA* E. Nelson Perennial herb. Occasional on shady meadow edges. Documented from one locality in a heavily grazed small meadow at N base of Glass Mtn. *Honer 1060, 30 Jun 2001.*
- ANTENNARIA ROSEA* E. Greene ssp. *CONFINIS* (E. Greene) R. Bayer Perennial herb. Occasional on shady meadow and stream edges of Sawmill Meadow and Black Canyon. *Honer 1004, 29 Jun 2001.*
- ANTENNARIA ROSEA* E. Greene ssp. *ROSEA* Perennial herb. Common to locally abundant on drier meadow and stream borders throughout range. *Honer 1331, 25 Jul 2001.*
- ARNICA CHAMISSONIS* Less. ssp. *FOLIOSA* (Nutt.) Maguire Perennial herb. Occasional to locally abundant in meadows and along streambanks, shady to open areas. *Honer 546, 15 Aug 2000.*
- ARNICA MOLLIS* Hook. Perennial herb. Common in shady understory of meadows and along streams. *Taylor 16855, 20 Jul 1998 JEPS; Honer 943, 20 Jun 2001.*
- ARNICA SORORIA* Greene Perennial herb. Occasional on drier margins of meadows and streams. *DeDecker 5635, 15 Jul 1984; Honer 520, 14 Aug 2000.*
- ARTEMISIA ARBUSCULA* Nutt. ssp. *ARBUSCULA* Small shrub. Locally common; becoming dominant subshrub on open dry cobbly flats with fine silty soil. *Honer 1719, 4 Jul 2002.*
- ARTEMISIA CANA* ssp. *BOLANDERI* (Gray) G.H. Ward Small shrub. Locally common; restricted to moist, somewhat alkaline soil adjacent to meadows and streams. *Wolf 2556, 5 Nov 1931 POM; Jack L. Reveal 198, 8 Sep 1962; Honer 513, 14 Aug 2000.*
- ARTEMISIA DOUGLASIANA* Besser in Hook. Suffruticose perennial. Uncommon along dry wash margins. *Honer 1553, 27 Aug 2001.*
- ARTEMISIA DRACUNCULUS* L. Suffruticose perennial. Occasional along dry wash margins and rocky slopes. *Taylor 8097, 11 Aug 1982 JEPS; Honer 1700, 4 Jul 2002.*
- ARTEMISIA LUDOVICIANA* Nutt. ssp. *INCOMPTA* (Nutt.) Cronq. Perennial herb. Occasional along drier margins of streams. *Honer 1299, 24 Jul 2001.*
- ARTEMISIA LUDOVICIANA* Nutt. ssp. *LUDOVICIANA* Perennial herb. Occasional along drier margins of streams. *Honer 490, 13 Aug 2000.*
- ARTEMISIA TRIDENTATA* Nutt. ssp. *TRIDENTATA* Small to large shrub. Abundant; dominant shrub throughout region across low bajadas into coniferous understory, 1900–2800 m. *DeDecker 3668, 22 Aug 1974; Honer 1456, 22 Aug 2001.*
- ARTEMISIA TRIDENTATA* Nutt. ssp. *VASEYANA* (Rydb.) Beetle Small shrub. Common on more mesic areas of Sagebrush scrub, dominant in mid-elevation Sagebrush scrub. *Honer 479, 13 Aug 2000.*
- ASTER LANCEOLATUS* Willd. ssp. *HESPERIUS* (A. Gray) Semple & J. Chmielewski Perennial herb. Locally abundant, restricted to shady wet stream edges. Flowering late August. *Honer 1456, 25 Aug 2001.*
- ASTER OCCIDENTALIS* (Nutt.) Torr. & A. Gray var. *OCCIDENTALIS* Perennial herb. Common; dominant showy *Aster* in open moist meadows and along streambanks throughout region. *DeDecker 5613, 14 Jul 1984; Honer 568, 16 Aug 2000.*
- BALSAMORHIZA SAGITTATA* (Pursh) Nutt. Perennial herb. Occasional and showy in Sagebrush scrub. Sometimes co-occurring with *Wyethia mollis*. *Honer 922, 20 Jun 2001.*
- BRICKELLIA MICROPHYLLA* (Nutt.) A. Gray Small shrub. Uncommon on rocky slopes. Documented from one locality in North Canyon. *Honer 960, 21 Jun 2001.*
- CHAENACTIS DOUGLASII* (Hook.) Hook. & Arn. var. *ALPINA* A. Gray Annual. Rare at high elevations on open pumice flats and Glass Mtn. Peak. *Honer 637, 18 Aug 2000.*
- CHAENACTIS DOUGLASII* (Hook.) Hook. & Arn. var. *DOUGLASII* Annual. Occasional in openings in scrub throughout region. *Honer 085, 11 Jun 1999.*
- CHAENACTIS XANTIANA* A. Gray Annual. Common; widely scattered in openings in scrub and under shrubs. *Honer 095, 11 Jun 1999.*
- CHRYSOTHAMNUS NAUSEOSUS* (Pall.) Britton ssp. *ALBICAULIS* (Nutt.) H. M. Hall & Clem. Small shrub. Uncommon in Sagebrush scrub. *Jack L. Reveal & D. Mason 921, 18 Oct 1963 UC; DeDecker 3673, 22 Aug 1974, Honer 1578, 29 Sep 2001.*
- CHRYSOTHAMNUS NAUSEOSUS* (Pall.) Britton ssp. *CONSIMILIS* (Greene) H. M. Hall & Clem. Small shrub. Common and showy in grazed scrub and along roadsides, lower elevations throughout region. *Jack L. Reveal & D. Mason 207, 9 Sep 1962 UC; Honer 1421, 22 Aug 2001.*
- CHRYSOTHAMNUS NAUSEOSUS* (Pall.) Britton ssp. *HOLEULEUCUS* (A. Gray) H. M. Hall & Clem. Small shrub. Occasional in Sagebrush scrub and on exposed rocky ridges. *Honer 1482, 25 Aug 2001.*
- CHRYSOTHAMNUS PARRYI* (A. Gray) E. Greene ssp. *ASPER* (E. Greene) H. M. Hall & Clem. Small shrub. Common on dry pumice sand flats and pumice slopes, diffusing into forest understory. *Ferris 11612, 26 Jul 1947; Roos 3993, 7 Sep 1948; Honer 1217, 21 Jul 2001.*
- CHRYSOTHAMNUS PARRYI* (A. Gray) E. Greene ssp. *MONOCEPHALUS* (Nelson & Kenn.) H. M. Hall & Clements Small shrub. Common on high elevation pumice flats of Glass Mtn. peak and Sentinel Meadow RNA. *DeDecker 3695, 23 Aug 1974; Honer 630, 18 Aug 2000.*
- CHRYSOTHAMNUS PARRYI* (A. Gray) E. Greene ssp. *NEVADENSIS* (A. Gray) H. M. Hall & Clem. Small shrub. Occasional on pumice flats and slopes. Documented from one locality at Crooked Meadows. *Honer 1351, 25 Jul 2001.*
- CHRYSOTHAMNUS VISCIDIFLORUS* (Hook.) Nutt. ssp. *PUBERULUS* (D. C. Eaton) H. M. Hall & Clem. Small shrub. Scattered in Sagebrush scrub around Bald Mtn. peak and down into Long Valley. Sometimes co-occurring with ssp. *viscidiflorus*. *Honer 323A, 16 Jul 2000.*
- CHRYSOTHAMNUS VISCIDIFLORUS* (Hook.) Nutt. ssp. *VISCIDIFLORUS* Small shrub. Abundant, sometimes becoming co-dominant in Sagebrush scrub from low bajadas to 3100 m. *Ferris & Ernst 13124, 15 Sep 1957 JEPS; Jack L. Reveal & D. Mason 196, 8 Sep 1962 UC; Honer 390, 20 Jul 2000.*
- CIRSIIUM SCARIOSUM* Nutt. Perennial herb. Common on drier edges of disturbed/grazed meadows and streambanks. *Honer 277, 14 Jun 2000.*
- \**CIRSIIUM VULGARE* (Savi) Ten. Perennial herb. Occasional along streamsides and wet seeps, usually in disturbed/grazed areas. *Honer 1517, 26 Aug 2001.*
- CREPIS ACUMINATA* Nutt. Perennial herb. Occasional; scattered in dry scrub and dry wash edges. *Honer 1685B, 4 Jul 2002.*
- CREPIS INTERMEDIA* A. Gray Perennial herb. Common and showy in dry scrub and dry wash margins, 2500–2900 m. *Honer 1106, 1 Jul 2001.*
- CREPIS OCCIDENTALIS* Nutt. Perennial herb. Uncommon on dry cobbly bajada. Documented from one locality near Deer Spring. *Honer 187, 17 May 2000.*
- EATONELLA NIVEA* (D. Eaton) A. Gray Annual. Rare on open loose disturbed sandy soil. Documented from one locality on ryodacite dome, N edge of Long Valley. *Honer 1636, 3 Jun 2002.*
- ERICAMERIA BLOOMERI* (A. Gray) Macbr. Small shrub. Occasional, entering range only on W side near Crestview, in openings of



- scrub and disturbed areas above Deadman Creek. *Roos 3990, 7 Sep 1948; Honer 1232, 22 Jul 2001.*
- ERICAMERIA CUNEATA (A. Gray) McClatchie Small shrub. Rare; documented from one occurrence on granitic outcrops, N edge of Long Valley. *Honer 1424, 22 Aug 2001.*
- ERICAMERIA SUFRUTICOSA (Nutt.) G. Nesom Small shrub. Common and widely scattered across pumice flats and slopes at high elevations of Sentinel Meadow RNA and Glass Mtn. peak & ridge. 2800–3380 m. *DeDecker 3689, 23 Aug 1974; Honer & Hetzler 638, 18 Aug 2000.*
- ERIGERON APHANACTIS (A. Gray) E. Greene var. APHANACTIS Perennial herb. Occasional in openings of scrub and on rocky slopes. *Honer 840, 5 Jun 2001.*
- ERIGERON BREWERI A. Gray var. BREWERI Perennial herb. Uncommon. Growing from rock bases on granitic E side of range. *Honer 850, 6 Jun 2001.*
- ERIGERON BREWERI A. Gray var. PORPHYRETICUS (M. E. Jones) Cronq. Suffruticose perennial. Occasional on rocky slopes throughout range. Usually growing from rock bases. *Honer 678, 26 May 2001.*
- ERIGERON CLOKEYI Cronq. Biennial herb. Occasional throughout range on open rocky and silty soil. *Taylor 16849, 20 Jul 1998 JEPS; Honer et al. 1148, 5 Jul 2001.*
- ERIGERON COULTERI Porter Biennial herb. Rare, growing streamside in shady aspen understory. Documented from one locality along Dexter Creek. *Honer 1288, 24 Jul 2001.*
- ERIGERON PYGMAEUS (A. Gray) E. Greene Perennial herb. Occasional at high elevations on gravelly pumice soil of Glass Mtn. peak and ridge. *Taylor 6697, 28 Jul 1977 JEPS; Honer 1083, 1 Jul 2001.*
- ERIOPHYLLUM LANATUM (Pursh) James Forbes var. INTEGRIFOLIUM (Hook.) F. J. Smiley Suffruticose perennial. Common, showy, and widely scattered on open pumice slopes and flats from 2500 m near Crestview to 3350 m on Glass Mtn. summit plateau. *Honer & Miller 474, 27 Jul 2000.*
- ERIOPHYLLUM PRINGLEI A. Gray Annual. Occasional on loose decomposed granite soil, E side of range. *Taylor 7979, 13 Jun 1982 JEPS; Honer 845, 5 Jun 2001.*
- HULSEA VESTITA A. Gray ssp. VESTITA Biennial herb. Common and widely scattered on deep pumice sand flats and slopes from Big Sand Flat to Glass Mtn. peak. *Taylor 6690, 28 Jul 1977 JEPS; Honer 1211, 21 Jul 2001.*
- HYMENOXYIS COOPERI (A. Gray) Cockerell var. CANESCENS (D. Eaton) K. Parker Biennial herb. Rare; documented from one locality on ridge above Kelty Meadows. *Taylor 16848, 20 Jul 1998 JEPS.*
- IVA NEVADENSIS M. E. Jones Annual. Uncommon on disturbed roadsides and slopes around Adobe Valley. *Honer 1362, 31 Jul 2001.*
- LAYIA GLANDULOSA (Hook.) Hook. & Arn. Annual. Occasional colonies on loose sandy or gravelly slopes and wash margins, sometimes on disturbed sites, 2000–2500 m. *Honer 184, 17 May 2000.*
- MACHAERANTHERA CANESCENS (Pursh) A. Gray var. CANESCENS Perennial herb. Occasional from upper Sagebrush scrub onto exposed pumice plateaus. *DeDecker 3670, 22 Aug 1974; Honer 1030, 29 Jun 2001.*
- MALACOTHRIX GLABRATA (D. C. Eaton) A. Gray Annual. Rare individuals infrequently encountered on low sandy slopes and wash margins of granitic E side of region. *Taylor 7984, 13 Jun 1982 JEPS; Honer 709, 27 May 2001.*
- PYRROCOMA APARGIOIDES (A. Gray) E. Greene Perennial herb. Occasional in dry subalpine meadows. *Jack L. Reveal 162, 24 Jul 1962; Honer 1346B, 25 Jul 2001.*
- PYRROCOMA LANCEOLATA (Hook.) Greene var. LANCEOLATA Perennial herb. Occasional on Big Sand Flat and in saltgrass meadows of Long Valley. *Honer 1795, 23 Jul 2002.*
- PYRROCOMA RACEMOSA (Nutt.) Torrey & A. Gray var. SESSILIFLORA (E. Greene) G. Brown & Keil Perennial herb. Abundant to dominant across wet areas of saltgrass meadows in Long Valley. *Honer 1803, 23 Jul 2002.*
- PYRROCOMA UNIFLORA (Hook.) E. Greene var. UNIFLORA Perennial herb. Uncommon in dry meadows and in streambank thatch; N side of region. *Taylor 17003, 24 Aug 1998 UC; Honer 1532, 27 Aug 2001.*
- RAILLARDELLA ARGENTEA (A. Gray) A. Gray Perennial herb. Common to abundant on high elevation pumice plateaus and slopes, including Glass Mtn. peak and ridge, and Sentinel Meadow RNA. *Cronquist 11097, 26 Jul 1973; Honer 403, 20 Jul 2000.*
- SENECIO CANUS Hook. Perennial herb. Occasional on rocky sandy slopes overlooking Long Valley, and on Glass Mtn. ridge. Usually growing around or from under rocks. *Honer 768, 29 May 2001.*
- SENECIO HYDROPHILOIDES Rydb. Suffruticose perennial. Documented from one locality in aspen understory near Kelty Meadows on seasonally moist, somewhat alkaline soil around heavily grazed spring. *Honer 1728, 4 Jul 2002.*
- SENECIO HYDROPHILUS Nutt. Suffruticose perennial. Occasional on wet, muddy, somewhat alkaline streambanks and areas holding water late in season. Long Valley and Adobe Creek. *Honer 290, 14 Jun 2000.*
- SENECIO MULTILOBATUS A. Gray Annual. Occasional on rocky slopes throughout region. Usually growing from rock bases. *Honer & Hetzler 1762, 8 Jul 2002.*
- SENECIO SERRA Hook. var. SERRA Biennial herb. Rare individuals growing on wet streambanks along Deadman Creek and Owens River. *Honer 1248, 22 Jul 2001.*
- SENECIO SPARTIOIDES Torr. & A. Gray Small shrub. Uncommon in dry scrub and along jeep roads throughout region. *DeDecker 3682, 23 Aug 1974; Honer 439, 24 Jul 2000.*
- SENECIO STREPTANTHIFOLIUS Greene Suffruticose perennial. Rare; documented from one locality, growing from rock bases in recently burnt scrub, Dry Fork of Black Canyon drainage. *Honer 1028, 29 Jun 2001.*
- SENECIO TRIANGULARIS Hook. Perennial herb. Locally abundant along shady wet streambanks throughout region. *Honer 1289, 24 Jul 2001.*
- SOLIDAGO MULTIRADIATA Aiton Perennial herb. Common in moist meadows, occasionally around streams. *DeDecker 5619, 15 Jul 1984; Honer 560, 16 Aug 2000.*
- SPHAEROMERIA POTENTILLOIDES (A. Gray) A. A. Heller var. POTENTILLOIDES Perennial herb. Locally abundant on saltgrass/alkali flats in Long Valley, ca. 2120 m. Documented from one locality. *Honer 295, 14 Jun 2000.*
- STENOTUS ACAULIS Nutt. Perennial herb. Locally common but restricted to fine silty soil on open cobbly flats and ridges on granitic E side of range, with other cushion-type perennials. *Honer 253, 13 Jun 2000.*
- STEPHANOMERIA EXIGUA Nutt. ssp. EXIGUA Annual. Occasional on sandy wash edges and in Sagebrush scrub. *Honer 1677, 4 Jul 2000.*
- STEPHANOMERIA SPINOSA (Nutt.) Tomb Suffruticose perennial. Uncommon in openings in scrub from 2500–2100 m, Crestview hills to Long Valley. *Honer 1233, 22 Jul 2001.*
- STEPHANOMERIA TENUIFOLIA (Torr.) H. M. Hall Perennial herb. Common on loose sandy openings in scrub and disturbed areas. *DeDecker 3672, 22 Aug 1974; Honer 1225, 22 Jul 2001.*
- STEPHANOMERIA VIRGATA Benth. ssp. PLEUROCARPA (Greene) Gottlieb Annual. Rare; documented from one locality at Deadman Summit on disturbed roadside. *Honer 1587, 29 Sep 2001.*
- \*TARAXACUM OFFICINALE Weber ex G. H. Wiggers Perennial herb. Common and widespread in disturbed meadows and around stream edges. *Honer 897, 7 Jun 2001.*
- TETRADYMIA AXILLARIS A. Nelson var. LONGISPINA (M. E. Jones) Strother Small shrub. Uncommon; documented from one locality in grazed scrub on granitic soil above Black Lake, Adobe Valley. *Honer 839, 5 Jun 2001.*

