

Plants of Berlin-Ichthyosaur State Park

Nye County, Nevada

*A List of Vascular Plant Species Observed in and around the Park,
with Notes on their Habitats and Distinguishing Features*



Berlin, Nevada



Astragalus iodanthus



Calochortus bruneanus



Physaria chambersii



Phlox longifolia

THIS GUIDE TO PLANTS AT BERLIN-ICHTHYOSAUR STATE PARK is intended to help visitors who are curious about plant life in the area recognize some of the rich biodiversity of this park and the Great Basin.

Native and naturalized plant species are listed by major taxonomic group (Gymnosperms, Dicots, and Monocots), then alphabetically by family and species. Each plant is described very briefly with regard to its habitat and/or location in the park, plus a few prominent identifying characteristics. Several cultivated, ornamental plants in the park are listed in a separate section at the end of the list.

This is a preliminary list. Some identifications may be incorrect and some are uncertain for plants that need to be keyed again with appropriate material. Additional plants not yet included are to be expected.

Sources for this list include:

- 1) Field observations by Tim Messick, 2018–2020.
- 2) Observations posted by others on iNaturalist (www.iNaturalist.org).
- 3) Specimen records in the Intermountain Regional Herbarium Network (<http://intermountainbiota.org/portal/index.php>).

The current version of this guide is available as a free downloadable PDF from <https://bodiehillsplants.com/downloads/>.

Gymnosperms

Cupressaceae (Cypress or Cedar family)

Juniperus osteosperma – **Utah juniper** – Widespread on hillsides and mountain slopes in pinyon-juniper woodland. Trees with scale-like leaves and bluish to red-brown seed cones (“juniper berries”).

Ephedraceae (Ephedra family)

Ephedra nevadensis – **Nevada ephedra** – Occasional, mostly in sagebrush scrub. Leafless shrubs with jointed, much-branched stems; twigs mostly pale gray-green, spreading.

Ephedra viridis – **Green ephedra, Mormon tea** – Occasional in pinyon-juniper woodland and on rock outcrops. Leafless shrubs with jointed, much-branched stems; twigs mostly yellow-green, ascending, brush-like.

Pinaceae (Pine family)

Pinus monophylla – **Single-leaf pinyon** – Widespread on hillsides and mountain slopes in pinyon-juniper woodland. Trees with just one leaf (“needle”) per fascicle (not 2, 3, or 5) and cones bearing edible seeds.

Dicots


Adoxaceae (Muskroot or Elderberry family)

Sambucus caerulea – **Blue elderberry** – Occasional on shaded lower slopes along Richmond Canyon Trail and in Union Canyon. Shrubs with large, pinnately compound leaves and flat-topped inflorescences of tiny white flowers.

Amaranthaceae (Amaranth family) – includes genera formerly in Chenopodiaceae (Goosefoot family)

Atriplex confertifolia – **Shadscale** – Sagebrush scrub and pinyon-juniper woodland. A low shrub to ~1 m tall, with many spine tipped branches; leaves are densely gray-scaly, ± elliptic-ovate; male and female plants are separate. Staminate (male) flowers tiny, reduced, yellow, densely clustered. Pistillate (female) flowers enclosed in 2 elliptic, round or ± triangular bracts fused at base, with smooth to few-toothed margins.

Grayia spinosa – **Spiny hopsage** – Sagebrush scrub and pinyon-juniper woodland. Shrubs with stiff, sharp-pointed branches; thin white lines or ribs run the length of the branches; flowers in dense terminal spikes; male and female generally on separate plants; female flowers subtended by showy, flat, ± round bracts that mature from yellow-green to pink-red.

Halogeton glomeratus – **Saltlover**  – Common, weedy, roadsides and disturbed places. Inconspicuous in spring and early summer: red stem and fleshy green leaves with short bristle at tip. In late summer and fall very visible and distinctive with dense clusters of tiny fruits bearing pale greenish to white fan-shaped membranes.

Krascheninnikovia lanata – **Winter fat** – Scattered in sagebrush scrub on alluvial fans; the dominant plant in clayey flats in Lone Valley. A small subshrub, generally erect, with densely white-hairy stems and fruits; leaf margins rolled under. Often visible from a

distance as a distinctively white or bluish-white plant or population of plants.

Salsola paulsenii – **Barbwire Russian thistle** **N** – Weedy, especially in disturbed and sandy soils. Much-branched annuals, stems sometimes red-stripped. Leaves small, green, spine-tipped. Sepals thickened in fruit, winged, with a sharp spine at the apex. *Salsola* are tough to identify and unpleasant to handle; other species could be present.

Apiaceae [also called **Umbelliferae**] (**Carrot or Umbel family**)

Cymopterus longipes var. *ibapensis* – **Longstalk springparsley** – Gravelly slopes in pinyon-juniper woodland; campground, Nature Trail, and Richmond Canyon Trail. Springparsley fruits have wings on both the lateral and dorsal ribs. Other springparsleys may be present. (Look for *C. globosus*.)

Lomatium sp. – **Biscuitroots** – Although none have been observed yet, one or more biscuitroot species should be expected here. Biscuitroot fruits have wings on only the lateral ribs. (Look for *L. macrocarpum* and *L. nevadense*; possibly also *L. foeniculaceum*, *L. nudicaule*, and *L. ravenii* var. *paiutense*.)

Apocynaceae (**Dogbane family**) – includes genera formerly in **Asclepiadaceae** (**Milkweed family**)

Asclepias cryptoceras – **Humboldt Mountains milkweed** – Uncommon, on gravelly slopes in pinyon-juniper woodland. Low, spreading perennial herbs with \pm round to heart-shaped, opposite leaves and milky sap. Flowers pink-tan, highly modified, with hood-like filament column appendages.

Asteraceae [also called **Compositae**] (**Sunflower family**)

Artemisia ludoviciana – **Silver wormwood** – Moist banks of Union Creek at the old orchard. Erect perennial herb; stems and foliage gray-green; leaves narrow, entire, to deeply few-pinnate with narrow lobes; flower heads nodding, along upper stem.

Artemisia nova – **Black sagebrush** – Hillsides in rocky, shallow soils, often dry sites on sunny slopes. Low shrubs with leaves < 2.5 cm long, wedge-shaped, 3-toothed at tip, except on flower-stems; leaves green, darker than other *Artemisia*, sparsely hairy with dark glands. Flowering stalks reddish-brown, bracts glossy, persistent.

