

KEY TO THE WILDFLOWERS
BRYCE CANYON NATIONAL PARK

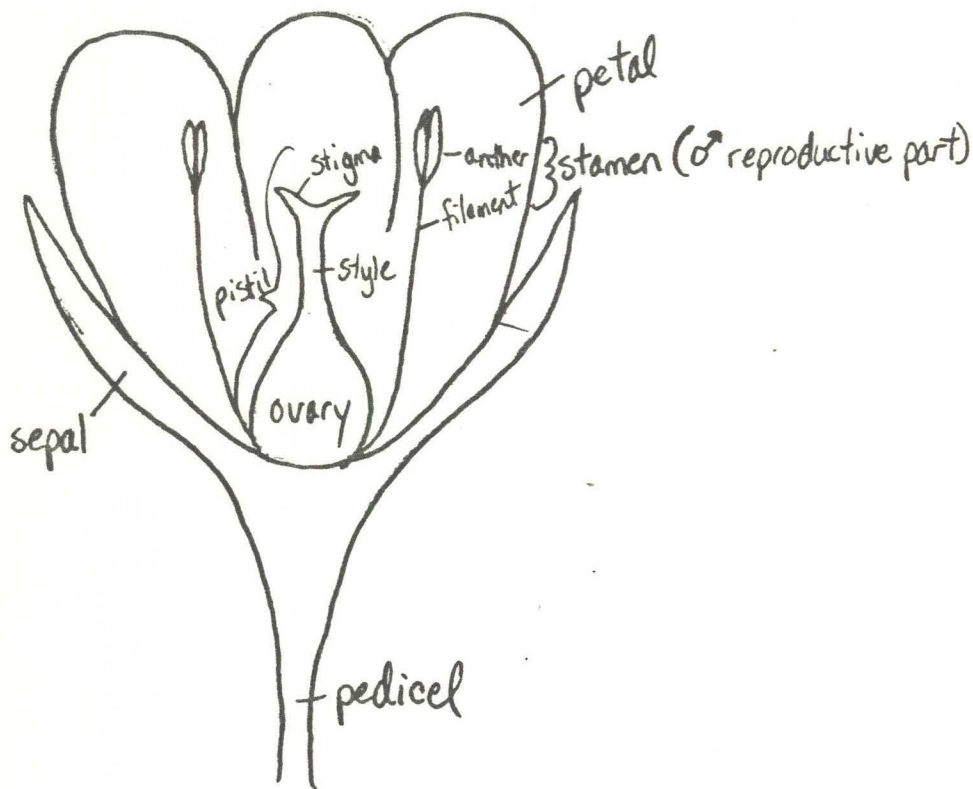
Sally Duff
1 May 1981

Hints for using this wildflower key:

-Start at #1 and read both choices a) and b) before making a decision between the two. Your pathway will always follow one or the other. Continue through the key as the numbers indicate. Once you have keyed out the family, turn to that specific family to find the species name.

-Read all the characteristics for each set of choices. Even if you don't understand some of the words, you still might be able to rule out the possibilities that are not correct and continue.

-This key is intended for use with other wildflower handbooks that are illustrated, such as Hayle Buchanan's book Living Color (available in the Visitor Center). When you think you have keyed out a given flower, see if it matches the picture and description in the manual.



Parts of a
Flower

FAMILY KEY

- I. Leaves usually parallel-veined, flower parts in 3's, stems hollow or with scattered vascular bundles.....MONOCOTYLEDONS
- II. Leaves usually net-veined, flower parts in 4's or 5's, vascular bundles arranged in an outer ring.....DICOTYLEDONS
- 1a. Fertile stamens 3 or less, positioned opposite the outer petals. Leaves in two ranks, enfolding one another. Ovary inferior.....Iridaceae
- 1b. Stamens usually 6, sepals and petals not very sharply distinguished, but usually 3 of each. Ovary superior.....Liliaceae
- 1a. Only one petal layer evident. Flowers several, stamens 6-9. Leaves simple and in a basal rosette, with few if any leaves on stem.....Polygonaceae
- 1b. Both petals and sepals present. (4).
- 4a. Petals united, at least partly, at base. (5)
- 4b. Petals arise separately. (11).
- 5a. Ovary superior. (6).
- 5b. Ovary inferior. Plant with single, purple, broadly bell-shaped flower.....Campanulaceae
- 6a. Stamens equal in number to petals. (7).
- 6b. Stamens greater in number than petals.....Fabaceae
- 7a. Petals regular (all lobes alike). (8).
- 7b. Petals differ, flower strongly bilateral, usually 2-lipped.....Scrophulariaceae
- 8a. Leaves alternate or forming a ground mat. (9).
- 8b. Leaves opposite and spreading up stem. (10).
- 9a. Leaves flat and quite small, almost needle-like.....Polemoniaceae
- 9b. Leaves narrow, lance-shaped, and fairly numerous.....Boraginaceae