TETRADYMIA CANESCENS DC. Small shrub. Occasional in mid-elevation Sagebrush scrub and on rocky outcrops. *Honer 1224, 21 Jul 2001.*

TETRADYMIA GLABRATA Torr. & A. Gray Small shrub. Uncommon in grazed scrub on N side of region around Adobe Ranch and North Canyon. *Honer 828, 5 Jun 2001.*

TRIMORPHA LONCHOPHYLLA (Hook.) G. Nesom Annual. Common but inconspicuous on drier streambanks and meadow edges. *Taylor 6498, 22 Jun 1977 JEPS; DeDecker 5637, 15 Jul 1984; Honer 1347, 25 Jul 2001.*

WYETHIA MOLLIS Gray Perennial herb. Occasional in dry scrub and rocky outcrops, becoming abundant on more mesic E-facing slopes. Sometimes co-occurring with *Balsamorhiza sagittata*. *Honer 254, 13 Jun 2000.*

## BETULACEAE

BETULA OCCIDENTALIS Hook. Tree or large shrub. Common in shady canyon bottom of O'Harrel Canyon; occasional above Watterson Meadow. *Honer 067, 10 Jun 1999.*

## BORAGINACEAE

AMSINCKIA MENZIESII (Lehm.) A. Nelson & J. F. Macbr. var. INTERMEDIA (Fisch. & C. A. Mey.) Ganders Annual. Occasional on granitic sandy slopes and disturbed areas in Pinyon woodland, E side of range. *Honer 1652, 3 Jun 2002.*

AMSINCKIA MENZIESII (Lehm.) A. Nelson & J. F. Macbr. var. MENZIESII Annual. Occasional in scrub on granitic E side of region. Documented from one locality E of Deer Spring. *Honer 183, 17 May 2000.*

CRYPTANTHA CIRCUMSCISSA (Hook. & Arn.) I. M. Johnst. Annual. Common and widespread in sandy openings in scrub, roadsides, disturbed areas. *Honer 165, 17 May 2000.*

CRYPTANTHA CONFERTIFLORA (E. Greene) Payson Perennial herb. Scattered in open scrub and on rocky ridges throughout region. Widespread but never abundant. *Breedlove 42947, 8 Jul 1977; Honer 695, 26 May 2001.*

CRYPTANTHA ECHINELLA E. Greene Annual. Common along disturbed road edges and scattered in dry scrub throughout region. *DeDecker 5633, 15 Jul 1984; Honer 1218, 21 Jul 2001.*

CRYPTANTHA GLOMIFLORA E. Greene Annual. Rare; documented from one locality at headwaters of Black Canyon drainage on granitic soil, E side of region. *DeDecker 5649, 15 Jul 1984.*

CRYPTANTHA HUMILIS (A. Gray) Payson Perennial herb. Scattered on high pumice slopes and plateaus above 3000 m. Syn. of *C. alpica* Cronq., (Holotype: A. Cronquist 11101, 26 Jul 1973, NY), with Glass Mtn. Peak as type locality. *Taylor 6699, Jul 27, 1977 JEPS; Honer 1089, 1 Jul 2001.*

CRYPTANTHA NUBIGENA (E. Greene) Payson Perennial herb. Rare individuals growing from rock bases on high pumice plateau of Sentinel Meadow RNA. Documented from one locality. *Honer 1771, 9 Jul 2002.*

CRYPTANTHA PTEROCARYA (Torr.) Greene Annual. Abundant on loose sandy areas, grazed areas, and under pinyons throughout region. Usually with narrower nutlet wings than typical *C. pterocarya*. *Honer 732, 27 May 2001.*

CRYPTANTHA WATSONII (A. Gray) E. Greene Annual. Common on sandy areas, dry wash edges, disturbed areas throughout region. *Honer 888, 6 Jun 2001.*

PLAGIOBOTHRYUS CUSICKII (E. Greene) I. M. Johnston Annual. Rare; documented from one locality near headwaters of Black Canyon drainage, granitic E side. *DeDecker 5646, 15 Jul 1984.*

PLAGIOBOTHRYUS KINGII (S. Watson) A. Gray var. KINGII Annual. Occasional on loose, often disturbed sandy slopes and road sides, widely scattered throughout region. *Honer 092, 11 Jun 1999.*

TIQUILIA NUTTALLII (Hook.) A. T. Richardson Annual. Common on

sandy disturbed roadsides and grazed scrub, low elevations throughout region. *Honer & Hetzler 604, 17 Aug 2000.*

## BRASSICACEAE

ARABIS BODIENSIS Rollins Perennial herb. Rare; documented from one locality on rocky granitic Pinyon woodland near Klondike Canyon, 2100 m. *Honer 679, 26 May 2001.*

ARABIS COBRENSIS M. E. Jones Perennial herb. Uncommon on high ridges and plateaus, especially Glass Mtn. peak and ridge, and Sentinel Meadow RNA. *Taylor 6700, 28 Jul 1977 JEPS; Taylor 8089, 11 Aug 1982 JEPS; Honer & Hetzler 1769, 3 Jun 2002.*

ARABIS HOLBOELII Hornem. var. PINETORUM (Tidestrom) Rollins Perennial herb. Scattered throughout region on rocky pumice slopes and forest understory. *DeDecker 3679, 23 Aug 1974; Honer 504, 13 Aug 2000.*

ARABIS HOLBOELII Hornem. var. RETROFRACTA (Graham) Rydb. Perennial herb. Scattered throughout region on open pumice slopes and plateaus, forest understory. *DeDecker 5624, 15 Jul 1984; Honer 069, 10 Jun 1999.*

ARABIS INYOENSIS Rollins Perennial herb. Occasional on rocky granitic soil and under pinyons, E side of region. *Honer 790, 30 May 2001.*

ARABIS LEMMONII S. Watson var. DEPAUPERATA (Nelson & Kenn.) Rollins Perennial herb. Occasional throughout region on open pumice soil. Documented from Crestview and Glass Mtn. peak. *Constance 2462, 7 Aug 1938 JEPS; Taylor 6701, 28 Jul 1977 JEPS.*

ARABIS LYALLII S. Watson var. LYALLII Perennial herb. Rare; documented from one locality in steep dry lodgepole understory on N-slope of Sentinel Meadow RNA. *Honer & Hetzler 1773, 9 Jul 2002.*

ARABIS MICROPHYLLA Nutt. var. MICROPHYLLA Perennial herb. Rare on steep shady lodgepole slopes, and in N-facing Sagebrush scrub. *Honer 1638, 3 Jun 2002.*

ARABIS PLATYSPERMA A. Gray var. HOWELLII (S. Watson) Jepson Perennial herb. Occasional on rocky pumice of high ridges and slopes. *Taylor 9988, 25 Jun 1988 JEPS; Honer et al 1137, 5 Jul 2001.*

ARABIS PLATYSPERMA A. Gray var. PLATYSPERMA Perennial herb. Common but widely scattered around high-elevation pumice slopes, flats, canyons; occasional in forest understory. *DeDecker 3685, 23 Aug 1974; Honer 1090, 1 Jul 2001.*

ARABIS PULCHRA M. E. Jones var. GRACILIS M. E. Jones Perennial herb. Uncommon in low elevation scrub and under pinyons, granitic E side of region. *Honer 685, 26 May 2001.*

ARABIS PULCHRA M. E. Jones var. PULCHRA Perennial herb. Scattered throughout region on sandy-gravelly slopes, often under pinyons. *Honer 088, 11 Jun 1999.*

ARABIS SPARSIFLORA Nutt. var. SUBVILLOSA (S. Wats.) Rollins Perennial herb. Scattered throughout region on pumice soil. Documented from one locality at Indiana Summit RNA, expected elsewhere. *Taylor 6502, 22 Jun 1977 JEPS.*

CARDAMINE BREWERI S. Watson var. BREWERI Perennial herb. Locally common along wet stream edges. Documented from Wet Canyon and Kelty Meadows, expected elsewhere. *Honer 1738, 4 Jul 2002.*

CAULANTHUS PILOSUS S. Watson Perennial herb. Occasional on sandy slopes and washes throughout region; lower elevations. *Honer 713, 27 May 2001.*

\*CHORISPORA TENELLA (Pallas) DC. Annual. Uncommon but locally abundant on disturbed sites. Documented from one locality at sheep grazing water trough, SE corner of region. *Honer 1645, 3 Jun 2002.*

DESCURAINIA CALIFORNICA (A. Gray) O. Shulz Biennial herb. Locally common in disturbed areas and occasional in scrub and dry wash-