Artemisia spinescens (= *Picrothamnus desertorum*) – **Budsage** – Occasional in scrub vegetation on alluvial fans and hill slopes; sometimes associated with Baileys greasewood. Small, mound-like shrubs with thorny branches, leaves divided into 2–5 narrow segments, and flower heads in tight, ball-like clusters. Leaves and inflorescences are very different from other woody *Artemisia*.

Artemisia tridentata subsp. *tridentata* – **Basin big sagebrush** – On deep soils in the bottom of West Union Canyon. Tallest of the sagebrushes, with a single main stem and trunk-like base. Inflorescences are broad, heavy, bending down the flowering branches. Note: **Sagebrushes** are diverse in the Great Basin and often difficult to identify. Other species and varieties may be present at Berlin-Ichthyosaur, such as *A. arbuscula* – **Low sagebrush**, *A. cana* – **Silver sagebrush**, *A. tridentata* subsp. *vaseyana* – **Mountain sagebrush**, and *A. tridentata* subsp. *wyomingensis* – **Wyoming sagebrush**.

Balsamorhiza sagittata – **Arrowleaf balsamroot** – On locally moist or partly shaded north slopes in woodland, Richmond Canyon. Bright yellow “sunflowers” with arrow-shaped leaves, deeply lobed at base of blade.

Chaenactis douglasii – **Douglas’ dustymaiden, Pincushion plant** – Occasional in sagebrush scrub. Gray-green stems and foliage with seeply divided, mostly basal leaves and white to pinkish flowers in heads with no ray flowers.

Chaetadelpha wheeleri – **Wheeler’s dune-broom** – Reported from West Union Canyon, probably near mouth of canyon, but more typically in sandy soils in valleys. Many-stemmed and much-branched perennial herb with linear leaves. Flower heads slender, star-shaped, with five white to pale lavender ray flowers and long, curled stigmas.

Chrysothamnus viscidiflorus – **Yellow rabbitbrush** – Common woody shrubs to ~1.2 m tall, in sagebrush scrub or in canyon bottoms in pinyon-juniper woodland. Leaves very green, narrow, to ~4 cm long, often with a distinctive twisted or wavy-margined appearance. Flower heads clustered, with bright yellow flowers mid-summer to fall.

Crepis acuminata – **Tapertip hawksbeard** – Occasional in scrub and woodland areas, West Union Canyon. Tall perennial herbs with basal and stem leaves mostly lance-shaped and deeply pinnately lobed. Flowers bright yellow in slender heads on tall, branched stems.

Dieteria canescens – **Hoary aster** – Scrub and woodland areas. Few-branched annual or perennial herbs with narrow leaves and daisy-like flower heads with \pm purple rays and yellow disk; phyllaries often reflexed.

Ericameria nana – **Dwarf goldenbush** – Dry, rocky outcrops on hillsides and cliffs. Small shrubs, typically in rocky crevices, with slender, \pm sticky leaves to ~2 cm long. Heads with few small, yellow flowers appear in summer–fall.

Abbreviations

N	= naturalized (non-native)
~	= about, approximately
\pm	= more or less
>	= greater than, more than
<	= less than, fewer than
mm	= millimeter
cm	= centimeter (=10 mm)
dm	= decimeter (=10 cm)
m	= meter (=10 dm)

- Ericameria nauseosa* – **Rubber rabbitbrush** – Dry, well drained soils in canyons. Many-branched shrub, mostly 6–12 dm tall, with narrowly linear leaves to ~5 cm long; stems ± white, with dense, felt-like covering of hairs; flowers yellow, in abundant slender heads in late summer to fall. Widespread, variable in western North America, with several named varieties.
- Erigeron aphanactis* – **Rayless shaggy fleabane** – Scrub and woodland habitats. Low perennial herbs to ~2 dm tall with many stems and very narrow, stiffly spreading-hairy leaves; flower heads, bright yellow, button-like, with no ray flowers.
- Glyptopleura marginata* – **Carvaseed** – Occasional in gravelly to sandy soils. Peculiar annuals with crowded, ground-hugging, blue-green leaves with rounded lobes and conspicuous white crust-like margins; flower heads white.
- Iva axillaris* – **Poverty weed** – Locally common on roadsides or seasonally wet disturbed places. Perennial herbs with erect stems to ~5 dm tall; leaves elliptic, to ~2.5 cm long; heads small, pendant, bowl-shaped, with no ray flowers.
- Layia glandulosa* – **Whitedaisy tidytip** – Scrub and woodland habitats. Delicate, slender-stemmed annuals with glandular daisy-like heads of white ray and yellow disk flowers.
- Packera multilobata* – **Lobeleaf groundsel** – Scrub and woodland habitats; canyons and hillsides. Perennial herbs; leaves basal and on lower stem, deeply divided; flower heads to ~4 cm across with bright yellow rays and a darker yellow disk; stems purple-reddish toward base, branched above, with numerous flower heads.
- Pleiocanthus spinosus* – **Thorny skeletonweed** – Along roads or in gravelly places. Low subshrubs with rigidly spreading, thorn-tipped branches; flowers 3–5 per head, pale pink or white to bright magenta; woolly hair in axils of bud scales just below ground level is unique, but not easily viewed as the abundant thorns are sharp!
- Tetradymia glabrata* – **Littleleaf horsebrush** – Occasional on open slopes in scrub and woodland habitats. Woody shrubs to ~1.2 m tall, with many stems and branches; leaves linear, green, to ~1.5 cm long; flowers slender, bright yellow, 4 per head; heads with just 4 phyllaries (bracts around the flower head). Thorns absent (some other horsebrush species, not yet seen at the park, have many sharp, straight or curved thorns.)
- Townsendia scapigera* – **Nevada grounddaisy** – Infrequent on slopes and openings in sagebrush scrub. Low, clumped perennial herbs with wide, showy, daisy-like flower heads often barely above the foliage. Rays white to pink, often darker on back; disk flowers yellow; leaves narrowly spoon-shaped with short stiff adpressed hairs. Delightful to find flowering among the sagebrush.