- 10a. Leaves shiney, with a folded or drooping appearance.....Apocynaceae
- 10b. Leaves not as above.....Gentianaceae
- 11a. Sepals and petals 4. (12)
- 11b. Sepals and petals 5. (13)
- 12a. Stamens 8 with long, conspicuous anthers.....Onagraceae
- 12b. Stamens 6, 4 long and 2 short.....Brassicaceae
- 13a. Flowers fairly simple in appearance, not resembling daisies. (14)
- 13b. Flowers resembling daisies- several outer petals surrounding smaller individual flowers, arranged together in heads.....Asteraceae
- 14a. Plant has distinct leaves. (15)
- 14b. Leaves absent, replaced by thick, fleshy stems with spines..Cactaceae
- 15a. Leaves simple. (18)
- 15b. Leaves compound- divided into leaflets, or at least deeply lobed..(16)
- 16a. Leaf divided into several narrow leaflets or 3 distinct leaflets. (17)
- 16b. Leaves with large palmate lobes, each of which is toothed. Stamens 10, flower white.....Geraniaceae
- 17a. Plant thick and almost shrub-like.....Roseaceae
- 17b. Flowers quite delicate, ranging from bluish-purple to white.....Ranunculaceae
- 18a. Leaves alternate and quite narrow, stamens 5.....Linaceae
- 18b. Leaves opposite, usually arising where the stem branches. Stamens 10. Caryophyllaceae

~~MONOCOTYLEDONS~~ DICOTYLEDONS

Apocynaceae (Dogbane Family)

Erect plants with small pinkish flowers branching from the tips of the stems. Leaves opposite and shiney, with a folded or drooping appearance.
.....dogbane (Apocynum androsaemifolium)

Asteraceae/Compositae (Sunflower family)

- 1a. Flowers yellow. (7)
- 1b. Flowers white to pink or purple. (2)

- 2a. Leaves covered with spines, pink/purple flowers.....thistle
(Cirsium spp.)
- 2b. Leaves without spines. (3)

- 3a. Leaves soft and fern-like, flowers in level white heads.....yarrow
(Achillea millefolium)
- 3b. Leaves not fern-like. (4)

- 4a. Flowers closely resembling daisies, with several flowers growing together off several stems.(6)
- 4b. Flower less daisy-like or solitary. (5)

- 5a. Single pink flower with long ray petals, leaves grass-like...rush pink
(Lygodesmia grandiflora)
- 5b. Flowers tiny and white to pinkish with a dried appearance. Leaves wooly and gray-green, forming a mat.....pussytoes (Antennaria spp.)

- 6a. Flower heads with narrow ray flowers. Grows in late summer or fall on dry, rocky hillsides.....aster
 - 1. Heads with about 25 purple ray flowers.....common aster
(Aster chilensis)
 - 2. Flowers a faded pink, leaves elongated and a whitish green.
Common on the "breaks".....pale aster (A. glaucodes)

- 6b. Flowers with extremely narrow "rays" ranging from white to purple. Blooms in early to midsummer. Rays are usually twice as many as the aster described above.....fleabanes
 - 1. Plant blooming quite early. White flowers with stiff hairs.
Grows on dry rocky soil.....low fleabane (Erigeron pumulus)
 - 2. Flowers purple, few leaves on stem. Central stem erect, side stems tend to trail.....trailing fleabane (E. flagellaris)
 - 3. Large leaves with tall purple flowers, found under spruce and fir at Rainbow Point.....largeleaf fleabane (E. speciosus)
 - 4. Leaves distinctly gray/green.....fleabane or wooly daisy
(E. canus)

- 7a. Leaves wide and heart-shaped. (8)
- 7b. Leaves not heart-shaped. (9)