- es. Low to mid-elevations throughout region. *DeDecker 5629, 15 Jul 1984; Taylor 16871, 20 Jul 1998 JEPS.*
- DESCURAINIA INCISA (A. Gray) Britton ssp. FILIPES (A. Gray) Rollins Annual. Rare; documented from one disturbed pullout near Deer Spring. *Honer 173, 17 May 2000.*
- DESCURAINIA PARADISA (Nelson & Kenn.) O. Schulz Biennial herb. Common to locally abundant, especially on disturbed sandy areas. *Honer 1648, 3 Jun 2002.*
- \*DESCURAINIA SOPHIA (L.) Webb ex Prantl Annual. Common to locally abundant on disturbed sandy sites throughout region. Occasional in sandy washes and grazed scrub. *Honer 1650, 3 Jun 2002.*
- DRABA ALBERTINA E. Greene Biennial herb. Rare; documented from one locality near edge of Sawmill Meadow. *DeDecker 5614, 14 Jul 1984.*
- DRABA BREWERI S. Watson Perennial herb. Rare; documented from one locality on pumice plateau of Glass Mtn. Summit. *Taylor 6693, 28 Jul 1977 UC.*
- ERYSIMUM CAPITATUM (Douglas) E. Greene ssp. CAPITATUM Biennial herb. Occasional; widely scattered in scrub, woodland understory, and slopes up to 2700 m. *Honer 071, 10 Jun 1999.*
- HUTCHINSIA PROCUMBENS (L.) Desv. Biennial herb. Occasional to locally common on low sandy hummocks above saltgrass meadows of Long Valley. *Honer 1806, 23 Jul 2002.*
- LEPIDIUM MONTANUM Nutt. var. MONTANUM Perennial herb. Uncommon in scrub above saltgrass meadows in Long Valley. *Taylor 16884, 21 Jul 1998 JEPS; Honer 1808, 23 Jul 2002.*
- \*LEPIDIUM PERFOLIATUM L. Annual. Rare on disturbed sites. Documented from one locality at sheep grazing station along Benton Crossing Rd., SE corner of region. Expected elsewhere. *Honer 1646, 3 Jun 2002.*
- LESQUERELLA KINGII (S. Watson) S. Watson ssp. KINGII Perennial herb. Occasional along Glass Mtn. Ridge and adjacent pumice slopes. *Taylor 8090, 11 Aug 1982 JEPS; Honer 211, 12 Jun 2000.*
- PHOENICAILIS CHEIRANTHOIDES Torr. & A. Gray Perennial herb. Occasional on rocky granitic slopes and ridges along E side of region. Usually growing from rock bases in shade of pinyons. *Honer 865, 6 Jun 2001.*
- RORIPPA CURVIPES E. Greene var. CURVIPES Annual or biennial herb. Occasional on drying-out silty streambanks. Documented from one locality along Deadman Creek. *Honer 539, 15 Aug. 2000.*
- RORIPPA NASTURTIUM-AQUATICUM (L.) Hayek Annual or biennial herb. Common to locally abundant on wet stream edges and in water. Usually in shady situations. *Honer 896, 7 Jun 2001.*
- \*SISYMBRIUM ALTISSIMUM L. Annual. Occasional; restricted to disturbed roadsides and pullouts. *Honer 1556, 27 Aug 2001.*
- STANLEYA PINNATA (Pursh) Britton var. PINNATA Small shrub. Rare on rocky slopes around the S end of Glass Mtn. Ridge. Documented only twice. *Taylor 8092, 11 Aug 1982 UC; Honer 1068, 30 Jun 2001.*
- STREPTANTHUS CORDATUS Nutt. var. CORDATUS Perennial herb. Occasional on pumice soil along S Glass Mtn. Ridge. *Taylor 8101, 11 Aug 1982 UC; Honer 1082, 1 Jul 2001.*
- STREPTANTHUS TORTUOSUS Kellogg var. ORBICULATUS (E. Greene) H. M. Hall Annual. Rare; documented from one occurrence on steep E-facing pumice and obsidian slopes of Glass Mtn. Ridge. *Honer 214, 12 Jun 2000.*
- THELYPODIUM BRACHYCARPUM Torr. Biennial herb. Rare; documented from one locality in Long Valley, 2100 m. *DeDecker 876, 7 Jul 1958.*
- THELYPODIUM CRISPUM Payson Biennial herb. Common in saltgrass meadows of Long Valley, occasional across Big Sand Flat. Expected elsewhere. *Honer 317, 14 Jun 2000.*
- CACTACEAE
- OPUNTIA ERINACEA Engelm. & J. Bigel. var. ERINACEA Succulent shrub. Uncommon. Widely scattered individuals in scrub and Pinyon woodland of granitic E side. *Honer 860, 6 Jun 2001.*
- CAPPARACEAE
- CLEOME MELLA PARVIFLORA A. Gray Annual. Occasional on moist crusty alkaline soil of Long Valley saltgrass meadows. Documented from one locality. *Honer 1417, 22 Aug 2001.*
- CAPRIFOLIACEAE
- SAMBUCUS MEXICANA C. Presl ex DC. Large shrub. Rare; documented from one locality on N-facing granitic slope near Deer Spring. *Honer 440, 24 Jul 2000.*
- SYMPHORICARPOS LONGIFLORUS A. Gray Small shrub. Uncommon; documented from one locality on Bishop Tuff cliffs above North Canyon. *Honer 818, 4 Jun 2001.*
- SYMPHORICARPOS ROTUNDIFOLIUS A. Gray var. ROTUNDIFOLIUS Small shrub. Common in *Artemisia-Purshia* scrub throughout higher elevations in region. Sometimes becoming co-dominant on moister E-facing exposures and in canyons. Important understory shrub in aspen woodlands. *Honer 722, 27 May 2001.*
- CARYOPHYLLACEAE
- ARENARIA KINGII (S. Watson) M. E. Jones var. GLABRESCENS (S. Watson) Maguire Perennial herb. Widely scattered on high elevation rocky pumice flats of Glass Mtn. peak & ridge, and Sentinel Meadow RNA. Occasional on mid-elevation open cobbly flats with fine silty soil and other cushion-type plants. *Honer 209, 12 Jun 2000.*
- ARENARIA MACRADENIA S. Watson var. FERRISIAE Abrams Suffruticose perennial. Occasional on rocky granitic slopes in Pinyon woodland above Adobe Valley. *Honer 870, 6 Jun 2001.*
- SAGINA SAGINOIDES (L.) Karsten Perennial herb. Rare; documented from one locality bordering wet meadow at headwaters of Black Canyon drainage. *DeDecker 5650, 15 Jul 1984.*
- SILENE BERNARDINA S. Watson Perennial herb. Common in mid-elevation Sagebrush scrub. Often growing up through shrubs. *Cronquist 11090, 26 Jul 1973 UC; DeDecker 3699, 22 Aug 1974; Honer 1105, 1 Jul 2001.*
- SILENE SARGENTII S. Watson Annual. Uncommon on cobbly E-facing slopes around Glass Mtn. peak. *Honer & Hetzler 626, 18 Aug 2000.*
- STELLARIA LONGIPES Goldie var. LONGIPES Perennial herb. Common throughout region around wet meadow edges and in thick streamside thatch. *Honer 488, 13 Aug 2000.*
- CERATOPHYLLACEAE
- CERATOPHYLLUM DEMERSUM L. Aquatic annual. Occasional in flow of Owens River, Long Valley. *Honer 1779, 23 Jul 2002.*
- CHENOPODIACEAE
- ATRIPLEX CANESCENS (Pursh) Nutt. ssp. CANESCENS Small shrub. Uncommon in grazed scrub and disturbed roadsides. N tip of region in Adobe Valley. *Honer 1524, 27 Aug 2001.*
- CHENOPODIUM ATROVIRENS Rydb. Annual. Uncommon. Documented from one locality near meadow at headwaters of Black Canyon drainage. *DeDecker 5631, 15 Jul 1984.*
- CHENOPODIUM DESSICATUM A. Nelson Annual. Occasional to locally common on disturbed sandy sites, especially roadsides. *Taylor 6526, 28 Jun 1977 JEPS; Honer 1267, 23 Jul 2001.*
- CHENOPODIUM FREMONTII S. Watson Annual. Occasional around disturbed sandy meadow margins. *Taylor 17005, 24 Aug 1998 JEPS; Honer 1742, 4 Jul 2002.*
- CHENOPODIUM LEPTOPHYLLUM Moq. Annual. Occasional on disturbed sandy areas, especially roadsides. *Honer 1583, 29 Sep 2001.*
- GRAYIA SPINOSA (Hook.) Moq. Small shrub. Scattered in Sagebrush scrub throughout region. *Honer 259, 13 Jun 2000.*
- MONOLEPIS NUTTALLIANA (Schultes) E. Greene Annual. Occasional to locally abundant on disturbed sites in Long Valley and sheep

grazing pullout on S edge of region. *Helmkamp s.n., 17 Jun 1987; Honer 1653, 3 Jun 2002.*

- MONOLEPIS SPATHULATA A. Gray Annual. Rare; documented from one locality near meadow at headwaters of Black Canyon drainage, E side of range. Expected elsewhere. *DeDecker 5648, 15 Jul 1984.*
- NITROPHILA OCCIDENTALIS (Nutt.) Moq. Perennial herb. Uncommon on margins of saltgrass meadows, Long Valley. Documented from one locality. *Honer 1815, 23 Jul 2002.*
- \*SALSOLA TRAGUS Nelson Annual. Widely scattered, becoming locally abundant. Restricted to disturbed roadsides throughout region. *Honer 1115, 1 Jul 2001.*
- SARCOBATUS VERMICULATUS (Hook.) Torr. Small shrub. Occasional on higher areas within saltgrass meadows in Long Valley, 2090 m. *Honer 1801, 23 Jul 2002.*

## ERICACEAE

- LEDUM GLANDULOSUM Nutt. Small shrub. Uncommon in shady boggy understory around meadows. Documented only from Sawmill Meadow. *Honer 463, 25 Jul 2000.*
- ORTHILIA SECUNDA (L.) House Perennial herb. Rare; documented from one locality in shady humic bog adjacent to Sawmill Meadow. *Taylor 16999, 24 Aug 1998 JEPS.*
- PTEROSPORA ANDRODMEDEA Nutt. Perennial herb. Rare in dry understory of Lodgepole woodland. *DeDecker 3687, 23 Aug 1974; Honer 1415, 2 Aug 2001.*
- PYROLA ASARIFOLIA Michaux ssp. ASARIFOLIA Perennial herb. Rare; documented from one locality in shady streamside below O'Harrel Canyon Spring. *Honer 458, 25 Jul 2000.*
- PYROLA MINOR L. Perennial herb. Uncommon in dry shady aspen understory adjacent to wet meadows. Documented from Sawmill and Wet Meadows. *DeDecker 5610, 14 Jul 1984; Honer 575, 16 Aug 2000.*

## FABACEAE

- ASTRAGALUS CANADENSIS L. var. BREVIDENS (Gand.) Barneby Annual. Occasional around alkaline meadows in Long Valley. Documented from one occurrence; expected elsewhere. *Honer 1787, 23 Jul 2002.*
- ASTRAGALUS CASEI A. Gray Perennial herb. Uncommon in dry Sagebrush scrub and rocky slopes above Adobe Valley. Possibly restricted to granitic substrate. *Honer 716, 27 May 2001.*
- ASTRAGALUS JOHANNIS-HOWELLII Barneby Annual. Occasional on openings in scrub on sandy hillocks above saltgrass meadows in Long Valley, ca. 2100 m. State listed rare plant. *DeDecker 875, 7 Jul 1958; Honer 316, 14 Jun 2000.*
- ASTRAGALUS LEMMONII A. Gray Annual. Rare; documented from one locality in Long Valley on frost-heaved alkaline silty soil holding moisture late. Disjunct from Sierra County, CA., and Washoe County, NV. *Honer 292, 14 Jan 2000.*
- ASTRAGALUS LENTIGINOSUS Hook. var. INEPTUS A. Gray Perennial herb. Rare; documented from one locality in Long Valley around Saltgrass meadows/Sagebrush scrub. *Taylor 16531, 9 Jun 1998 JEPS.*
- ASTRAGALUS LENTIGINOSUS Hook. var. SEMOTUS Jepson Perennial herb. Locally rare, but widely scattered throughout region. Typically growing from rock bases on varying substrates, Long Valley to Glass Mtn. Ridge. *Honer 934, 20 Jun 2001.*
- ASTRAGALUS MONOENSIS Barneby Geophyte. Rare narrow endemic to pumice flats and plateaus in Mono Co. Repeatedly documented from Big Sand Flat, Little Sand Flat, Glass Mtn. summit plateau. State listed rare plant. *Jack L. Reveal 560, 14 Jul 1963 UC; Cronquist 11096, 26 Jul 1973; Taylor 6703, 8 Aug 1977 JEPS; DeDecker 4732, 21 Jun 1978; Clifton 18226, 1 Jul 1988 JEPS; Honer et al. 1139, 5 Jul 2001.*
- ASTRAGALUS NEWBERRYI A. Gray var. NEWBERRYI Perennial herb. Rare; widely scattered individuals on loose pumice soil above North Canyon. *Honer 834, 5 Jun 2001.*
- ASTRAGALUS OOPHORUS S. Wats. var. OOPHORUS Perennial herb. Rare; documented from one locality along ridgeline jeep trail between Clover Patch and Kelty Meadows. Growing from granitic rock base in center of trail. *Honer & Hetzler 1760, 8 Jul 2002.*
- ASTRAGALUS PURSHII Douglas var. LECTULUS (S. Watson) M. E. Jones Perennial herb. Rare; documented from one locality on exposed quartz latite hilltop above Crestview. *Honer 1241, 22 Jul 2001.*
- ASTRAGALUS PURSHII Douglas var. TINCTUS M. E. Jones Perennial herb. Occasional throughout region in open areas on granitic or pumice rocky soil. 2000–2500 m. *Honer 154, 14 May 2000.*
- LUPINUS ANDERSONII S. Watson Perennial herb. Rare; documented from one locality near Indiana Summit. *Taylor 6811, 17 Aug 1977 JEPS.*
- LUPINUS ARBUSTUS Lindley Perennial herb. Widespread throughout middle elevations in region. Common in aspen understory. Locally abundant in scrub below "Cone Peak" on Glass Mtn. Ridge. *Jack L. Reveal, 2 Sep 1963 UC; DeDecker 3671, 22 Aug 1974; Honer 1101, 1 Jul 2001.*
- LUPINUS ARGENTEUS Pursh var. HETERANTHUS (S. Watson) Barneby Perennial herb. Widespread in Sagebrush scrub throughout region, from Long Valley to Black Canyon. *Jack L. Reveal 853, 1 Sep 1963; Honer 1655, 3 Jun 2002.*
- LUPINUS ARGENTEUS Pursh var. MEIONANTHUS (A. Gray) Barneby Perennial herb. Apparently rare; documented from one locality on granitic ridge above Kelty Meadows. *Taylor 16888, 20 Jul 1998 JEPS.*
- LUPINUS ARGENTEUS Pursh var. MONTIGENUS (A. A. Heller) Barneby Perennial herb. Uncommon on NW side of range. Documented from Gaspip Spring and Crooked Meadows areas. *Hall 12280, 3 Aug 1927 UC; Tucker 3339, 4 Sep 1957 UC.*
- LUPINUS ARGENTEUS Pursh var. PALMERI (S. Watson) Barneby Perennial herb. Widespread in scrub, forested understory, and sandy slopes of W half of region. *DeDecker 3674, 22 Aug 1974; Teare 1407, 26 Jun 1981 UC; Honer 1227, 22 Jul 2001.*
- LUPINUS DURANII Eastw. Perennial herb. Rare endemic to pumice flats. Abundant and repeatedly documented at type locality on Big Sand Flat. Reported elsewhere within region. *Duran 3343, 15 Jul 1932; James L. Reveal & C. Reveal 354, 16 Jun 1962; Spellenberg 2879, 26 Jun 1972 UC; Teare 1401, 26 Jun 1981 JEPS; Honer 1508, 26 Aug 2001.*
- LUPINUS LEPIDUS Douglas var. CONFERTUS (Kellogg) C. P. Smith Perennial herb. Widespread, showy, sometimes locally abundant throughout region in wet and dry meadows and streambanks. 2000–2950 m. *DeDecker 5621, 15 Jul 1984; Honer 913, 7 Jun 2001.*
- LUPINUS LEPIDUS Douglas var. RAMOSUS Jepson Perennial herb. Rare; documented from one locality in dry meadow and understory at headwaters of Wild Cow Canyon. *Honer 418, 21 Jul 2000.*
- LUPINUS LEPIDUS Douglas var. SELLULUS (Kellogg) Barneby Perennial herb. Uncommon; documented only from W edge of region on roadside in Jeffrey pine understory near Crestview. *Roos 3991, 7 Sep 1948; Munz 20128, 24 Aug 1954.*
- LUPINUS POLYPHYLLUS Lindley var. BURKEI (S. Watson) C. Hitchc. Perennial herb. Rare; documented from one locality in streamside scrub just above Deadman Creek. *Honer 544, 15 Aug 2000.*
- TRIFOLIUM LONGIPES Nutt. var. NEVADENSE Jepson Perennial herb. Widespread throughout region in streambank thatch and in meadows. Dominant *Trifolium* in region. *Jack L. Reveal 163, 24 Jul 1962 UC; Honer 245, 13 Jun 2000.*
- TRIFOLIUM MONANTHUM A. Gray var. MONANTHUM Perennial herb. Common but inconspicuous along shady wet streambanks and meadows throughout region. *DeDecker 5627, 15 Jul 1984; Honer 538, 15 Aug 2000.*
- TRIFOLIUM WORMSKJOLDII Lehm. Perennial herb. Rare; documented