Boraginaceae (Borage family) – see also Hydrophyllaceae, which is now often included in Boraginaceae

- Amsinckia tessellata* – **Bristly fiddleneck** – Locally abundant in disturbed soils around buildings and along roads. Native, but weedy. Annual herbs with bristly foliage, erect stems usually <0.5 m tall (rarely to 1 m); inflorescences coiled (cymes); flowers orange-tinted yellow.
- Cryptantha watsonii* – **Watson's cryptantha** – Dry slopes, often in partial shade near or under trees. Annual herbs with erect, few-branched stems, bristly stems and foliage; leaves scattered, narrow; flowers tiny, white, 5-lobed; fruits are smooth, shiny nutlets.
- Greeneocharis circumscissa* – **Cushion cryptantha** – Sandy or gravelly places in scrub habitats. Low, rounded annuals, rough-hairy throughout, with narrow leaves and tiny white flowers. The mature calyx is “circumscissile,” breaking off around its middle, leaving the cup-like basal portion.
- Lappula occidentalis* var. *cupulata* – **Flat-spine sheepburr** – Gravelly or disturbed places. Annual herbs, few to many-branched; inflorescence long, unbranched, coiled near the tip; flowers tiny, white. Most notable feature is the crown of marginal prickles all around each nutlet, the prickles wide and ± fused at their bases.
- Mertensia oblongifolia* – **Sagebrush bluebell** – Seen elsewhere in the Shoshone Mountains. May be here, among sagebrush. Perennial herbs with clusters of drooping blue to pinkish flowers that are longer than wide.
- Oreocarya flavoculata* – **Yellow-eyed cryptantha** – Scrub and woodland habitats. Perennial herb; leaves and stems densely hairy; corolla white, 5-lobed, with a bright yellow “appendage” at the base of each lobe; nutlets 2–4, rough.
- Oreocarya humilis* – **Low cryptantha** – Expected here, but not yet confirmed. Similar to *O. flavoculata*, but plants and flowers shorter, smaller.
- Plagiobothrys scouleri* var. *hispidulus* (= *P. hispidulus*) – **Hairy popcorn-flower** – Common at moist, non-saline places in the Great Basin; possibly here at wet sites in West Union Canyon. Annuals with mostly prostrate, spreading stems, ± linear leaves, tiny white 5-lobed flowers, and 4 papillate-dentate nutlets.

Brassicaceae (Mustard family)

- Alyssum desertorum* – **Desert madwort** ☞ – Occasional in sagebrush and disturbed areas. Annual herbs 1–2 dm tall with narrow, oblanceolate leaves; fruits resemble *Lepidium*, but hairs stellate (*Lepidium* hairs simple or absent).

- Boechera* sp. – **Rockcress** – Species to be determined, possibly more than one here. Occasional in sagebrush and woodland. Slender perennial herb with branched hairs; leaves largest near base, stem leaves sessile, decreasing in size upward; flowers violet/purple with 4 petals; fruits long, slender, spreading.
- Caulanthus crassicaulis* – **Thick-stem wild cabbage** – Occasional in woodland. Perennial herb with single tapered stem, thumb-thick near base; basal leaves entire to pinnately lobed, stem leaves smaller, narrow; flowers urn-shaped, usually hairy, nearly sessile along mid/upper stem, petals 4, purple.
- Descurainia sophia* – **Flixweed, Tansy-mustard** **N** – Very common, weedy, especially in disturbed soil and in leaf litter under trees. Annual herb with dendritic hairs; stems erect, un-branched except near top; leaves twice or 3x pinnate, the segments ± linear; flowers yellow, petals 4; fruits linear, curved upward.
- Lepidium appelianum* – **Hairy white-top** **N** – Disturbed areas, near buildings in Berlin. Perennial herb, usually with several stems; leaves ± lanceolate, base lobed to clasping; flowers white, petals 4, in a spreading, branched panicle at top of stem; fruit spheric, inflated, densely short-hairy.
- Lepidium perfoliatum* – **Clasping pepperweed** **N** – Common weed of roadsides and disturbed places. Annual or biennial herb, green to purplish; stems ± hairless, branched above middle; basal leaves pinnately lobed or divided; stem leaves ± heart-shaped, deeply clasping, entire; flowers small, inconspicuous, pale yellow; fruits 3–4 mm across, ± round, ± flat, very shallowly notched at tip.
- Nasturtium officinale* – **Water cress** – Springs and seeps, old orchard on Union Creek. Perennial herb; stems mostly prostrate, spreading; leaves pinnately compound, leaflets ± ovate to round; flowers small, white, petals 4.
- Phoenicaulis cheiranthoides* – **Daggerpod** – Rocky or gravelly slopes. Perennial herb with woody base; leaves mostly basal, ± oblanceolate, green to bluish, densely branched-hairy; flowers ± purple, petals 4; fruits distinctive in size and shape, 2–6 cm long, lanceolate to linear, flat, hairless, purplish, spreading, on pedicels 1–3 cm long.
- Physaria chambersii* – **Chambers' twinpod** – Occasional on clayey slopes in sagebrush and woodland. A very distinctive plant. Leaves in basal rosette, obovate to round; flowers and fruits densely clustered on short stems; petals 4, bright yellow; fruits strongly inflated in 2 bladderly, ± kidney-shaped halves, tip deeply notched, densely short-hairy, often purplish in age. *Physaria kingii* (**King's bladderpod**) may also occur in the area.
- Sisymbrium altissimum* – **Tumble mustard** **N** – Common weed in disturbed and/or moist areas. Robust annual herbs with spreading basal rosette of pinnately lobed leaves; upper stem leaves finely dissected into linear segments; flowers yellow, petals 4; fruits linear or awl-shaped, 6–9 cm long.
- Stanleya elata* – **Panamint prince's plume** – Similar to *S. pinnata* (see below), but leaves entire (or lowest leaves occasionally few-lobed); fruits often more irregularly bent. Less common in the park vicinity than *S. pinnata*; probably more prevalent in valleys.
- Stanleya pinnata* – **Prince's plume** – Pinyon-juniper woodland, often in leaf litter near or under pines. Showy perennial herbs or subshrubs 3–12 dm tall; basal and lower stem leaves pinnately lobed; upper stem leaves entire or few-lobed; flowers yellow, many in a dense, elongated, unbranched inflorescence; fruits 3–9 cm long, spreading, bending down on stalked pedicel.
- Strigosella africana* – **African mustard** **N** – A weed of disturbed soils; uncommon, along the road in West Union Canyon. Annual herb with stiff stems to 3 dm tall; hairs both simple and tree-like; leaves simple, with margins toothed to pinnately lobed; flowers violet to pink, petals 4; fruit ± straight, 3–6 cm long, ascending.