- 8a. Leaves opposite with a single large flower. Blooms in early summer in open forested areas.....heartleaf arnica (Arnica cordifolia)
- 8b. Leaves on long stems with a common base. Several golden heads with each group of leaves. Very common on the benches towards Rainbow Point.....arrowleaf balsamroot (Balsamorhiza sagittata)
- 9a. Each stalk has a distinct flower. (10)
- 9b. Flowerheads in clusters, plant with many-branched stems. (13)
- 10a. Flowering stem leafless, leaves basal. (11)
- 10b. Leaves alternate on stem. (12)
- 11a. Leaves dandelion-like (in a basal rosette), slender and waxy. Dandelion flowerhead.....mountain dandelion (Agoseris spp.)
- 11b. Short stalks with stout-looking flowers and stout, hairy, basal leaves.....bitterweed (Hymenoxys acaulis)
- 12a. Leaves grass-like. Distinct separate ray flowers with open centers. Green pointed bracts alternate beneath rays, giving flowers a star shape.....goatsbeard or salsify (Tragopogon dubius)
- 12b. Short stems (less than 6") with smooth, rigid leaves. Stems tend to grow in clumps. Flowers have dark gold centers and prefer dry slopes. goldenweed (Happlopappus amerioides)
- 13a. Leaves alternate on stem. (14)
- 13b. Several grass-like leaves present on stem. Rays tend to fold open and downward, giving the tall flower a flat-topped look. Colorado rubberweed (Hymenoxys richardsoni)
- 14a. Tiny flowers in an elongated cluster (almost a cone) at the top of tall stems. Sunny locations.....goldenrod (Solidago sparsaflora)
- 14b. Small flowerheads in clumps, with few ray flowers. A few alternate leaves up the stem.....groundsel (Senecio millelobatus)

Boraginaceae (Borage Family)

- 1a. Flower yellow. (2)
- 1b. Flowers white with a gold center, tending to grow fairly close to the ground. Leaves olive-colored with tiny bristles or hairs. Flowers appear in clusters.....popcorn or cat's eye (Cryptantha capitata)

- 2a. Plant has numerous narrow leaves and tends to be bushy. Flowers are small yellow tubes (with 5 smooth-edged lobes) that tend to grow horizontally from the top of the stems like flags..manyflower gromwell (Lithospermum multiflorum)
- 2b. Plant has relatively fewer stems than the gromwell. Flowers are larger and face upward, with finely scalloped edges.....narrowleaf puccoon(Lithospermum incisum)

Brassicaceae/Cruciferae (Mustard Family)

- 1a. Plant tending to grow low to the ground (less than 6" high). (2)
- 1b. Plant growing taller, usually about 1 foot high. (3)
- 2a. Flowers white, plant very tiny, appears very early in the season (just after the snowmelt).....draba (Draba nivalis)
- 2b. Leaves leathery with a silver tint. Flowers yellow. Fruit develops into inflated pods. Common on dry, rocky slopes.....twinpod(Physaria chambersii)
- 3a. Flowers grow in dense yellow clusters.....western wallflower(Erysimum capitatum)
- 3b. Flowers purplish, common on the breaks.....twistflower(Streptanthus cordatus)

Cactaceae (Cactus Family)

Fleshy cactus plant with pinkish-purple or yellow flowers.....
.....prickly pear (Opuntia rhodantha)

Campanulaceae (Bellflower Family)

Purplish, bell-shaped flower. Grows in shaded or moist areas.....
.....Parry bellflower (Campanula parryi)

Caryophyllaceae (Pink Family)

Cluster of sharp leaves with separate tiny white flowers whose red anthers stand out distinctly.....Fendler sandwort (Arenaria fendleri)

Fabaceae/Leguminosae (Pea Family)

- 1a. Plant low with several leaves.. (2)
- 1b. Plant tall with white-purple flowers which are wing-shaped. Flowers grow in elongated clusters. Leaves palmate. Usually found only around Rainbow Point.....silky lupine (Lupinus sericeus)

- 2a. Petals .5 to 1 inch long and purplish. Stamens united at base.....
.....American vetch (Vicia americana)
- 2b. Plant not as above. Leaves pinnate, plant tends to have small purplish
flowers with a keeled petal, growing low to the ground. (Many, many
species exist).....milk vetches (Astragalus spp.)