from one locality in Long Valley along riverbanks above Owens River. Co-occurring with *T. longipes*. *Honer 1792B, 23 Jul 2002.*

## GENTIANACEAE

*GENTIANOPSIS SIMPLEX* (A. Gray) Iltis Annual. Occasional around wet streambanks and meadows on N side of region. *Taylor 17002, 24 Aug 1998 JEPS; Honer & Miller 467, 27 Jul 2000.*

*SWERTIA PUBERULENTA* (Davidson) Jepson Perennial herb. Uncommon on pumice flats, slopes, conifer understory from 2500 m to Glass Mtn. peak. *Taylor 6694, 28 Aug 1977 JEPS; Honer 1201, 21 Jul 2001.*

## GROSSULARIACEAE

*RIBES AUREUM* Pursh var. *AUREUM* Small shrub. Rare; documented from one collection in riparian area along Deadman Creek. *Honer 1254, 22 Jul 2001.*

*RIBES CEREUM* Douglas var. *CEREUM* Small shrub. Widespread throughout region in many habitats: open Sagebrush scrub, rocky slopes, coniferous understory, and dwarfed thickets on pumice plateaus of Sentinel Meadow RNA and Glass Mtn peak. *Honer 1204, 21 Jul 2001.*

*RIBES INERME* Rydb. var. *INERME* Small shrub. Uncommon along riparian areas and meadow margins, 2100–2600 m. *Honer 1255, 22 Jul 2001.*

*RIBES VELUTINUM* E. Greene Small shrub. Occasional in Sagebrush scrub and rocky slopes, often near granitic outcrops. *Honer 802, 30 May 2001.*

## HYDROPHYLLACEAE

*HESPEROCHIRON CALIFORNICUS* (Benth.) S. Watson Perennial herb. Occasional along wet streambanks and muddy seeps. Documented from one locality along Owens River but seen in Wildrose Canyon also. *Honer 122, 13 May 2000.*

*NAMA DENSUM* Lemmon var. *DENSUM* Annual. Rare; documented from one roadside locality along Hwy 120 in Adobe Valley. *DeDecker 4735, 2 Jun 1978.*

*NAMA ROTHROCKII* A. Gray Perennial herb. Rare; documented once on loose steep E-facing pumice slope in remote area of Wet Canyon. *Honer 1278, 24 Jul 2001.*

*NEMOPHILA SPATULATA* Cov. Annual. Rare and inconspicuous. Documented from one locality on moist meadow margin at headwaters of Black Canyon drainage, 2650 m. *DeDecker 5652, 15 Jul 1984.*

*PHACELIA BICOLOR* S. Watson var. *BICOLOR* Annual. Common and widespread throughout range on sandy openings in scrub and disturbed areas 2100–2800 m. *Taylor 6524, 28 Jun 1977 JEPS; DeDecker 5653, 15 Jul 1984; Honer 075, 10 Jun 1999.*

*PHACELIA CURVIPES* S. Wats. Annual. Uncommon; growing on sandy areas under shrubs. Documented only from Long Valley and Frazier Canyon. *Taylor 16512, 9 Jun 1998 JEPS; Honer 155, 14 May 2000.*

*PHACELIA HASTATA* Lehm. ssp. *COMPACTA* (Brand) Heckard Perennial herb. Occasional on pumice sand flats, road edges, and in Jeffrey pine understory. *Howell 14502, 10 Aug 1938; Heckard 883, 19 Aug 1957; Honer 1209, 21 Jul 2001.*

*PHACELIA HUMILIS* Torr. & A. Gray var. *HUMILIS* Annual. Locally abundant in shady dry aspen understory, occasional in scrub. *Taylor 16845, 20 Jul 1998 JEPS; Honer 1676, 4 Jul 2002.*

*PHACELIA INYOENSIS* (J. F. Macbr.) J. Howell Annual. Uncommon; documented from alkaline meadows in Long Valley and Watterson Meadow. *Constance 3432, 3 Jul 1952 UC; Taylor 16510, 9 Jun 1998 JEPS.*

*PHACELIA RAMOSISSIMA* Douglas ex Lehm. var. *LATIFOLIA* (Torr.) Cronquist Perennial herb. Rare; documented from one locality along sandy granitic wash margins near Black Mtn. Usually growing up through shrubs. *Honer 1692, 4 Jul 2002.*

*PHACELIA RAMOSISSIMA* Douglas ex Lehm. var. *RAMOSISSIMA* Perennial herb. Rare; documented from one locality in recovering burnt scrub on pumice and granitic soil below Ford Spring. Usually growing from bases of shrubs. *Honer 929, 20 Jun 2001.*

*PHACELIA RAMOSISSIMA* Douglas ex Lehm. var. *SUBGLABRA* M. E. Peck Perennial herb. Rare; documented from one locality in grazed scrub on volcanic dome in Long Valley. *Honer 754, 29 May 2001.*

*PHACELIA VALLIS-MORTAE* J. Voss Annual. Common on sandy soil under pinyons and shrubs. Widespread across E half of range, occasional elsewhere. *Honer 841, 5 Jun 2001.*

## LAMIACEAE

*AGASTACHE URTICIFOLIA* (Benth.) Kuntze Perennial herb. Rare; documented from one locality on a sandy granitic dry wash edge SE of Black Mtn., 2600 m. Expected elsewhere. *Honer 1684, 4 Jul 2002.*

*MENTHA ARVENSIS* L. Perennial herb. Rare; documented from one locality along muddy banks of Adobe Creek. Expected elsewhere. *Honer 1545, 27 Aug 2001.*

*MONARDELLA GLAUCA* E. Greene Perennial herb. Uncommon; documented from one locality on a sandy granitic dry wash edge SE of Black Mtn., 2600 m. *Honer 1708, 4 Jul 2002.*

*MONARDELLA ODORATISSIMA* Benth. ssp. *PALLIDA* (A. A. Heller) Epling Perennial herb. Widespread in higher areas of Sagebrush scrub, 2300–3000 m elev. Questionably distinct from subsp. *odoratissima*. *DeDecker 3680, 23 Aug 1984; Honer 433, 24 Jul 2000.*

## LINACEAE

*LINUM LEWISII* Pursh var. *LEWISII* Perennial herb. Occasional in open areas of Sagebrush scrub and rocky ridges above Long Valley. *Honer 1195, 21 Jul 2001.*

## LOASACEAE

*MENTZELIA ALBICAULIS* Hook. Annual. Common and on open sandy areas in scrub, and in disturbed areas, generally below 2600 m elev. *Honer 691, 26 May 2001.*

*MENTZELIA CONGESTA* Torr. & A. Gray Annual. Common and widespread throughout region in openings of scrub, disturbed areas, rocky slopes. *Honer 1032, 29 Jun 2001.*

*MENTZELIA VEATCHIANA* Kellogg Annual. Rare; documented from one locality in grazed Sagebrush scrub in Clark Canyon. Expected elsewhere. *Honer 744, 28 May 2001.*

## MALVACEAE

*SIDALCEA OREGANA* (Torr. & A. Gray) A. Gray ssp. *SPICATA* (Regel) C. Hitchc. Perennial herb. Uncommon in shady lodgepole understory around meadow margins on N side of range. *Honer 590, 16 Aug, 2000.*

*SPHAERALCEA AMBIGUA* A. Gray var. *AMBIGUA* Suffruticose perennial. Uncommon on roadsides and rocky slopes, apparently restricted to granitic substrate on E side of region. *Honer 714, 27 May 2001.*

## NYCTAGINACEAE

*ABRONIA TURBINATA* S. Watson Annual. Occasional individuals on pumice flats, slopes, and roadsides. Widespread throughout region from 2000–3100 m. *Thomas 10254, 9 Sep 1963; DeDecker 3684, 23 Aug 1974; Honer 1654, 3 Jun 2002.*

*MIRABILIS BIGELOVII* A. Gray var. *BIGELOVII* Perennial herb. Rare; documented from one locality on steep rocky S-facing Bishop Tuff slopes in North Canyon. *Honer 952, 21 Jun 2001.*