Cactaceae (Cactus family)

- Opuntia polyacantha* – **Starvation prickly-pear** – Sagebrush scrub and pinyon-juniper woodland. These low cacti have very long spines on their flattened “pads” and showy yellow flowers.

Campanulaceae (Bellflower family)

- Nemacladus rigidus* – **Stoutstem threadplant** – Found in white diatomite soil north of the park, in Buffalo Canyon. May also occur on fine clay soils east of the park in West Union Canyon. Tiny delicate annual herb < 5cm tall; stem and sepals reddish purple; inflorescence axis strongly zigzagged; flower tiny, white, with 2 lower petals and 3 upper petals.

Caprifoliaceae (Honeysuckle family)

- Symphoricarpos longiflorus* – **Fragrant snowberry** – Locally common on slopes in woodland, West Union Canyon. Shrub with opposite, ± lanceolate leaves to 2 cm long; flowers usually in pairs, fragrant; corolla tube to 15 mm long, slender, ± trumpet-shaped with 5 small lobes, pink or cream, often red or purple outside.
- Symphoricarpos rotundifolius* – **Roundleaf snowberry** – Occasional on ± north-facing slopes, Richmond Canyon Trail. Shrub with opposite, ± ovate to lanceolate leaves to 2 cm long; flowers usually in pairs; corolla 6–10 mm long, narrowly bell-shaped,

pink or white.

Chenopodiaceae (Goosefoot family) – Now treated as a subfamily of Amaranthaceae.

Euphorbiaceae (Spurge family)

Euphorbia serpyllifolia (= *Chamaesyce serpyllifolia*) – **Thyme-leaved spurge** – Disturbed ground along Cemetery Trail. Annual herb with prostrate to ascending branches, turning red with age; leaves opposite, narrowly oblong to ovate, finely toothed; inflorescence much reduced (as in all Euphorbia) to a cup-like cyathium with narrow, white, petal-like appendages.

Fabaceae [also called **Leguminosae**] (**Bean, Pea, or Legume family**)

Note: The genus *Astragalus* (Milkvetches or Locoweeds) is very diverse; more than 150 species occur in the Intermountain region. Identifying these can be very challenging. All the species here are clumped or matted perennial herbs with pinnately compound leaves and pea-like flowers. Leaves, flowers, and fruits are all needed to identify species.

Astragalus calycosus – **Torrey's milkvetch** – Gravelly-clayey soils on ridges and slopes, West Union Canyon. Plants ± stemless, generally smaller in all respects than other *Astragalus* here; leaves silvery with branched hairs; leaflets usually 3 (up to 7); flowers white (to purple or pink), mostly around edges of the plant; fruits ± 3-sided, grooved underneath, 1–2 cm long, 3–4 mm wide.

Astragalus filipes – **Basalt milkvetch** – Occasional in West Union Canyon. Distinguished from other *Astragalus* here by relatively tall stems (to 9 dm), narrow leaflets, yellowish-white flowers, and fruits spreading to pendent, the body 17–30 mm long, compressed, on a stalk-like base 6–16 mm long.

Astragalus iodanthus – **Humboldt River milkvetch** – Dry areas in sagebrush and woodland. Plant low, spreading; leaflets 9–21, obovate or ± round; flowers usually red-purple with white stripes on the banner; fruits incurved 1/4 to 1/2 full circle, with red blotches or speckles.

Astragalus lentiginosus – **Freckled milkvetch** – Dry, open areas in sagebrush and woodland. A widespread and highly variable complex of many described varieties, thus challenging to identify. Several varieties are likely here, including var. *diphysus*, var. *fremontii*, and var. *scorpionis*. Fruits generally ± ovate, ± bladderly, ± papery, ± glabrous, with redish freckles or blotches, without a stalk-like base.

Astragalus newberryi var. *castoreus* – **Newberry's milkvetch** – Dry areas, especially in woodland. Compare with *A. purshii* (similar fruit and leaves). Fruit densely white-hairy, the hairs of 2 kinds, some short and curly, some ± long and straight; stems forming a thickened crown covered by persistent leaf bases; longer leaf hairs generally straight, some spreading; petals pink-purple.

Astragalus oophorus var. *oophorus* – **Egg milkvetch** – Dry, open areas in sagebrush and woodland. Corolla usually red-purple with white wing tips; fruits bladderly, 25–55 mm long, widely ± ovate, glabrous, with a stalk-like base 3–10 mm long.

Astragalus purshii – **Woollypod milkvetch** – Dry areas in sagebrush, open places, or woodland. Compare with *A. newberryi* (similar fruit and leaves). Fruit densely white-hairy, the hairs of 1 kind, ± wavy or straight; stems tufted or matted, but without persistent leaf bases; longer hairs of leaf wavy, tangled; leaflets narrowly elliptic to ± round; petals pink-purple. Several named varieties could occur here, including var. *pumilio*, var. *purshii*, and var. *tinctus*.

Hedysarum boreale var. *boreale* – **Northern sweetvetch** – Occasional in woodland. Similar at first glance to *Astragalus*; flowers ± magenta, but the keel petals more prominent, longer than wing petals, and ± abruptly truncate at apex; fruit constricted between the seeds into 2–7 ± circular, compressed segments.

Lupinus brevicaulis – **Shortstem lupine** – Occasional on gravelly-clayey slopes in woodland openings, Richmond Canyon Trail. Annual herb to 1 dm tall; leaves crowded near stem base; peduncle (inflorescence stalk) mostly 2–5 cm long; inflorescence only 2–3 cm tall, but longer than the leaves; flowers bright blue with white spot on banner; fruit ovate. Note: *Lupinus pusillus* var. *intermontanus* appears very similar, but is more common in sandy valley soils, has peduncles 0–1 cm long, inflorescences shorter than leaves, and fruits oblong, narrowed between seeds.

