

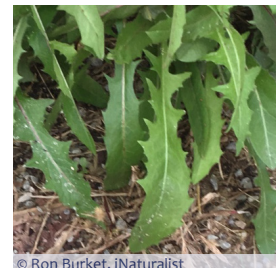


has a very robust, long taproot and rootlets.

The peduncles leading to the flowers are very short, less than 2 mm. The inflorescence is an open panicle. The green stiff phyllaries are in two rows, each series has between five and six sepals; the outer row is reduced in size. The phyllaries are lanceolate and have glandular tipped hairs visible with a hand lens. The inflorescence has only ray flowers which are ligulate with five teeth on the edge (Jepson eFlora 2019). Flower color ranges from cornflower blue to off white. The stamens, style and bilobed stigma are usually blue. The pappus on the achene is nearly absent, consisting of minute toothed scales (Leach 1921). The achene has five ribs and since it lacks a feathery pappus architecture like many other Asteraceae plants, the seeds fall near the parent plants (Leach 1921). Chicory reproduces by seed and its longevity is at least 10 years (Priestley et al. 1985).



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Chicory (*Cichorium intybus* L.) is a perennial forb in the Asteraceae family, also known as coffeeweed, French endive, and succory, not to be confused with curly endive (*Cichorium endivia* L.) (iNaturalist 2019).

Mature plants can be four feet tall. Oblanceolate basal leaves range in size from 5 to 35 cm long and are persistent (SEINet 2019). Their margins are highly variable, sometimes dentate or denticulate like dandelion leaves, sometimes pinnatifid (Plants of the World Online 2019). The rigid ascending stems have stiff short hairs. Branches are widely apart. Stems are hollow, have milky sap and linear ribs (University of Wisconsin-Madison 2019). Its stem leaves are sessile, rigid, oblong to lanceolate, usually with smooth margins, and are narrower than the basal leaves; short stiff hairs are on both surfaces and leaf margins. The base of leaves clasp the stem. Chicory

Chicory is often confused with blue flax (*Linum lewisii* Pursh) mainly due to their blue flower color and overlapping distributions. Being in a different plant family, upon closer inspection it becomes apparent that it lacks basal leaves, stem leaves are slender, the five petals are bi-lobed.

Chicory is native to Mediterranean areas in Europe, Africa, and Middle East. It has a long cultivation history for pharmacology dating back to ancient Egypt, Greek and Roman eras, 2000 BC. (Bahmani et al.

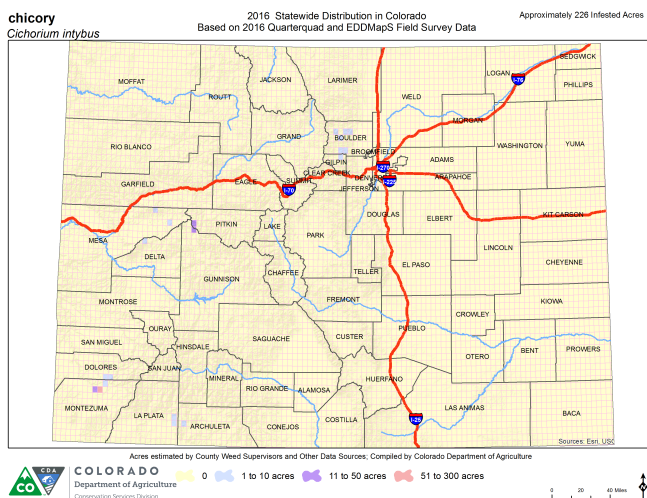
2015). Modern cultivation is for coffee substitution (roots) and salad (leaves). It has worldwide distribution. It has been in Colorado since at least 1872 when Townshend Stith Brandegee collected a specimen in Fremont County (SEINet 2019). In Colorado its either under-reported or rare. It is ruderal, inhabiting roadsides and disturbed areas at elevations below 8,000 feet.

Chicory

Cichorium intybus L.

Key ID Points

1. Ligulate flowers with 5 teeth at ends
2. Blue stamens, style and bilobed stigma
3. Stiff short hairs on stems, leaves and achene
4. Persistent basal leaves resembling dandelion leaves



Integrated Weed Management Recommendations

Effective integrated management means using a variety of eradication methods in the same site along with restoration, prevention of seed production and dispersal, and monitoring. Maintain robust healthy native landscapes. Restore degraded sites. Avoid soil disturbance. Prevent seed production and seed dispersal, e.g. on contaminated equipment. Rest sites until restored. Modify land use practices. Use methods appropriate for the site, including land use practices.



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CULTURAL

Since chicory is sensitive to competition from grasses, maintain or drill seed bluebunch wheatgrass (*Pseudoroegneria spicata*) and Sandberg bluegrass (*Poa secunda*) with vesicular-arbuscular mycorrhizae; these are drought tolerant natives that are highly competitive against chicory but require mycorrhizae. Native shrubs with competitive robust root biomass is another option. It is ruderal so minimize soil disturbance, especially near infestations. For cultivated sites, select native plants with blue flowers instead of chicory: *Scutellaria brittonii*, *Gentiana parryi*, *Mertensia lanceolata*, *Penstemon glaber*, *Eritrichium aretoides*, or *Aconitum columbianum*. Be cautious when purchasing seed as chicory may be in mixes. Use seed pillows to disperse seeds.



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BIOLOGICAL

Chicory provides high quality forage for goats, sheep and cattle. It is sensitive to grazing; fall is best for control (Alemseged et al. 2003, Barry 1998, Li and Kemp 2005, Li et al. 2003). Properly managed grazing can improve vigor of desired species and indirectly reduce chicory. Currently there are no biological control agents for chicory authorized in Colorado. For biocontrol information, visit the Colorado Department of Agriculture's Palisade Insectary website at: www.colorado.gov/ag/biocontrol

MECHANICAL

Mechanical methods are best for residential areas, small infestations or soils where the entire taproot can be removed. Mowing is not recommended; it leaves roots behind, stimulates flower production, disperses seeds, and expands the size of the infested area. Chopping the inflorescence just below the root crown and bagging the biomass may reduce vigor with consecutively treatment; effectiveness is dependent on cultivare type. Collect, bag, and dispose of or destroy flowers; seeds can mature and germinate if left. Subsoiling must be deeper than 10 inches; use a subsoiler. Fall prescribed fire may kill seeds if hot enough; chicory sets seed through the growing season so timing is important. Fire is unlikely to affect its deep taproot. The effects to chicory from prescribed fire is not tested.



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CHEMICAL

NOTE: Herbicide recommendations to control chicory in pastures and rangeland are found at: <https://goo.gl/TvWnv9>. Rates are approximate and based on equipment with an output of 30 gal/acre. Follow the label for exact rates. Consult local turf and ornamental experts for residential settings. Always read, understand, and follow the label directions. The herbicide label is the LAW!

Chicory

Cichorium intybus L.



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