## ONAGRACEAE

## POLEMONIACEAE

- CAMISSONIA BOOTHII (Douglas) P. H. Raven ssp. BOOTHII Annual. Rare; documented from one locality on soft sandy wash margins in lower Adobe Valley. *Honer 844, 5 Jun 2001.*
- CAMISSONIA CLAVIFORMIS (Torr. & Frém.) P. H. Raven ssp. LANCI-FOLIA (A. A. Heller) P. H. Raven Annual. Common to locally abundant on sandy slopes, wash margins, and openings in scrub throughout region, to 2400 m elev. Listed as endemic to S Great Basin (E of Sierra Nevada) in Baldwin et al. (2002). *Taylor 8088, 11 Aug 1982 JEPS; Honer 659, 26 May 2001.*
- CAMISSONIA CONTORTA (Douglas) P. H. Raven Annual. Occasional on sandy disturbed soil in grazed scrub and dry washes. *Honer 705, 27 May 2001.*
- CAMISSONIA HETEROCHROMA (S. Watson) P. H. Raven Annual. Rare; documented from one locality on disturbed roadside below Bishop Tuff canyon walls, Hwy 120 above Adobe Valley. *Honer 1522, 27 Aug 2001.*
- CAMISSONIA PARVULA (Torr. & A. Gray) P. H. Raven Annual. Occasional, locally common on disturbed sandy roadsides and grazed scrub. Documented from one locality on bajada of Klondike Canyon; expected elsewhere. *Honer 668, 26 May 2001.*
- CAMISSONIA PUBENS (S. Watson) P. H. Raven Annual. Rare; documented from one locality in grazed sandy scrub on volcanic dome on N edge of Long Valley; expected elsewhere. *Honer 1633, 29 May 2002.*
- CAMISSONIA PUSILLA P. H. Raven Annual. Occasional on sandy disturbed sites throughout region, 2000–2300 m elev. *DeDecker 4733, 21 Jun 1978; Honer 884, 6 Jun 2001.*
- EPILOBIUM ANGUSTIFOLIUM L. ssp. CIRCUMVAGUM Mosq. Perennial herb. Common; locally abundant along shady wet stream banks and borders of meadows, 2400–2800 m elev. *Honer & Guiliani 1391, 1 Aug 2001.*
- EPILOBIUM CILIATUM Raf. ssp. CILIATUM Perennial herb. Common to locally abundant along wet stream edges. Widespread throughout region. *DeDecker 5642, 15 Jul 1984; Taylor 16857, 20 Jul 1998 JEPS; Honer 555, 15 Aug 2000.*
- EPILOBIUM HALLEANUM Hausskn. Perennial herb. Rare; documented from one locality, along moist edge of Sawmill Meadow. *DeDecker 5611, 14 Jul 1984.*
- GAYOPHYTUM DIFFUSUM Torr. & A. Gray ssp. PARVIFLORUM F. H. Lewis & M. R. Lewis Annual. Common and widespread on open disturbed sandy areas in scrub, roadsides, and on sand flats. *DeDecker 5632, 15 Jul 1984; Honer 1507, 26 Aug 2001.*
- GAYOPHYTUM HETEROZYGUM F. H. Lewis & Szweyk. Annual. Occasional throughout region on disturbed roadsides and meadow margins. *Cronquist 11082, 25 Jul 1973; Honer 1020, 29 Jun 2001.*
- GAYOPHYTUM RAMOSISSIMUM Torr. & A. Gray Annual. Occasional on dry sandy disturbed areas in grazed scrub and along roadsides. *DeDecker 4734, 21 Jun 1978; Honer 887, 6 Jun 2001.*
- OENOTHERA CALIFORNICA S. Watson ssp. AVITA Klein Perennial herb. Rare; documented from one locality on sandy granitic soil along jeep road in Wildrose Canyon (possibly waif?). *Honer 1454, 22 Aug 2001.*
- OENOTHERA XYLOCARPA Cov. Biennial herb. Rare; documented from one locality on pumice roadside along Hwy 395 near Crestview. *Klein 1088, 24 May 1959.*
- ALICIELLA undescribed sp. nov. #1 Annual. Occasional on sandy disturbed roadsides and grazed scrub. Documented from one locality W of Banner Springs. Confused with *A. subacaulis*, with which it is related (J. M. Porter pers. comm.) *Honer 891, 6 Jun 2001.*
- ALICIELLA undescribed sp. nov. #2 Annual. Common on disturbed roadsides and in grazed Sagebrush scrub.  $n = 8$ . Related to *A. subacaulis* (J. M. Porter pers. comm.). *Honer 991, 21 Jun 2001.*
- ALLOPHYLUM GILIOIDES (Benth.) A. D. Grant & V. E. Grant ssp. VIOLACEUM (A. Heller) A. G. Day Annual. Occasional in scrub and Pinyon woodland throughout region, 2000–2300 m. *Honer 721, 27 May 2001.*
- COLLOMIA LINEARIS Nutt. Annual. Occasional to locally common along drier streambanks, disturbed meadow margins, often in aspen understory. 2300–2800 m. *Taylor 16846, 20 Jul 1998 JEPS; Honer 497, 13 Aug 2000.*
- ERIASTRUM SPARSIFLORUM (Eastw.) H. Mason Annual. Common and widespread in openings of scrub, disturbed areas, roadsides. 2000–2500 m. *Honer 1264, 23 Jul 2001.*
- ERIASTRUM WILCOXII (Nelson) H. Mason Annual. Common and widespread in openings of scrub, disturbed areas, roadsides. 2000–2600 m. *Honer 813, 4 Jun 2001.*
- GILIA CANA (M. E. Jones) A. A. Heller ssp. CANA Annual. Occasional on open sandy areas of grazed scrub and on rocky pediments. *Honer 743, 28 May 2001.*
- GILIA MODOCENSIS Eastw. Annual. Occasional in openings of grazed and intact scrub. 2000–2300 m. *Honer 1634, 29 May 2002.*
- GILIA SINUATA Benth. Annual. Occasional to locally abundant on sandy wash margins and bajadas, grazed and intact scrub. *Honer 182, 17 May 2000.*
- GILIA TRANSMONTANA (H. Mason & A. D. Grant) A. D. Grant and V. Grant Annual. Occasional; documented from one locality W of Banner Springs on open sandy areas of grazed Sagebrush scrub; expected elsewhere. *Honer 890, 6 Jun 2001.*
- IPOMOPSIS AGGREGATA (Pursh) V. Grant ssp. FORMOSISSIMA (E. Greene) Wherry Perennial herb. Scattered throughout region, usually in aspen understory, occasionally in open scrub. 2400–2750 m. *Honer 985, 21 Jun 2001.*
- IPOMOPSIS CONGESTA (Hook.) V. Grant ssp. MONTANA (Nelson & Kennedy) V. Grant Perennial herb. Occasional on exposed pumice plateau of Glass Mtn. peak and ridges S., above 3200 m. *Honer 196, 12 Jun 2000.*
- LEPTOSIPHON NUTTALLII (A. Gray) J. M. Porter & L. A. Johnson ssp. PUBESCENS (R. Patt.) J. M. Porter & L. A. Johnson Perennial herb. Widespread on dry sites in Jeffrey and lodgepole pine understory, 2400–3000 m. *Munz 11786, 15 May 1947; Taylor 16862, 20 Jul 1998 JEPS; Honer 1187, 21 Jul 2001.*
- LEPTOSIPHON PACHYPHYLLUS (R. Patt.) J. M. Porter & L. A. Johnson Perennial herb. Apparently rare; documented from one locality at Crooked Meadows, 2400 m. Expected elsewhere. *Breedlove 42946, 8 Jul 1977.*
- LINANTHUS INYOENSIS (I. M. Johnston) J. M. Porter & L. A. Johnson Annual. Occasional to locally abundant in Pinyon woodland on open sandy areas in scrub and along wash edges. 2000–2300 m. *Honer 661, 26 May 2001.*
- LINANTHUS PARRYAE (A. Gray) Greene Annual. Rare; documented from one locality on open heavily grazed slope of granitic soil in Pinyon woodland near SE Benton Crossing Rd., 2280 m. Expected elsewhere. *Honer 726, 27 May 2001.*
- LINANTHUS PUNGENS (Torrey) J. M. Porter & L. A. Johnson Small shrub. Widespread and common throughout region, mostly in scrub, Long Valley floor to Glass Mtn. peak. 2100–3400 m. *Honer & Hetzler 628, 18 Aug 2000.*
- MICROSTERIS GRACILIS (Hook.) E. Greene Annual. Rare; documented

## PAPAVERACEAE

- ARGEMONE MUNITA Durand & Hilg. Annual to perennial herb. Widespread but never abundant on sandy disturbed roadsides, occasional on disturbed openings in scrub. *Honer 1516, 26 Aug 2001.*
- ESCHSCHOLZIA MINUTIFLORA S. Watson ssp. MINUTIFLORA Annual. Rare; documented from one occurrence in sandy granitic wash at SE end of Adobe Valley. *Honer 700, 27 May 2001.*

from one locality in O'Harrel Canyon, on soft pumice soil in streamside shady understory. *Honer 084, 10 Jun 1999.*

- NAVARRETTA BREWERI (A. Gray) E. Greene Annual. Rare; documented from one locality near Kely Meadows, 2700 m. *Taylor 16847, 20 Jul 1998 JEPS.*
- PHLOX CONDENSATA (A. Gray) E. Nelson Perennial herb. Uncommon. Scattered on pumice soil of Sentinel Meadow RNA, usually in shade of lodgepoles or limber pine, 3100 m. Documented once. *Honer & Hetzler 1764, 9 Jul 2002.*
- PHLOX STANSBURYI (Torr.) A. A. Heller Perennial herb. Common and widespread in scrub and Pinyon woodland throughout region. 2100–2700 m. *Honer 096, 11 Jun 1999.*
- POLEMONIUM OCCIDENTALE E. Greene Perennial herb. Occasional in shady wet meadows and streamsides, N side of region. 2600–2800 m. *Honer 1055, 30 Jun 2001.*

## POLYGONACEAE

- CHORIZANTHE BREVICORNU Torr. var. SPATHULATA (Rydb.) C. Hitchc. Annual. Occasional on disturbed sandy areas in scrub. 2000–2600 m. *Honer 720, 27 May 2001.*
- ERIOGONUM AMPULLACEUM J. Howell Annual. Occasional on sandy soil above saltgrass meadows of Long Valley and along low elev. disturbed roadsides throughout region. *Jack L. Reveal & James Reveal 558, 14 Jul 1963; Honer 1814, 23 Jul 2002.*
- ERIOGONUM BRACHYANTHUM Coville Annual. Occasional to locally abundant on sandy disturbed low elev. roadsides and grazed scrub. 2000–2300 m. *DeDecker 4415, 22 Sep 1977; Honer 1448, 22 Aug 2001.*
- ERIOGONUM CESPITOSUM Nutt. Perennial herb. Occasional; restricted to cobbly windswept granitic pediments on E side of region with fine silty soil. Often co-dominant with *Stenotus acaulis* and other cushion plants. *Munz 11792, 15 May 1947; Honer 258, 13 Jun 2000.*
- ERIOGONUM DAVIDSONII Greene Annual. Rare; documented from one locality in Adobe Valley near Black Lake on sandy soil in scrub. *DeDecker 6164, 6 Sep 1989.*
- ERIOGONUM DEFLEXUM Torr. var. NEVADENSE Rev. Annual. Rare; documented from one locality on soft sandy N-facing pumice soil in constricted canyon along Hwy 120 near North Canyon in Adobe Valley, 2050 m. *Honer 1523, 27 Aug 2001.*
- ERIOGONUM ESERALDENSE S. Watson var. ESERALDENSE Annual. Occasional throughout region on soft pumice soil on roadsides, open scrub, up to Sentinel Meadow RNA. 2400–3100 m. *Jack L. Reveal & James Reveal 616, 10 Aug 1963 UC; Rose 68181, 19 Jul 1968; DeDecker 3676, 22 Aug 1974.*
- ERIOGONUM KENNEDYI S. Watson var. PURPUSII (Brandegge) Reveal Perennial herb. Uncommon on granitic sandy soil around E side of region. 2100–2700 m. *Honer 1377, 31 Jul 2001.*
- ERIOGONUM LOBBII Torr. & A. Gray var. LOBBII Perennial herb. Common but widely scattered on pumice and obsidian slopes around Glass Mtn. peak and Ridge, to Sentinel Meadow RNA. *Cronquist 11095, 26 Jul 1973; Honer 410, 20 Jul 2000.*
- ERIOGONUM MICROTHECUM Nutt. var. ALPINUM Rev. Suffruticose perennial. Uncommon; documented from one locality in open windswept scrub on quartz latite soil on Bald Mtn. peak, 2700 m. *Honer 325, 16 Jul 2000.*
- ERIOGONUM MICROTHECUM Nutt. var. AMBIGUUM (M. E. Jones) Rev. Suffruticose perennial. Scattered throughout region on open sandy areas of scrub. Often co-occurring with *E. umbellatum*. 2400–3000 m. *Honer 1108, 1 Jul 2001.*
- ERIOGONUM MICROTHECUM Nutt. var. LAXIFLORUM Hook. Suffruticose perennial. Rare; documented from one locality in windswept scrub on hilltop above Crestview, 2500 m. *Honer 1228, 22 Jul 2001.*
- ERIOGONUM NUDUM Douglas ex Benth. var. DEDUCTUM (E. Greene) Jepson Perennial herb. Rare on sandy soil in disturbed Jeffrey pine forest, W side of region, 2680 m. Documented from one locality; expected elsewhere. *Honer 1207, 21 Jul 2001.*
- ERIOGONUM NUMMULARE M. E. Jones Small shrub. Occasional throughout region on soft pumice or granitic soil in scrub. 2000–2600 m. *Jack L. Reveal & Mason 202, 9 Sep 1962; Taylor 8096, 11 Aug 1982 UC; Honer 1262, 23 Jul 2001.*
- ERIOGONUM OVALIFOLIUM Nutt. var. NIVALE (Canby) M. E. Jones Perennial herb. Common but widely scattered on pumice and granitic soil, Pinyon woodland to Glass Mtn. peak. 2000–3300 m. *Taylor 6696, 28 Jul 1977 UC; Honer 680, 26 May 2001.*
- ERIOGONUM OVALIFOLIUM Nutt. var. OVALIFOLIUM Perennial herb. Occasional in scrub and pumice plateaus, 2300–3100 m. *Honer 175, 17 May 2000.*
- ERIOGONUM OVALIFOLIUM Nutt. var. PURPUREUM (Nelson) Dur. Perennial herb. Rare; documented from one locality on pumice plateau of Sentinel Meadow RNA, 3100 m. *Honer 402, 20 Jul 2000.*
- ERIOGONUM PUSILLUM Torr. & A. Gray Annual. Occasional on sandy wash margins. Documented from one locality on granitic soil above Black Lake; expected elsewhere. *Honer 710, 27 May 2001.*
- ERIOGONUM ROSENSE Nelson & Kenn. Perennial herb. Occasional on rocky ridges above Kely Meadows to Glass Mtn. peak. 2900–3400 m. *Cronquist 11104, 26 Jul 1973; Taylor 16850, 20 Jul 1998 JEPS.*
- ERIOGONUM SPERGULINUM A. Gray var. REDDINGIANUM (M. E. Jones) J. T. Howell Annual. Common to locally abundant on sandy disturbed open areas of scrub and coniferous understory, 2100–2900 m. *James L. Reveal 461, 6 Aug 1962; Holmgren & James Reveal 2927, 22 Jul 1966; Honer 1750, 4 Jul 2002.*
- ERIOGONUM UMBELLATUM Torr. var. NEVADENSE Gand. Small shrub. Common, widespread, and showy in scrub throughout region; also on pumice flats, roadsides, ridges. 2200–3200 m. *DeDecker 3677, 22 Aug 1974; Honer 1710, 4 Jul 2002.*
- ERIOGONUM VIMINEUM Benth. Annual. Common to locally abundant on disturbed roadsides and in openings of scrub; Adobe Valley and E side of region, 1900–2400 m. *Honer 1447, 22 Aug 2001.*
- ERIOGONUM WRIGHTII Benth. var. SUBSCAPOSUM S. Watson Small shrub. Rare; documented from one locality around Indiana Summit RNA, 2300 m. Expected elsewhere. *Taylor 6814, 17 Aug 1977 JEPS.*
- GOODMANIA LUTEOLA (C. Parry) Rev. & B. Ertter Annual. Rare. On low hillocks just above saltgrass meadows in Long Valley, 2090 m. *Howell 14379, 8 Aug 1938 POM; Honer 1813, 23 Jul 2002.*
- OXYTHECA DENDROIDEA Nutt. ssp. DENDROIDEA Annual. Common on low sandy disturbed areas in grazed scrub and roadsides, around Adobe Valley and SE slopes of region, 1900–2300 m. *DeDecker 4148, 2 Aug 1976; Honer 1462, 25 Aug 2001.*
- \*POLYGONUM ARENASTRUM Boreau Perennial herb. Rare; documented from one locality near Benton Crossing in Long Valley, 2000 m. *Helmkamp s.n., 17 Jun 1987.*
- POLYGONUM DOUGLASII E. Greene ssp. DOUGLASII Annual. Locally common on dry disturbed areas of meadows and streamsides. *Honer 622B, 17 Aug 2000.*
- POLYGONUM DOUGLASII E. Greene ssp. MAJUS (Meissner) J. Hickman Annual. Rare; documented from one locality along dry disturbed banks of Dexter Creek, 2600 m. Expected elsewhere. *Honer 498, 13 Aug 2000.*
- \*RUMEX CRISPUS L. Perennial herb. Rare; documented from one locality along heavily grazed and disturbed stream near Watterson Troughs, 2320 m. *Honer 1573, 28 Sep 2001.*
- RUMEX PAUCIFOLIUS S. Watson Perennial herb. Common along drier meadow margins throughout region, 2500–2900 m. *Jack L. Reveal 497, 4 Jul 1963; Honer 1753, 4 Jul 2002.*
- RUMEX SALICIFOLIUS Weinm. var. DENTICULATUS Torr. Perennial herb. Uncommon along streambanks of Deadman Creek near Big Springs campground. 2100–2200 m. *Honer 1252, 22 Jul 2001.*