Lupinus argenteus (?–need to confirm) – **Silver lupine** – In woodland along Richmond Canyon Trail. Perennial herb or subshrub with erect stems; leaves often ± silver-hairy; inflorescence to ~2 dm long; flowers blue to violet (often with white spot on banner), or ± white, often with a bulge or spur 1–3 mm long at back. Silver lupine is highly variable, with many named varieties. Varieties potentially in this area include var. *argenteus*, var. *heteranthus*, var. *rubricaulis*, and var. *utahensis*. Some other lupine species are difficult to distinguish from this.

Lupinus uncialis – **Lilliput lupine** – Reported from sandy soil in Buffalo Canyon, north of the park. May occur here as well. Low, hairy, annual herb (1–3 cm tall), forming small, dense leafy tuft; inflorescence among leaves, only 0.5–1.5 cm tall, with only 1 or 2 flowers; petals 2-colored: banner white, wings and keel ± purple.

Geraniaceae (Geranium family)

Erodium cicutarium – **Common stork's-bill, Redstem filaree** **N** – A weed in disturbed soil. Berlin townsite, Berlin Canyon, West Union Canyon. Leaves pinnately compound with deeply dissected leaflets; petals pink to purple; fruits sharp at base with a tightly twisted beak on top.

Grossulariaceae (Gooseberry family)

Ribes aureum – **Golden currant** – Along the creek in West Union Canyon. Large woody shrubs with smooth, ± wedge-shaped, broadly 3-lobed leaves. Flowers yellow, sepals spreading. Fruits generally red or orange.

Ribes cereum – **Wax currant** – West Union Canyon. Large woody shrubs with ± round, shallowly lobed and finely toothed leaves. Flowers white or white-green to pink, red, or purple, the sepals reflexed. Fruit orange to red.

Hydrophyllaceae (Waterleaf family) – see also Boraginaceae, which now often includes Hydrophyllaceae

Nama aretioides – **Ground nama** – Dry sandy areas in sagebrush, Lone Valley, expected on alluvial fans too. Low annuals; leaves linear to spoon-shaped; flowers with a yellow tube and 5 bright pink or magenta spreading lobes.

Phacelia crenulata – **Notch-leaf scorpion-weed** – Roadcut and adjacent slopes at mouth of West Union Canyon. Large annuals with scalloped to deeply lobed leaves; flowers with 5 purple lobes, white center, and long stamens.

Phacelia gymnoclada – **Naked-stemmed phacelia** – Common in moist years, often in leaf litter under pines. Small annuals; leaves to ~3 cm long, lanceolate to ovate, with wavy or lobed margins; yellow tube and 5 magenta to blue lobes. Corolla similar to *Nama aretioides*, but stems are longer, leaves more lobed. Two other annual phacelias, *P. bicolor* (Two-colored phacelia) and *P. humilis* (Low phacelia), may also be present.

Loasaceae (Loasa family)

Mentzelia laevicaulis – **Giant blazingstar** – Occasional, usually on roadcuts, rocky or sandy slopes and washes. Large, bright yellow flowers with 5 petals ~4–7 cm long; stamens many; fruit a cylindrical capsule full of angular black seeds, below the petals and sepals.

Mentzelia spp. – **Sandpaper plant** – One or more less showy species of *Mentzelia* are likely to be found in this area. The common name alludes to their rough, scabrous stems, leaves, and bracts. The stems may be white to pale salmon or green; flower bracts maybe white at base or middle with green margins.

Malvaceae (Mallow family)

Sidalcea oregana var. *nevadensis* – **Oregon checker-mallow** – Might be present in moist soil along West Union Creek or at springs (has been collected east of Union Pass). Perennial herb with spike-like clusters of pink flowers on stems to ~1.2 m tall, and palmately-lobed and veined green leaves.

Sphaeralcea ambigua – **Desert globemallow** – Occasional in scrub and woodland habitats; most abundant in sandy soils. Subshrubs with few to many erect to spreading stems, to ~1 m tall. Leaves palmately veined, shallowly lobed, whitish-green. Corollas bright orange-red; stamens many, filaments fused into a tube.

Montiaceae (Miner's lettuce family)

Lewisia rediviva – **Bitterroot** – Rocky soil in woodland opening near summit of Richmond Canyon Trail; probably also in other open slopes and flats. Ground-hugging clusters of bright white to pink flowers ~4–6 cm across, with many petals, many stamens, and 6–9 reddish sepals; leaves short (to 5 cm), narrow, thick, in basal rosette.

Claytonia parviflora – **Streambank springbeauty** – In leaf litter under pinyon pine on north slope along Richmond Canyon Trail. Annuals with long, narrow, green, slightly fleshy, mostly basal leaves; flowering stems spreading to erect, with clusters of small, white to pink flowers subtended by round leaves that encircle the stem.

Onagraceae (Evening-primrose family)

Chylismia claviformis subsp. *integriflor* – **Brown eyes** – Occasional on hillsides and flats. Annual plants with basal leaves, stems mostly 15–50 cm tall; flowers nodding; petals 4, 5–7 mm long, white, fading pink; sepals reflexed.

Oenothera cespitosa – **Fragrant evening primrose, Tufted evening primrose** – Rocky to loamy soils in woodland or sagebrush in West Union Canyon. Large flowers with white to pale pink petals and long, reflexed sepals; leaves in a large basal rosette.

Oenothera deltoides (Devil's lantern or Basket evening-primrose) has similar flowers, but prefers sandy flats or sand dunes in valleys, so does not likely occur at Berlin-Ichthyosaur.

Orobanchaceae (Broomrape family)

Aphyllon corymbosum – **Flat-top broomrape** – Occasional, easily overlooked, in sagebrush scrub along Cemetery Trail, possibly elsewhere. Short, fleshy, clustered, purplish stems and flowers. Formerly in genus *Orobanche*, broomrapes have no chlorophyll; all are parasitic on the roots of perennial shrubs.

Castilleja applegatei var. *pinetorum* – **Wavyleaf paintbrush** – West Union Canyon east of the park; probably more prevalent at higher elevations. Bracts of the inflorescence red to orange; stems and leaves green and glandular-sticky; leaves wavy-margined.