Gentianaceae (Gentian Family)

- 1a. Flowers are greenish tubes tinged with deep purple, and grow at the
very tips of the stems.....pleated gentian (Gentiana affinis)
- 1b. Plant with a cluster of broad, pale-green leaves. Thick, erect stem
topped with a flowering stalk. Flowers are greenish-white.....
.....elkweed or showy green gentian (Swertia radiata)

Geraniaceae (Geranium Family)

Whitish-pink flower with toothed, palmate leaves. Grows on forest
floor.....Richardson geranium (Geranium richardsonii)

Linaceae (Flax Family)

- 1a. Flower yellow.....yellow flax (Linum kingii)
- 1b. Flower blue.....blue flax (Linum lewisii)

Onagraceae (Evening Primrose Family)

- 1a. Flower yellow. (2)
- 1b. Flower white. (4)
- 2a. Leaves quite small and numerous, multibranched. Remains blooming
throughout the day.....lavenderleaf evening primrose
.....(Oenothera lavandulaefolia)
- 2b. Leaves long and narrow, dark green in color. (3)
- 3a. Leaves with smooth margins, flower fades early in the heat.....
.....giant evening primrose (Oenothera brachycarpa)
- 3b. Leaves with toothed margins (similar to a dandelion), flower tends to
grow on disturbed soils such as roadsides.....yellow evening primrose
.....(O. flava)

- 4a. Hypanthium has long, conspicuous white hairs. Flower is extremely delicate.....delicate evening primrose (Oenothera coronpifolia)
- 4b. Petals fade pink with age. Leaves have velvet hairs and are notched. tufted evening primrose (O. caespitosa)

Polemoniaceae (Phlox Family)

- 1a. Plant grows low to the ground with linear leaves. (2)
- 1b. Plant tall with scarlet flowers. Flower lobes flare backwards into a star shape.....skyrocket gilia (Gilia aggregata)
- 2a. Plant spreading in a dense mat with white-purple flowers and bright green leaves.....spreading phlox (Phlox diffusa)
- 2b. Leaves quite thin, long, and smooth...longleaf phlox (P. longifolia)

Polygonaceae (Buckwheat Family)

- 1a. Flowers very small and white or pinkish.....redroot buckwheat(Eriogonum racemosum)
- 1b. Flowers bright yellow.....sulfur-flowered buckwheat (E. umbellatum)

Ranunculaceae (Buttercup Family)

- 1a. Petals creamy white to blue/purple, extending backwards into long spurs.....rock or dwarf blue columbine (Aquilegia scopulorum)
- 1b. Petals oblong and drooping, purple to blue.....subalpine clematis or purple virgin's bower (Clematis pseudoalpina)

Rosaceae (Rose Family)

Bright yellow flower on a shrub-like plant. (Many species).....
.....cinquefoils (Potentilla spp.)

Scrophulariaceae (Figwort Family)

- 1a. Flowers red. (2)
- 1b. Flowers blue or purplish. (3)
- 2a. Flower a slender tube with rounded petal lobes.....scarlet penstemon or redfish (Penstemon bridgesii)
- 2b. Flower narrow and leaf-like.....Wyoming paintbrush(Castilleja linariaefolia)

- 3a. Plant small and close to the ground. (4)
- 3b. Plant fairly tall with 3 lobes on the lower "lip" of the bluish flower, and 2 lobes on the lower "lip"...blue penstemon or beardtongue(Penstemon leiophyllus)
- 4a. Flowers a peculiar tube shape, blooming early in the season. Leaves tiny and toothed.....lousewort (Pedicularis centranthera)
- 4b. Flowers in a mat, 3-lobed on the bottom "lip", 2-lobed on the top..... mat penstemon or dwarf beardtongue (Penstemon caespitosus)

MOMOCOTYLEDONS

Iridaceae (Iris Family)

Flower purple with delicate petals which fold back. Grows in moist, open fields between Sunset Point and the Visitor Center.....wild iris or Rocky Mountain iris (Iris missouriensis)

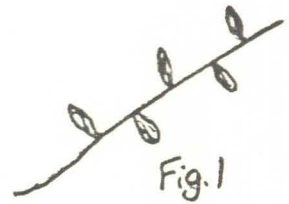
Liliaceae (Lily Family)

- 1a. Plant with a fairly tall stem. (2)
- 1b. Plant grows low to the ground with grass-like leaves. Petals white and linear, forming clusters of "stars"...star lily (Leucocrinum montanum)
- 2a. Petals cream-colored and 3, with purplish markings on the inside. Single flower per stalk.....sego lily (Calchortus nuttallii)
- 2b. Petals 6, creamy. Small flowers grouped at the top of the stem..... death camas (Zigadenus elegans)

Note: In order to keep this key simple, and to avoid the need for a hand lens, the family characteristics chosen are quite specific to the plant species chosen within the park. Care should be taken when adding new wildflowers to the key, because characteristics used may not be universal throughout the given family.

GLOSSARY

ALTERNATE: Refers to the arrangement of leaves on the stem in an alternate position. (Fig. 1)



BILATERAL: Can be cut into two similar halves only along one single plane.