## PORTULACACEAE

- CALYPTRIDIMUM MONOSPERMUM E. Greene Perennial herb. Rare; documented from one occurrence on Big Sand Flat, 2400 m. Co-occurring with *C. umbellatum*. *Teare 1417, 26 Jun 1981 JEPS*.
- CALYPTRIDIMUM ROSEUM S. Watson Annual. Rare; documented from one abundant population on heavily disturbed and grazed scrub and roadsides in Klondike Canyon, 2085 m. Expected elsewhere. *Honer 671, 26 May 2001*.
- CALYPTRIDIMUM UMBELLATUM (Torr.) E. Greene var. UMBELLATUM Perennial herb. Common and widely scattered on pumice flats, understory, and on high pumice plateaus. *Jack & James Reveal 559, 14 Jul 1963 UC; Honer 199, 12 Jun 2000*.
- LEWISIA REDIVIVA Pursh Geophyte. Rare; growing from cobble bases on silty soil in Pinyon woodland, granitic E side of region, 2100–2300 m. *Honer 725, 27 May 2001*.
- MONTIA CHAMISSOI (Sprengel) E. Greene Perennial herb. Rare; documented from one occurrence on muddy heavily disturbed spring at Crooked Meadows, 2680 m. *Honer 1316, 25 Jul 2001*.

## PRIMULACEAE

- DODECATHEON ALPINUM (A. Gray) Greene Geophyte. Common in meadows and shady streamsides throughout region, 2200–2800 m. *Honer 892, 7 Jun 2001*.
- DODECATHEON PULCHELLUM (Raf.) Merr. Geophyte. Rare; documented from one locality on grazed meadow margins at Clover Patch, 2380 m. *Honer 240, 13 Jun 2000*.
- DODECATHEON REDOLENS (H. M. Hall) H. J. Thompson Geophyte. Rare; documented from one occurrence in unnamed small grazed meadow forming headwaters of “Dry Fork” of Black Canyon drainage, 2683 m. *Honer 1056, 30 Jun 2001*.
- GLAUX MARITIMA L. Perennial herb. Locally abundant along drier grazed streambanks above Owens River, adjacent to saltgrass meadows, 2080 m. Documented from one locality. *Honer 1793, 23 Jul 2002*.

## RANUNCULACEAE

- ACONITUM COLUMBIANUM Nutt. Perennial herb. Occasional in wet shady streamside canyon bottoms and meadows throughout region, 2400–2700 m. *Honer 1281, 24 Jul 2001*.
- AQUILEGIA FORMOSA Fisch. Perennial herb. Common and widespread along streams, springs, and wet areas of meadows throughout region. *Honer 1510, 26 Aug 2001*.
- AQUILEGIA PUBESCENS Cov. Rare; documented from one occurrence on “Cone Peak.” *Taylor 8098, 11 Aug 1982 UC; RSA*.
- DELPHINIUM ANDERSONII A. Gray Geophyte. Uncommon; documented from one population on solitary rhyodacite dome on N edge of Long Valley, 2256 m. *Honer 749, 29 May 2001*.
- DELPHINIUM GLAUCUM S. Watson Geophyte. Occasional in aspen understory and shady streambanks of granitic E side of region, ca. 2700 m. *Honer 1366, 31 Jul 2001*.
- DELPHINIUM POLYCLADON Eastw. Geophyte. Occasional in aspen understory of meadows on E side of region, 2700 m. *Taylor 16863, 20 Jul 1998 JEPS*.
- RANUNCULUS ANDERSONII A. Gray Perennial herb. Rare on grazed sandy areas, granitic E side of range. Documented from one locality above sheep grazing camp above Benton Crossing Rd., 2280 m. *Honer 655, 28 Apr 2001*.
- RANUNCULUS AQUATILIS L. var. CAPILLACEUS (Thuill.) DC. Aquatic perennial herb. Common in flow of Owens River; documented from one locality in Long Valley. *Honer 1777, 23 Jul 2002*.
- RANUNCULUS CYMBALARIA Pursh ssp. SAXIMONTANUS (Fernald) Thorne Perennial herb. Occasional on muddy streambanks and wet areas of meadows throughout region, 2000–2600 m. *DeDecker 5651, 15 Jul 1984; Honer 1546, 27 Aug 2001*.
- THALICTRUM SPARSIFLORUM Fischer & C. Meyer Perennial herb.

Common in shady meadow margins and streamsides in N and E drainages of region, 2000–2800 m. *DeDecker 5622, 15 Jul 1984; Honer 949, 20 Jun 2001*.

## RHAMNACEAE

- CEANOTHUS VELUTINUS Hook. var. VELUTINUS Large shrub. Occasional to locally abundant on relatively mesic exposures in scrub from Crestview to Taylor Canyon. Sometimes forming dense thickets on E-facing slopes where snow accumulates, 2400–2700 m. *Honer 1130, 22 Jul 2001*.

## ROSACEAE

- AMELANCHIER UTAHENSIS Koehne Large shrub. Occasional throughout region, usually on slopes in scrub and Pinyon woodlands, ca. 2200 m. *Honer 747, 28 May 2001*.
- CERCOCARPUS LEDIFOLIUS Nutt. var. INTERMONTANUS N. Holmgren Large shrub. Common and widely scattered throughout region from Pinyon woodland to Glass Mtn. ridge. Usually on exposed windy slopes and ridges, sometimes forming stands, 2000–3200 m. *Honer 1304, 24 Jul 2001*.
- CHAMAEBATIARIA MILLEFOLIUM (Torr.) Maxim. Small shrub. Uncommon throughout W half of region, usually around granite or rhyolite boulders, 2100–2500 m. *Hall 11823, 7 Aug 1922; Honer 1274, 23 Jul 2001*.
- GEUM MACROPHYLLUM Willd. Perennial herb. Occasional on shady wet streambanks and meadow margins, 2300–2700 m. *Honer 941, 20 Jun 2001*.
- HOLIDISCUS MICROPHYLLUS Rydb. var. MICROPHYLLUS Small shrub. Occasional; widely scattered on rocky ridges and slopes throughout region, 2100–3200 m. Always growing on or around outcrops. *Honer 777, 29 May 2001*.
- HORKELIELLA CONGDONIS (Rydb.) Rydb. Perennial herb. Occasional throughout region in dry, usually granitic washes, meadows, springsides, ca. 2500 m. *Hall 12750, 22 Jul 1929 POM; Honer 1691, 4 Jul 2002*.
- IVESIA KINGII S. Watson var. KINGII Perennial herb. Rare, documented from one locality in wet crusty alkaline meadow in Long Valley, 2090 m. *Honer 1807, 23 Jul 2002*.
- IVESIA SHOCKLEYI S. Watson var. SHOCKLEYI Perennial herb. Rare; documented only from rhyolite outcrops on Glass Mtn. peak, 3384 m. *Taylor 6695, 28 Jul 1977 UC; Honer 198, 12 Jun 2000*.
- POTENTILLA BIENNIS E. Greene Annual or biennial. Occasional on drier areas around springs and streams throughout region, 2100–2600 m. *DeDecker 5641, 15 Jul 1984; Honer 1258, 22 Jul 2001*.
- POTENTILLA DIVERSIFOLIA Lehm. ssp. DIVERSIFOLIA Perennial herb. Scattered to locally common around meadow margins and understory, NE side of region, 2600–2800 m. *DeDecker 5607, 14 Jul 1984; Honer 1057, 30 Jun 2001*.
- POTENTILLA GLANDULOSA Lindl. ssp. NEVADENSIS (S. Watson) D. D. Keck Perennial herb. Common throughout region; usually at dry wash bases, margins of meadows, 2500–2800 m. *DeDecker 5608, 14 Jul 1984; Honer 893, 7 Jun 2001*.
- POTENTILLA GRACILIS Hook. var. ELMERI (Rydb.) Jepson Perennial herb. Occasional around meadows and stream margins throughout region, 2100–2700 m. *Honer 247, 13 Jun 2000*.
- POTENTILLA GRACILIS Hook. var. FASTIGIATA (Nutt.) S. Watson Perennial herb. Scattered around disturbed/grazed meadow margins throughout region, 2500–2800 m. *Honer & Hetzler 1133, 4 Jul 2001*.
- PRUNUS ANDERSONII A. Gray Large shrub. Scattered in low Sagebrush scrubland up into Pinyon woodland throughout region, 2100–2700 m. *Honer 100, 11 Jun 1999*.
- PRUNUS EMARGINATA (Douglas) Walp. Large shrub. Occasional throughout region, usually in scrub on E-facing exposures holding moisture late, 2300–2700 m. *Honer 748, 29 May 2001*.
- PURSHIA TRIDENTATA (Pursh) DC. var. TRIDENTATA Large shrub.

Widespread and abundant in scrub throughout region, often becoming co-dominant with *Artemisia tridentata*. *Honer 078, 10 Jun 1999.*

*ROSA WOODSII* Lindley var. *ULTRAMONTANA* (S. Watson) Jepson Large shrub. Widespread; common to locally abundant along streams and canyon bottoms throughout region, 2000–2400 m. Sometimes forming impenetrable thickets. *Honer 1290, 24 Jul 2001.*

## RUBIACEAE

*GALIUM BIFOLIUM* S. Watson Annual. Rare; documented from one locality along rocky streamside of Wet Fork of Black Canyon drainage, granitic E side of region. *DeDecker 5628, 15 Jul 1984.*

*GALIUM MULTIFLORUM* Kellogg Perennial herb. Uncommon but widespread on rocky slopes throughout pinyon belt of region. Usually growing from rock bases. *Honer 750, 29 May 2001.*

## SALICACEAE

*POPULUS TREMULOIDES* Michaux Tree. Widespread along streams, meadows, seeps, and in scrub on mesic E-facing exposures holding moisture late, 2200–2800 m. Often forming large dense clonal stands. *Honer 1707, 4 Jul 2002.*

*SALIX EASTWOODIAE* A. A. Heller Large shrub. Rare; documented from one locality, springside with aspens in Kely Meadows, 2800 m. *Honer 1730, 4 Jul 2002.*

*SALIX EXIGUA* Nutt. Large shrub. Common throughout lower elevations in washes, canyon bottoms, and around underground streams and springs, 2100–2500 m. *Honer 234, 13 Jun 2000.*

*SALIX GEYERIANA* Andersson Large shrub. Common around streams and in meadows throughout region, 2200–2800 m. *DeDecker 5634, 15 Jul 1984; Honer 737, 28 May 2001.*

*SALIX LASIOLEPIS* Benth. Large shrub. Occasional in scrub beside streams. Documented from one locality in Taylor Canyon, expected elsewhere. *DeDecker 236 & 237, 29 May 1955.*

*SALIX LUTEA* Nutt. Large shrub. Common to locally abundant along streams and dry canyon bottoms throughout N and E sides of region, 2000–2800 m. *Honer 816, 4 Jun 2001.*

*SALIX ORESTERA* C. Schneider Small shrub. Rare; documented from one locality on grazed meadow near spring, granitic E side of region, 2700 m. Expected elsewhere. *Honer 267, 13 Jun 2000.*

*SALIX PLANIFOLIA* Cham. ssp. *PLANIFOLIA* Small shrub. Common around wet meadows of N and E side of region, 2600–2800 m. *DeDecker 5620, 15 Jul 1984; Honer 569, 16 Aug 2000.*

## SAXIFRAGACEAE

*PARNASSIA CALIFORNICA* (A. Gray) E. Greene Perennial herb. Rare on shady meadow margins, N and E side of range, 2600–2800 m. *Taylor 17001, 24 Aug 1998 JEPS; Honer 563, 16 Aug 2000.*

## SCROPHULARIACEAE

*CASTILLEJA ANGSTIFOLIA* (Nutt.) G. Don Parasitic perennial herb. Occasional in scrub throughout region, 2000–2500 m. *Honer 857, 6 Jun 2001.*

*CASTILLEJA APPLIGATEI* Fern. ssp. *PINETORUM* (Fern.) T. I. Chuang & Heckard Parasitic perennial herb. Common and showy in higher scrub throughout region, 2500–3000 m. *DeDecker 3694, 23 Aug 1974; Honer 1696, 4 Jul 2002.*

*CASTILLEJA LINARIIFOLIA* Benth. Parasitic perennial herb. Occasional on open dry rocky slopes and scrub throughout region, 2500–3000 m. *Honer 1073, 30 Jun 2001.*

*CASTILLEJA MINIATA* Hook. ssp. *MINIATA* Parasitic annual. Occasional along wet shady streambanks and meadows throughout region, 2500–2800 m. *DeDecker 5616, 14 Jul 1984; Honer 362, 19 Jul 2000.*

*CASTILLEJA NANA* Eastw. Parasitic perennial herb. Rare; documented

from one locality in Crooked Meadows, 2700 m. Expected elsewhere. *Holmgren & James Reveal 2926, 22 Jul 1966.*