Castilleja chromosa – **Desert paintbrush** – In sagebrush scrub in West Union Canyon and Berlin Canyon. Stems purplish; leaves narrowly divided; inflorescences bright red. The red color is mostly in leafy bracts surrounding the slender, greenish, less conspicuous flowers. Paintbrushes are semi-parasitic on woody perennial plants.

Papaveraceae (Poppy family)

Argemone munita – **Prickly poppy** – Occasional in disturbed areas, especially along roads. Large, bright-white flowers with >100 yellow stamens in the middle; stem, leaves, and sepals viciously spiny; sap milky-yellow.

Phrymaceae (Lopseed family)

Diplacus mephiticus – **Skunky monkeyflower** – Gravelly or sandy soil in pinyon-juniper woodland and stream channels; campground, Berlin Canyon, expected elsewhere. Tiny annuals with either yellow or magenta flowers. Formerly in genus *Mimulus*, most monkeyflowers are now in either *Diplacus* or *Erythranthe*. In *Diplacus*, the pedicel is shorter than the calyx; the corolla is semi-persistent, shriveling around the developing capsule.

Erythranthe guttata – **Seep monkeyflower** – Stream banks and wet seeps in West Union Canyon. Perennial herb to ~6 dm tall, but plants and leaves quite variable in size; leaves ovate to round, irregularly lobed, basal and on lower stems; calyx asymmetrically swollen, with lowest 2 lobes upcurved in fruit. In *Erythranthe*, the pedicel is longer than the calyx; the corolla is deciduous, falling away from the developing capsule.

Plantaginaceae (Plantain family)

Note: The genus *Penstemon* (Penstemons or Beardtongues) is very diverse, with more than 100 species in the Intermountain region. Species identification can be very challenging.

Collinsia parviflora – **Small-flowered blue-eyed Mary** – Occasional in shaded or moist places. Small annuals, usually just a few inches tall, with few spreading branches and small, bilaterally symmetric flowers, with upper petals white, lower petals blue.

Penstemon barnebyi (?) or a small *P. janishiae*? – **Barneby's penstemon** – This ID is uncertain; key the plants with fresh flowers. Rocky-clayey soil in West Union Canyon. Corolla 10–14 mm long, abruptly expanded to throat on lower side, violet, blue toward lobe tips, throat white with red-violet lines, glandular outside, staminode orange-yellow bearded; capsule 3–6 mm long, glabrous; leaves short-hairy.

Penstemon humilis – **Low penstemon** – Possibly in this area, reported from East Union Canyon. Perennial herb with opposite, lanceolate to obovate, short-hairy leaves; corolla narrow, blue, dark-lined, glandular outside and ± yellow- or white-hairy inside.

Penstemon janishiae – **Janish's penstemon** – Igneous-clay soils in sagebrush scrub and sparse woodland, West Union Canyon. Foliage similar to *P. humilis*; corolla 18–28 mm long, abruptly expanded to throat on lower side, pink to dull purple (lobes sometimes ± blue), throat white- to pale-yellow-hairy, dark-lined, glandular outside, staminode exerted; capsule 7–11 mm long, glabrous.

Penstemon kingii – **King's penstemon** – Scattered through low sagebrush scrub in Cemetery area. Perennial herb up to 1 ft tall; stems decumbent at base then ascending; leaves opposite, cauline, entire, short-pubescent, usually folded and arched; corolla purple (or bluish or reddish purple), glandular-puberulent externally, staminode glabrous.

Penstemon sp. – **Penstemon** – Species not yet determined; key the plants with fresh flowers. North-facing slope along Richmond Canyon Trail.

Veronica americana – **American brooklime, American speedwell** – Wet places along the stream in West Union Canyon. Perennial rhizomatous herbs with hairless opposite leaves and 4-lobed blue flowers.

Polemoniaceae (Phlox family)

Aliciella sp. – **Aliciella** – Sagebrush scrub, pinyon-juniper woodland. Leaves mostly in a basal rosette; stem leaves few, reduced; flowers, ~6 mm long, a slender tube with 5 spreading lobes that often narrow to a slender tip.

Eriastrum wilcoxii (or *E. signatum*?) – **Woollystar** – Clayey soil in West Union Canyon. Annual with thin, open branching; leaves

and bracts slender, pointy-tipped, with dense, white-woolly hairs; flowers pale blue.

Ipomopsis polycladon – **Forked gilia** – In spaces between sagebrush plants, campground road. Small annuals with spreading to prostrate stems; leaves small, deeply toothed, mostly at stem base and crowded below inflorescence; flowers white, 5-lobed, only ~ 5–6 mm across.

Linanthus pungens – **Granite gilia, Prickly phlox** – Uncommon in sagebrush scrub west of Berlin; perhaps elsewhere. Subshrubs woody toward base; stems clothed with many sharp-tipped, palmately cleft leaves; flowers ± white, similar to phlox, but more funnel-shaped.

Phlox hoodii – **Carpet phlox** – Hill and mountain slopes, often on locally moist or north-facing clayey slopes. Mat-forming plants with white to pale-blue or pink flowers with a short tube and 5 ± rounded, spreading lobes; leaves awl-like, but not sharp-tipped. Often misleadingly called “spiny phlox.”

Phlox stansburyi (or *P. longifolia*? These two may not warrant recognition as separate species) – **Cold desert phlox** – Perennial herb; stems ± lax, 1–4 dm tall; flowers bright to pink to nearly white, with slender tube and 5 lobes.

Polygonaceae (Buckwheat family)

Chorizanthe watsonii – **Watson’s spineflower** – Gravelly soils among low sagebrush. Small, fragile annuals with red or pink to yellow-green stems, few leaves, and abundant, but very inconspicuous yellow flowers.

Eriogonum caespitosum – **Matted wild-buckwheat** – Open, gravelly areas, perhaps mostly on high ridges. Densely compact perennial mat or cushion; leaves to 1 cm long, ± round in cross-section with blunt tip; inflorescences head-like on stems 3–8 cm tall, these sometimes concentrated near edges of mat; flowers yellow, some turning ± red with age.

Eriogonum heermannii – **Heermann’s wild-buckwheat** – Probably var. *humilius*. Roadcuts and streamcut slopes in gravelly alluvium, West Union Canyon. Small shrub; stems stiff, dichotomously branched in the inflorescence; leaves oblong to spoon-shaped, early-deciduous; flowers 2–3 mm long, in small dense clusters, white to ± pinkish.