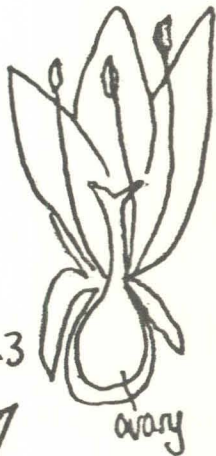
BRACT: A reduced or specialized leaf. If present, it is usually found just below the flower.

COMPOUND: Refers to leaves which are divided into many smaller leaflets. (Fig. 2)

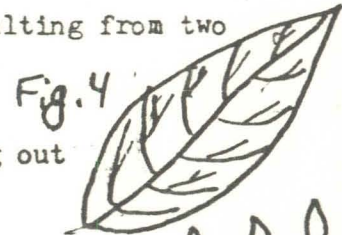


HYPANTHIUM: A cup-shaped mound of tissue where the petals, sepals, and stamens arise.

INFERIOR OVARY: The ovary portion of a flower is hidden from view. The floral parts are attached to the ovary and extend above it. (Fig. 3)

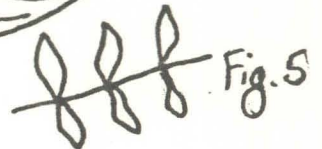


KEELED: Having a fold-like ridge along the back (resulting from two united petals).



NET-VEINED: Refers to leaves with the veins branching out from a main vein. (Fig. 4)

OPPOSITE: Pairs of leaves are opposite on the stem. (Fig. 5)



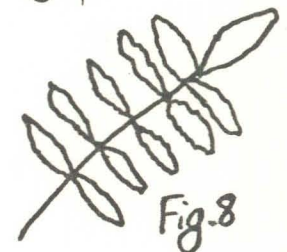
PALMATE: A compound leaf shaped like a hand with the fingers spread. (Fig. 6)



PARALLEL-VEINED: Refers to leaves running in several parallel lines. (Fig. 7)



PINNATE: A compound leaf with two rows of leaflets, one on either side (like a feather). (Fig. 8)



RAY FLOWER: In Asteraceae, the outer, long, ray-like "petals". Each is actually an individual flower.

REGULAR: Used here to describe a flower in which the sepals and petals are similar in size and shape. No matter which way you try to cut it in half, each side is exactly the same. (Opposite of bilateral).

ROSETTE: A crowded cluster of leaves in a circle around the base of a stem.

SPUR: A slender tube-like sac extending from a petal.

SUPERIOR OVARY: The ovary portion of a flower is free from all other parts.
(ie: it grows above them). (Fig.8)

VASCULAR BUNDLES: Strands of tissue that carry water through the stem. Best seen in cross-section. (Fig.9)

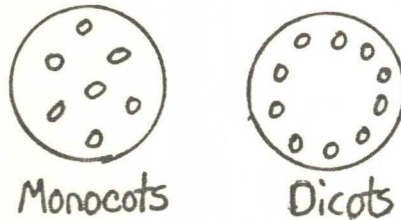
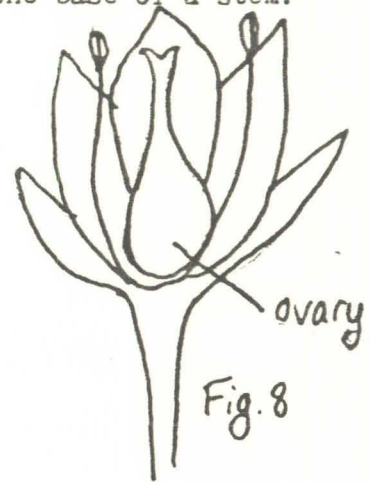


Fig. 9

REFERENCES

- Buchanan, H. 1974. Living Color-wildflower communities of Bryce Canyon and Cedar Breaks. Bryce Canyon Natural History Assoc. publication.
- Buchanan, H. and G.T. Nebecker. 1971. Checklist of higher plants of Bryce Canyon National Park, Utah. Weber State College Printing Dep't.
- Graybosch, R. 1980. Checklist of the vascular plants of Bryce Canyon N.P. unpublished.
- Jaques, H.E. 1949. Plant families - how to know them. Wm. C. Brown Co. Pub.
- Kearny, T.H. and R.H. Peebles. 1960. Arizona flora. U of CA Press.
- Welsh, S. and G. Moore. 1973. Utah plants - Tracheophyta. BYU Press.