*CASTILLEJA PILOSA* (S. Wats.) Rydb. Parasitic perennial herb. Occasional throughout region on dry meadow margins, 2100–2900 m. *DeDecker 877, 7 Jul 1958; Holmgren & James Reveal 2926, 22 Jul 1966 UC; Honer 1755, 4 Jul 2002.*

*COLLINSIA PARVIFLORA* Douglas Annual. Rare; documented from one locality on granitic soil near meadow at headwaters of Black Canyon drainage, 2700 m. *DeDecker 5626, 15 Jul 1984.*

*KECKJELLA ROTHROCKII* (A. Gray) Straw var. *ROTHROCKII* Small shrub. Rare on protected rocky slopes in pinyon zone, N side of range, 2400–2500 m. *Honer 1303, 24 Jul 2001; Honer 1668, 3 Jul 2002.*

*MIMULUS GUTTATUS* DC. Annual or perennial herb. Common along wet streambanks and springs throughout region, 2100–2800 m. *Honer 1483, 25 Aug 2001.*

*MIMULUS MEPHITICUS* E. Greene Annual. Locally abundant and showy on sand flats, occasional on pumice plateaus and sandy slopes throughout region, 2200–3300 m. *Ferris 12577, 4 Sep 1952; Honer 801, 30 May 2001.*

*MIMULUS PRIMULOIDES* Benth. ssp. *PRIMULOIDES* Perennial herb. Common along meadow and stream margins throughout region, 2400–2800 m. *Hall 11822, 7 Aug 1922 UC; Honer 442, 25 Jul 2000.*

*MIMULUS SUKSDORFII* A. Gray Annual. Rare and inconspicuous on sandy low areas in disturbed scrub, S part of region, 2000–2200 m. *Taylor 16511, 9 Jun 1998 UC; Honer 654, 28 Apr 2001.*

*OROBANCHE CORYMBOSA* (Rydb.) Ferris Parasitic perennial herb. Rare in sandy areas of scrub, 2000–2200 m. *DeDecker 4152, 2 Aug 1976; Honer 1635, 2 Jun 2002.*

*PEDICULARIS ATTOLLENS* A. Gray Perennial herb. Rare; documented from one locality at center of Wet Meadow, closely surrounded by *Carex* thatch, 2610 m. *Honer 558, 16 Aug 2000.*

*PENSTEMON CINICOLA* Keck Suffruticose perennial. Rare; documented only at Crooked Meadows. Close to *P. rydbergii* var. *oreocharis*, differing in anther length. *Taylor 6535, 28 Jun 1977 JEPS; Honer 470, 27 Jul 2000.*

*PENSTEMON DAVIDSONII* E. Greene var. *DAVIDSONII* Suffruticose perennial. Rare; documented only from high elevations on rocky pumice slopes just E of Glass Mtn. Peak, 3300 m. Often in shade of *Pinus albicaulis*. *Honer et al., 1136, 5 Jul 2001.*

*PENSTEMON PATENS* (M. E. Jones) N. Holmgren Perennial herb. Occasional on open sandy areas in Pinyon woodland, 2000–2400 m. *Honer 779, 30 May 2001.*

*PENSTEMON ROSTRIFLORUS* Kellogg Suffruticose perennial. Uncommon around W side of region, growing around granitic and basaltic outcrops in scrub and exposed ridges, ca. 2500 m. *Honer 918, 20 Jun 2001.*

*PENSTEMON RYDBERGII* Nelson var. *OREOCHARIS* (E. Greene) N. Holmgren Perennial herb. Common to locally abundant along wet and dry meadow margins throughout region, 2100–2900 m. *DeDecker 5638, 15 Jul 1984; Honer 912, 7 Jun 2001.*

*PENSTEMON SPECIOSUS* Lindley Perennial herb. Widespread and common throughout region on pumice flats, slopes, plateaus, and into conifer understory, 2300–3300 m. Showy and frequently collected. *Jack L. Reveal 168, 24 Jul 1962 UC; Breedlove 42948, 8 Jul 1977; Honer 1087, 1 Jul 2001.*

*SCROPHULARIA DESERTORUM* (Munz) Shaw Perennial herb. Uncommon on rocky slopes and cliffs. Restricted to protected crevasses and talus. Documented from one locality on Bishop Tuff talus of North Canyon, 2134 m; also seen on granitic outcrops above Long Valley. *Honer 953, 21 Jun 2001.*

\**VERBASCUM THAPSUS* L. Perennial herb. Occasional around drier areas above springs and streams. Documented from one locality at Baxter Spring, 2341 m. Expected elsewhere. *Honer 1515, 26 Aug 2001.*

*VERONICA AMERICANA* (Raf.) Schwein. Perennial herb. Common on shady muddy spring edges and streambanks throughout region,



2100–2800 m. *DeDecker 5636, 15 Jul 1984; Honer 1250, 22 Jul 2001.*

## SOLANACEAE

*CHAMAESARACHA NANA* (A. Gray) A. Gray Perennial herb. Rare; documented from one locality around rock outcrops in recently burnt scrub in Dry Fork of Black Canyon drainage, 2530 m. *Honer 1025, 29 Jun 2001.*

*NICOTIANA ATTENUATA* Torr. Annual. Occasional throughout region, restricted to disturbed roadsides and swales, 2100–2300 m. *Honer 1555, 27 Aug 2001.*

## URTICACEAE

*URTICA DIOICA* L. ssp. *HOLOSERICEA* (Nutt.) Thorne Perennial herb. Occasional along streambanks throughout region, 2100–2400 m. *Honer 1512, 26 Aug 2001.*

## VIOLACEAE

*VIOLA AUREA* Kellogg Geophyte. Uncommon on sandy slopes and cobbly flats. Documented from one locality on silty cobbly flat in pinyon zone E of Deer Spring, 2160 m. *Honer 651, 28 Apr 2001.*

*VIOLA MACLOSKEYI* F. Lloyd Geophyte. Rare; documented from one locality at Sawmill Meadow, 2745 m. *Taylor 16854, 20 Jul 1998 UC.*

*VIOLA SORORIA* Willd. ssp. *AFFINIS* (leConte) R. J. Little Geophyte. Rare; documented from one locality along shady streamside in O'Harrel Canyon, 2320 m. *Honer 080, 10 Jun 1999.*

## VISCACEAE

*PHORADENDRON JUNIPERINUM* A. Gray Parasitic perennial herb. Occasional throughout region on *Juniperus occidentalis*, 2400–2500 m. *Honer 352A, 19 Jul 2000.*

## ANGIOSPERMS—MONOCOTYLEDONS

## CYPERACEAE

*CAREX AQUATILIS* Wahlenb. var. *AQUATILIS* Perennial herb. Locally abundant along streambanks and in meadows. Documented from Dexter Canyon & Wet Meadow, ca. 2600 m. Expected elsewhere. *Honer 559, 16 Aug 2000.*

*CAREX ATHROSTACHYA* Olney Perennial herb. Scattered along stream and meadow margins. Documented streamside at Deadman Creek, and around dry meadow above Wild Cow Canyon. *Honer 529, 15 Aug 2000.*

*CAREX AUREA* Nutt. Perennial herb. Uncommon in wet shady meadows, typically around silty springs. Documented from Sawmill and Wet Meadows. *DeDecker 5605, 14 Jul 1984; Honer 1491, 26 Aug 2001.*

*CAREX CANESCENS* L. Perennial herb. Rare; documented from one locality on acidic boggy corner of Sawmill Meadow. *Taylor 16858, 20 Jul 1998 JEPS.*

*CAREX DISPERMA* Dewey Perennial herb. Rare; documented from one locality on acidic boggy corner of Sawmill Meadow. *Taylor 16856, 20 Jul 1998 JEPS.*

*CAREX DOUGLASSII* Boott Perennial herb. Widespread; locally abundant around drier edges of meadows and streams. *DeDecker 5645, 15 Jul 1984; Honer 1752, 4 Jul 2002.*

*CAREX HASSEI* L. Bailey Perennial herb. Rare; documented from one locality on acidic boggy corner of Sawmill Meadow. *Taylor 16853, 20 Jul 1998 JEPS.*

*CAREX HELLERI* Mackenzie Perennial herb. Rare on alpine pumice flats and slopes. Documented from Glass Mtn. Peak. *Taylor 6704A, 28 Jul 1977 JEPS; Honer & Hetzler 625, 18 Aug 2000.*

*CAREX HETERONEURA* W. Boott var. *HETERONEURA* Perennial herb. Oc-

casional in shady understory around drier margins of meadows, N side of range. *Honer 1327, 25 Jul 2001.*

*CAREX LANUGINOSA* Michx. Perennial herb. Scattered along streambanks and meadow margins throughout region. Often forming large basal clumps. *Honer 1498, 26 Aug 2001.*

*CAREX MARIPOSANA* L. Bailey Perennial herb. Uncommon; documented from one locality in dry wash near Black Mtn. Expected elsewhere. *Honer 1715, 4 Jul 2002.*

*CAREX MICROPTERA* Mack. Perennial herb. Occasional to locally abundant around margins of meadows and streams on N side of range. *Honer 1496, 26 Aug 2001.*

*CAREX NEBRASCENSIS* Dewey Perennial herb. Widespread; often locally abundant on wet streambanks and meadows throughout region. *Taylor 7746, 2 Jul 1980 JEPS; Honer 1547, 28 Sep 2001.*

*CAREX PRAEGRACILIS* W. Boott Perennial herb. Common; sometimes locally abundant on wet alkaline areas of saltgrass meadows in Long Valley. Documented from one locality. *Honer 1809, 23 Jul 2002.*

*CAREX SCIRPOIDEA* Michaux var. *PSEUDOSCIROIDEA* (Rydb.) Cronq. Perennial herb. Rare; documented from one locality on dry silty banks of Deadman Creek. *Honer 535, 15 Aug 2000.*

*CAREX SIMULATA* Mackenzie Perennial herb. Documented from one occurrence on moist streambanks of Dexter Creek. Expected elsewhere. *Honer 478, 13 Aug 2000.*

*CAREX SUBNIGRICANS* Stacey Perennial herb. Locally abundant on moist, somewhat alkaline meadow drainages. Documented from one locality at Crooked Meadows. Expected elsewhere. *Honer 1502, 26 Aug 2001.*

*CAREX UTRICULATA* Boott Perennial herb. Common on meadow edges, N side of region. *DeDecker 5618, 14 Jul 1984; Honer 1501, 26 Aug 2001.*

*ELEOCHARIS MACROSTACHYA* Britton Perennial herb. Occasional to locally abundant, growing in water at edges of low elevation streams of Owens River and Adobe Creek. *Honer 1788, 23 Jul 2002.*

*ELEOCHARIS PAUCIFLORA* (Light.) Link Perennial herb. Locally abundant in wet meadows on N side of region, especially at Sawmill Meadow. *Taylor 16861, 20 Jul 1998 JEPS; Honer 453, 25 Jul 2000.*

*SCIRPUS MICROCARPUS* J. Presl & C. Presl Perennial herb. Occasional in shady wet areas along streams and meadows. *Taylor 16997, 24 Aug 1998 JEPS; Honer 355, 19 Jul 2000.*

## HYDROCHARITACEAE

*ELODEA CANADENSIS* Rich. Aquatic perennial. Common in the flow of Owens River, Long Valley. *Honer 1778, 23 Jul 2002.*

## IRIDACEAE

*IRIS MISSOURIENSIS* Nutt. Perennial herb. Common and showy in grazed meadows and along streambanks throughout region. *Honer 068, 10 Jun 1999.*

*SISYRINCHIUM HALOPHILUM* E. Greene Perennial herb. Common along streambanks and around alkaline meadows, especially in Long Valley. *Honer 1789, 23 Jul 2002.*

*SISYRINCHIUM IDAHOENSE* E. Bickn. var. *IDAHOENSE* Perennial herb. Common around silty meadow margins and springs. *DeDecker 5606, 14 Jul 1984; Honer 352B, 19 Jul 2000.*

*SISYRINCHIUM IDAHOENSE* E. Bickn. var. *OCCIDENTALE* (Bickn.) D. Henderson Perennial herb. Occasional along streamside meadows and silty banks. *Honer 1171, 20 Jul 2001.*

## JUNCACEAE

*JUNCUS BALTICUS* Willd. Perennial herb. Common; locally abundant throughout region on meadow margins and streambanks. *Honer 500, 13 Aug 2000.*

*JUNCUS MACRANDRUS* Coville Perennial herb. Common in shady

moist areas of streambanks and meadow edges. Often intermixed with *J. balticus*. *Honer 566, 16 Aug 2000.*

*JUNCUS MEXICANUS* Willd. Perennial herb. Common throughout region on drier meadow edges and streambanks, occasionally in dry washes. *Honer 1687, 4 Jul 2002.*

*JUNCUS NEVADENSIS* S. Watson Perennial herb. Uncommon; documented from one occurrence at Sawmill Meadow. Expected elsewhere. *DeDecker 5612, 14 Jul 1984.*

*JUNCUS ORTHOPHYLLUS* Cov. Perennial herb. Common on streambanks and meadow edges of mid-elevations. *Taylor 6528, 29 Jun 1977 JEPS; DeDecker 5609, 14 Jul 1984; Honer 1173, 20 Jul 2001.*

## JUNCAGINACEAE

*TRIGLOCHIN CONCINNA* Burt Davy var. *DEBILIS* (M. E. Jones) J. Howell Aquatic perennial herb. Common to locally abundant in Long Valley saltgrass meadows. *Honer 1805, 23 Jul 2002.*

*TRIGLOCHIN MARITIMA* L. Aquatic perennial herb. Rare; documented only from one locality on wet humic shady bog at margin of Sawmill Meadow. *DeDecker 5617, 7 Jul 1984; Taylor 16860, 20 Jul 1998 JEPS; Honer 1378, 31 Jul 2001.*