Eriogonum ovalifolium – **Cushion wild-buckwheat** – Occasional throughout the area. Low, mat-forming perennials; leaves narrow to ± round, white-hairy; flowers yellow or white to cream, rose, red or purple. Variety *purpurea* appears to be common here; var. *ovalifolium* is probably also present.

Eriogonum palmerianum – **Palmer’s wild-buckwheat** – Small annual herb, hairy throughout; leaves basal, blade ± round, but withered by late summer; flowers 1.5–2 mm, glabrous, white to pink. (Other annual species are likely present. Look for *E. baileyi*, *E. deflexum*, *E. esmeraldense*, *E. maculatum*.)

Eriogonum umbellatum – **Sulfur buckwheat** – Low shrubs with clusters of yellow flowers. West Union Canyon, Robinson Canyon.

Rumex sp. (expected) – **Dock** – These are common in stream and meadow habitats, sometimes in disturbed areas. None have been found yet here, but at least one species is likely present. (Look for *R. salicifolius*, *R. crispus*.)

Ranunculaceae (Buttercup family)

Clematis ligusticifolia – **Western virgin’s bower** – Climbing on sagebrush between creek and road near west end of West Union Canyon. Vine with 5–15 widely spaced leaflets; flowers several to many in panicles, with 4 petal-like white sepals and many stamens.

Delphinium andersonii – **Anderson’s Larkspur** – Species needs to be confirmed. Scattered in low sagebrush scrub, upper alluvial fan, along Cemetery Trail. Stems ~3–6 dm tall; flowers dark blue-purple, with a spur ~7–13 mm long.

Delphinium sp. (taller - different?) (*nuttallianum*? *parishii*? *variegatum*?) – **Larkspur** – Occasional in pinyon juniper woodland on north slope along Richmond Canyon Trail. Flowers, leaves, and fruits or seeds are all needed to key most larkspurs.

Ranunculus andersonii – **Anderson’s buttercup** – Shaded or rocky slopes in canyons. Flowers early-blooming, ~2.5 cm across, with 5 pink-white petals and many stamens; leaflets 3, the leaflets twice deeply lobed.

Ranunculus cymbalaria (= *Halerpestes cymbalaria*) – **Alkali buttercup** – Along creek in West Union Canyon. Low, spreading, perennial herb with yellow flowers; leaves ± round, with few very shallow lobes or teeth.

Ranunculus testiculatus (= *Ceratocephala testiculata*) – **Bur buttercup, Curveseed butterwort** ☞ – Weedy, locally common in disturbed soil. Flowers early in spring, then fruits develop into bur-like clusters of sharp beaks with basal lobes.

Rosaceae (Rose family)

Amelanchier utahensis – **Utah serviceberry** – Occasional along the creek in West Union Canyon. Shrub or small tree to ~4 m tall; leaves ± ovoid, to 45 mm long, serrate above middle; flowers white, petals 5.

- Cercocarpus ledifolius* var. *intermontanus* – **Curlleaf mountain mahogany** – Pinyon juniper woodland, generally on steep slopes or rock outcrops. Shrub or small tree. Leaves entire (not divided) with margins just slightly curled under (other varieties have a more pronounced curl). mature fruits small, dry, with a prominent long plumose appendage.
- Holodiscus discolor* var. *microphyllus* – **Oceanspray, Small-leaf cream bush** – Rock Outcrop on north slope along Richmond Canyon Trail. Shrub with slender stems, abundant small white flowers, small wedge-shaped leaves with teeth around outer half.
- Potentilla biennis* – **Biennial cinquefoil** – Moist soil near springs and creek, West Union Canyon. Plant with erect stem to 3 feet tall; small flowers with 5 yellow petals.
- Prunus virginiana* – **Chokecherry** – Intermittent along the creek in West Union Canyon, mostly between Richmond Canyon and the fossil shelter.
- Purshia stansburyana* – **Cliffrose** – Locally common along gullies in pinyon-juniper woodland, especially in West Union Canyon. Shrubs; leaves small, mostly 5-lobed; flowers white to pale yellow, with 5 petals and many yellow stamens; mature fruits small, dry, with a prominent long plumose appendage.
- Purshia tridentata* – **Antelope brush** – Occasional in in pinyon-juniper woodland and sagebrush scrub. Similar to *Purshia stansburiana*, but leaves mostly 3-lobed; mature fruits small, dry, with no plumose appendage.
- Rosa woodsii* subsp. *ultramontana* – **Woods' rose** – Sagebrush scrub near the creek in West Union Canyon. Shrubs with abundant sharp prickles, pinnately divided leaves, pink flowers (5 petals) in summer and bright red "hips" in fall.

Rubiaceae (Bedstraw family)

- Galium bifolium* – **Low mountain bedstraw** – Occasional under trees in pinyon-juniper woodland; Robinson Canyon Trail. Delicate annual herbs with leaves in whorls of 4; flowers tiny, white, 3-lobed, borne singly in leaf axils; fruits 2-lobed, with hooked hairs.
- Galium matthewsii* (?–need to confirm) – **Matthews' bedstraw** – Occasional on rock outcrops; Robinson Canyon Trail. Perennial herbs, slightly woody at base, with stiff, erect stems; leaves in whorls of 4; fruits 2-lobed, with straight hairs.

Salicaceae (Willow family)

- Salix lasiolepis* – **Arroyo willow** – Occasional at springs and along the creek in West Union Canyon. Deciduous trees with lanceolate leaves to ~13 cm long; flowers in catkins.
- Salix exigua* – **Coyote willow, Narrow-leaved willow** – Intermittent along the creek in West Union Canyon. Shrubs (rarely trees) < 5 m, spreading clonally by root-shoots; leaves 3–15 cm ± linear or strap-shaped, entire or sparsely serrate.

Sarcobataceae (Greasewood family)

- Sarcobatus baileyi* – **Bailey's greasewood** – Valley slopes and hills, typically dry, non-alkaline sites; slopes above mouth of West Union Canyon. Low shrubs mostly <1 m tall; leaves <18 mm long; mature staminate spikes <12 mm long.
- Sarcobatus vermiculatus* – **Greasewood** – Occasional at slightly moist places in West Union Canyon; more often found in alkaline soils around dry lakes and in valleys. Shrubs mostly >1 m tall; leaves to ~40 mm long; mature staminate spikes >18 mm long.