## LILIACEAE

*ALLIUM ATRORUBENS* S. Watson var. *ATRORUBENS* Geophyte. Occasional and inconspicuous on open granitic rocky soils of E side of range. *Taylor 7981, 13 Jun 1982 JEPS; Honer 145, 14 May 2000.*

*ALLIUM BISCEPTRUM* S. Watson var. *BISCEPTRUM* Geophyte. Occasional on moist meadow and stream edges throughout range. Apparently tolerant of grazing. *Honer 1699, 4 Jul 2002.*

*ALLIUM CAMPANULATUM* S. Watson Geophyte. Uncommon; documented from one locality around moist seep in Wildrose Canyon. *Honer 724, 27 May 2001.*

*ALLIUM VALIDUM* S. Watson Geophyte. Uncommon; documented once from moist edge of Sawmill Meadow. *Honer 462, 25 Jul 2000.*

*CALOCHORTUS BRUNEAUNIS* Nelson & J. F. Macbride Geophyte. Occasional widely dispersed individuals throughout Sagebrush scrub. Often growing up through shrubs. *Honer 1026, 29 Jun 2001.*

*LEUCOCRINUM MONTANUM* Nutt. Geophyte. Rare; collected from one locality in Long Valley on silty moist wheel ruts in in frost-heaved soil holding moisture late. *Honer 128, 13 May 2000.*

*LILIUM PARVUM* Kellogg Geophyte. Uncommon; restricted to shady moist areas along streams and meadow edges. Documented from O'Harrel Canyon and Wet Meadow. *Honer 369, 19 Jul 2000.*

*SMILACINA STELLATA* (L.) Desf. Perennial herb. Locally abundant in shady understory along wet and dry drainages throughout range. *Honer 101, 11 Jun 1999.*

*VERATRUM CALIFORNICUM* Durand var. *CALIFORNICUM* Perennial herb. Occasional on shady moist meadow and spring margins. *Honer 1747, 4 Jul 2002.*

*ZIGADENUS PANICULATUS* (Nutt.) S. Watson Geophyte. Occasional on low grazed bajadas around 2100 m elev. Often growing from rock bases. *Honer 161, 17 May 2000.*

## ORCHIDACEAE

*PLATANThERA HYPERBOREA* (L.) Lindley Geophyte. Rare; documented from one locality in shady wet riparian area below O'Harrel Canyon Spring. *Honer 363, 19 Jul 2000.*

*PLATANThERA LEUCOSTACHYS* (Pursh) Lindley Geophyte. Common in shady wet areas of streams and meadow margins, 2300–2800 m. *Honer 1058, 30 Jun 2001.*

*SPIRANTHES ROMANZOFFIANA* Cham. Geophyte. Rare; documented from one locality in wet humic shady bog on margin of Sawmill Meadow. *Taylor, 17004, 24 Aug 1998 JEPS.*

## POACEAE

*ACHNATHERUM HYMENOIDES* (Roemer & Schultes) Barkworth Perennial herb. Widely scattered throughout region in disturbed and intact scrub, 2000–2600 m. *Honer 1039, 29 Jun 2001.*

*ACHNATHERUM NEVADENSE* (B. Johnson) Barkworth Perennial herb. Occasional to locally common on granitic E side of range in scrub and dry grazed meadows, 2600–2900 m. *Honer 1688, 4 Jul 2002.*

*ACHNATHERUM OCCIDENTALE* (Thurber) Barkworth ssp. *CALIFORNICUM* (Merr. & Burt Davy) Barkworth Perennial herb. Common and widespread throughout region. In scrub, on sand flats, and on pumice plateaus to 3200 m at Glass Mtn. peak. *DeDecker 3687, 23 Aug 1974, Honer 1673, 3 Jul 2002.*

*ACHNATHERUM PINETORUM* (M. E. Jones) Barkworth Perennial herb. Rare; documented from one locality on sharp obsidian ridge just below Glass Mtn. peak, 3256 m. *Honer et al., 1147B, 5 Jul 2001.*

*ACHNATHERUM SPECIOSUM* (Trin. & Rupr.) Barkworth Perennial herb. Occasional on slopes, bajadas, and wash margins, usually growing from rock bases. Pinyon woodland, 2000–2500 m. Preferring, but not restricted to granitic substrate. *Honer 842, 5 Jun 2001.*

*ACHNATHERUM THURBERIANUM* (Piper) Barkworth Perennial herb. Uncommon in scrub and on sand flats. *Honer 256, 13 Jun 2000.*

\**AGROSTIS CAPILLARIS* L. Perennial herb. Uncommon; documented from one locality on grazed streambank along Adobe Creek. Expected elsewhere. *Honer 1535, 27 Aug 2001.*

*AGROSTIS IDAHOENSIS* Nash Perennial herb. Rare; documented from one locality on disturbed jeep trail in lodgepole understory near dry meadow at 2700 m. Expected elsewhere. *Honer 417, 21 Jul 2000.*

*AGROSTIS PALLENS* Trin. Perennial herb. Locally common in meadows and along streambanks 2500–2700 m. *Honer & Guiliani 1400, 1 Aug 2001.*

*AGROSTIS SCABRA* Willd. Perennial herb. Occasionally scattered along drier meadow margins, ca. 2600 m. *DeDecker 5640, 15 Jul 1984, Honer 1330, 25 Jul 2001.*

*AGROSTIS VARIABILIS* Rydb. Perennial herb. Rare; documented from one locality along wet streambank of Dexter Creek, 2622 m. *Honer 477, 13 Aug 2000.*

*ALOPECURUS AEQUALIS* Sobol. Perennial herb. Occasional along muddy streambanks and gravel bars. *Taylor 6540, 28 Jun 1977 JEPS; Honer 530, 15 Aug 2000.*

*BROMUS ANOMALUS* Fourn. Perennial herb. Rare; documented from one locality on hill above Crestview, growing up through shrubs in scrub, 2530 m. *Honer 1236, 22 Jul 2001.*

*BROMUS CARINATUS* Hook. & Arn. var. *CARINATUS* Perennial herb. Occasional to locally common on disturbed slopes and grazed areas; occasional in intact scrub. *Honer 1733, 4 Jul 2002.*

*BROMUS CILIATUS* L. Perennial herb. Rare; documented from one locality in scrub above Deadman Creek, 2200 m (possibly waif?). *Honer 531, 15 Aug 2000.*

\**BROMUS TECTORUM* L. Annual. Locally abundant and dominant on burnt slopes above Long Valley and occasional on disturbed sites throughout region. Nasty invasive annual increasing frequency of fire regimes and reducing reestablishment of native shrubs. *Honer 775, 29 May 2001.*

*CALAMAGROSTIS STRICTA* (Timm) Koeler ssp. *STRICTA* Perennial herb. Occasional along streamsides and in meadows, 2200–2800 m. *Honer 540, 15 Aug 2000.*

*DESCHAMPSIA CESPITOSA* (L.) Beauv. ssp. *CESPITOSA* Perennial herb. Common on shady wet streamsides and meadow margins throughout region. *Honer 1292, 24 Jul 2001.*

*DISTICHLIS SPICATA* (L.) Greene Perennial herb. Locally abundant on wet and dry alkaline areas of Long Valley. Occasional on similar low streamside and road edge habitats throughout region, 1900–2100 m. *Honer 1430, 22 Aug 2001.*

*ELYMUS ELYMOIDES* (Raf.) Swezey ssp. *CALIFORNICUS* (J. G. Smith) Barkworth Perennial herb. Common on dry meadow edges and

- into surrounding understory; occasional on high pumice plateaus. *Honer 1337, 25 Jul 2001.*
- ELYMUS ELYMOIDES (Raf.) Swezey ssp. ELYMOIDES Perennial herb. Widespread and common throughout region; in dry scrub, sand flats, exposed slopes, disturbed areas, and on Glass Mtn. peak. *Honer 1661, 3 Jul 2002.*
- ELYMUS MULTISETUS (J. G. Smith) Burt Davy Perennial herb. Occasional to locally common in openings in scrub and open slopes and ridgelines throughout region, 2000–2900 m. *Honer 1205, 21 Jul 2001.*
- ELYMUS TRACHYCAULUS (Link) Shinn. ssp. SUBSECUNDUS (Link) Gould Perennial herb. Rare; documented from one locality on dry areas of Wet Meadow, 2600 m. Co-occurring with ssp. *trachycaulis*. *Honer 1497, 26 Aug 2001.*
- ELYMUS TRACHYCAULUS (Link) Shinn. ssp. TRACHYCAULUS Perennial herb. Common in grazed/disturbed meadows and stream edges, 2500–2800 m. *Jack L. Reveal 582, 21 Jul 1963 UC; Honer 1734, 4 Jul 2002.*
- \*ELYTRIGIA INTERMEDIA (Host) Nevski ssp. INTERMEDIA Perennial herb. Rare; documented from one locality near Crestview on disturbed roadside. Presumably a waif. *Honer 1580, 29 Sep 2001.*
- FESTUCA IDAHOENSIS Elmer Perennial herb. Rare; documented from one locality along disturbed dry streambank of Deadman Creek, 2200 m. Expected elsewhere. *Honer 552, 15 Aug 2000.*
- GLYCERIA ELATA (Nash) A. Hitchc. Perennial herb. Rare; documented from one locality in O'Harrel Canyon, along shady wet streambank below spring in aspen woodland, 2561 m. *Honer 368, 19 Jul 2000.*
- HESPEROSTIPA COMATA (Trin. & Rupr.) Barkworth ssp. COMATA Perennial herb. Common throughout region in disturbed scrub, 2100–2600 m. Abundant on burn area of Dry Fork of Black Canyon. *Honer 1034, 29 Jun 2001.*
- HORDEUM BRACHYANTHERUM Nevski ssp. BRACHYANTHERUM Perennial herb. Occasional on disturbed moist streambanks, gravel bars, and grazed meadows throughout region, 2000–2700 m. *Honer 1781, 23 Jul 2002.*
- HORDEUM JUBATUM L. Perennial herb. Occasionally scattered in dense streamside thatch along lower streams of region, ca. 2000 m. *Honer 1782, 23 Jul 2002.*
- KOELERIA MACRANTHA (Ledeb.) J. A. Schultes Perennial herb. Occasional but widespread throughout region in dry scrub, shady understory, and dry meadows, 2100–3000 m. *Honer 1749, 4 Jul 2002.*
- LEYMUS CINEREUS (Scribner & Merr.) A. Love Perennial herb. Scattered throughout region in open scrub and rocky slopes, 2100–2700 m. *Honer 1473, 25 Aug 2001.*
- LEYMUS TRITICOIDES (Buckley) Pilger Perennial herb. Uncommon on open or disturbed slopes and sand flats throughout region, 2000–2500 m. *Honer 1037, 29 Jun 2001.*
- MELICA STRICTA Bol. Perennial herb. Uncommon on rocky slopes throughout region, apparently restricted to sheltered shady microhabitats around granitic boulders, 2200–2500 m. *Honer 773, 29 May 2001.*
- MUHLENBERGIA ASPERIFOLIA (Nees & Meyen) Parodi Perennial herb. Rare; documented from one locality on streambank of Owens River, below saltgrass meadow in Long Valley, 2080 m. Expected elsewhere. *Honer 1719, 23 Jul 2002.*
- MUHLENBERGIA FILIFORMIS (Thurber) Rydb. Annual. Uncommon on moist streambanks around Crooked Meadows and Dexter Creek, 2600 m. *Honer 476, 13 Aug 2000.*
- MUHLENBERGIA RICHARDSONIS (Trin) Rydb. Perennial herb. Widespread throughout region in different habitats; shady canyon bottoms, sand flats, dry washes, meadow edges, and alpine pumice plateau of Glass Mtn. peak, 2100–3300 m. *DeDecker 3688, 23 Aug 1974; Honer 963, 21 Jun 2001.*
- ORYZOPSIS ×BLOOMERI (Bolander) Ricker Perennial herb. Uncommon in disturbed and intact scrub, 2200–2500 m. Often co-occurring with *Achnatherum hymenoides* and/or *Hesperostipa comata*. *Honer 1643, 3 Jun 2002.*
- PHALARIS ARUNDINACEA L. Perennial herb. Rare; documented from one locality along wet disturbed streambank of Deadman Creek, 2183 m. *Honer 1257, 22 Jul 2001.*
- PHLEUM ALPINUM L. Perennial herb. Occasional to locally abundant along drier meadow edges in lodgepole understory at Crooked and Wet Meadows, 2500–2700 m. Expected elsewhere in similar habitats. *Honer 1339, 25 Jul 2001.*
- POA FENDLERIANA (Steudel) Vasey ssp. LONGILIGULA (Scribn. & Williams) Soreng Perennial herb. Occasional; documented from one locality in grazed and disturbed scrub near Clark Canyon, 2256 m. Expected elsewhere. *Honer 739, 28 May 2001.*
- \*POA PRATENSIS L. ssp. PRATENSIS Perennial herb. Common on disturbed/grazed meadows and springs throughout region, 2200–2800 m. *Honer 1745, 4 Jul 2002.*
- POA SECUNDA J. Presl ssp. JUNCIFOLIA (Scribn.) Soreng Perennial herb. Occasional in meadows and on streamsides of region, 2000–2700 m. Locally common around saltgrass meadows of Long Valley. *Jack L. Reveal 164, 24 Jul 1962; Honer 1796, 23 Jul 2002.*
- POA SECUNDA J. Presl ssp. SECUNDA Perennial herb. Occasional in Pinyon woodland throughout region, 2200–2400 m. *Honer 907, 7 Jun 2001.*
- PUCCINELLIA LEMMONII (Vasey) Scribner Perennial herb. Widely scattered in low saltgrass meadows of Long Valley. Documented from one locality. *Honer 1812, 23 Jul 2002.*
- TRisetum SPICATUM (L.) Richter Perennial herb. Occasional on dry pumice slopes and plateaus throughout region; locally abundant along moist streambanks and meadows, 2500–3300 m. *Taylor 6532, 29 Jun 1977 UC; Honer & Hetzler 1774, 9 Jul 2002.*

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