Viscaceae (Mistletoe family)

- Arceuthobium divaricatum* – **Pinyon dwarf mistletoe** – Leafless bunches of small, reddish-brown stems attached to branches of pinyon pine. These are parasites that obtain water and nutrients from the pine.
- Phoradendron juniperinum* – **Juniper mistletoe** – Leafless bunches of small, green stems attached to branches of Utah juniper. These are parasites that obtain water and nutrients from the pine.

Monocots

Alliaceae (Onion family)

- Allium* sp. – **Wild onion** – Rocky soil in woodland opening near summit of Richmond Canyon Trail; probably also in other open slopes and flats. Species to be determined.

Cyperaceae (Sedge family)

- Carex* spp. (expected)– **Sedges** – Sedges are very common in stream and meadow habitats. None have been found yet at Berlin-Ichthyosaur, but one or more species are to be expected. (Look for *Carex douglasii*.)

Juncaceae (Rush family)

- Juncus* spp. (expected)– **Rushes** – Rushes are also very common in stream and meadow habitats. None have been found yet at

Berlin-Ichthyosaur, but one or more species are to be expected. (Look for *Juncus balticus*.)

Liliaceae (Lily family)


Calochortus bruneaunis – **Bruneau mariposa lily** – Flats and low slopes in sagebrush scrub in West Union Canyon. Bell-shaped flowers with petals white, tinged lilac, and a dark crescent or spot near the base.

Melanthiaceae (False-hellebore family)

Toxicoscordion paniculatum – **Death camas** – Open slopes; West Union Canyon. Long, slender basal leaves and a tall leafless flower stem; flowers many, petals 6, white, with a yellow spot at the base of each.

Poaceae (Grass family)

Note: Grasses are among the more challenging plants to identify. Additional species will doubtless be found in and near the park.

Bromus tectorum – **Cheat grass**  – Common on dry hillsides and moist places, especially in grassy, scrub, and disturbed sites. An aggressive weed throughout the Great Basin and beyond. Annual grass with nodding inflorescence; spikelets including awns ~2.5–4 cm long. Fresh plants, green, drying purplish to straw-colored.

Elymus elymoides (= *Sitanion hystrix*) – **Squirreltail** – Common in sagebrush scrub and pinyon-juniper woodland. Small perennial bunchgrass; inflorescence erect; florets with very long awns (commonly 5–8 cm), widely spreading at maturity, giving the distinctive “squirreltail” appearance.

Koeleria macrantha – **June grass** – In pinyon-juniper woodland along Richmond Canyon Trail. Small perennial bunchgrass; inflorescence erect, narrow, short-branched, with many small spikelets.

Hilaria jamesii – **James’ galleta** – Occasional on open slopes; West Union Canyon. Grows in low, spreading patches; flower clusters often a distinctive brown-purple, long-hairy at base, in a slender, unbranched inflorescence.

Leymus cinereus (= *Elymus cinereus*) – **Great basin wildrye** – Mostly in sagebrush scrub, sometimes in locally moist places; West Union Canyon. The largest bunch grass found in this area, often 1–2 m tall. Flowers in robust spikes ~10–18 cm long.

Poa secunda – **Nevada bluegrass** – Probably common on dry slopes throughout the area, but this not yet confirmed by keying. Small bunch grasses a slender, often ± 1-sided inflorescence; spikelets without awns.

Stipa comata var. *intermedia* – **Needle and thread grass** – Occasional among sagebrush scrub, Cemetery Trail and Union Canyon. Bunchgrass with stems to ~1 m tall; florets with a very prominent awn 5.5–13 cm long.

Stipa hymenoides (= *Oryzopsis hymenoides*) – **Sand ricegrass** – Scrub and woodland areas, usually in sandy soil. Bunchgrass with stems to ~60 cm tall; inflorescence open, many-branched; florets small, short-awned, but densely long-hairy; seeds dark, shiny. Very distinctive in appearance and often visible from a distance.

Cultivated Plants (Ornamental, Not Locally Native)

Early residents of Berlin planted ornamental and fruit-bearing trees and shrubs. Some of these persist in the area today, mostly in and near the gardens of rangers’ residences. More recently, several ornamental trees have been planted at the Fossil Shelter in West Union Canyon. Those, unfortunately, are not well suited to the climate or soils of this location.

GYMNOSPERMS

Cupressaceae (Cypress or Cedar family)

Calocedrus decurrens – **Incense cedar** – Planted as an ornamental outside the Fossil Shelter.

Ginkgoaceae (Maidenhair Tree family)

Ginkgo biloba – **Maidenhair tree, Ginkgo** – Planted as an ornamental outside the Fossil Shelter.

Pinaceae (Pine family)

Picea sp. – **Spruce** – Planted as an ornamental outside the Fossil Shelter.

DICOTS

Caprifoliaceae (Honeysuckle family)

Lonicera japonica – **Japanese honeysuckle** – Ornamental vine, cultivated in the garden of a house at Berlin. Leaves opposite, lanceolate; flowers yellow and/or white with long, curved stamens.

Fabaceae [also called Leguminosae] (Bean or Legume family)

Acacia (?) sp. – **Wattle, Acacia** – Or perhaps a *Robinia* sp. (**Locust**)? Ornamental tree, cultivated at a ranger's residence at Berlin.

Oleaceae (Olive family)

Fraxinus sp. – **Ash** – Ornamental tree, cultivated near buildings in the Berlin townsite.

Rosaceae (Rose family)

Malus domestica (= *Malus pumila*) – **Apple** – Fruit tree, cultivated in Berlin and at old orchard on Union Creek.

Prunus avium – **Sweet cherry** – Fruit tree, cultivated at the old orchard on Union Creek.

Rosa sp. – **Yellow rose** – Ornamental shrub, cultivated in the garden of a ranger's residence at Berlin.

Salicaceae (Willow family)

Populus nigra – **Black poplar, Lombardy poplar** – Ornamental tree, cultivated near buildings in the Berlin townsite.

Ulmaceae (Elm family)

Ulmus pumila – **Siberian elm** – Ornamental tree, cultivated around several buildings in the Berlin townsite.

