



Native Plant Society of New Mexico



Parry's thistle with Hunt's Bumblebee and small Halictid bee near Cloudcroft

By Robert Sivinski

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New Mexico Thistle Identification Guide. Native Plant Society of New Mexico. Available: <http://www.npsnm.org/education/thistle-identification-booklet/>

Photos by the author unless otherwise indicated.

Cover photos: yellowspine thistle flower head (top); mountain pasture infested with non-native musk thistle (middle); Rufous Hummingbird feeding at the endangered Sacramento Mountains thistle (bottom).

Foreword

The State of New Mexico is home to twelve native thistle species in the genus *Cirsium*. All are ecologically important for pollinators and herbivores and are innocuous in their natural habitats. Two of our native thistles are wetland plants that are federally and state listed as threatened or endangered species. None of these showy, indigenous wildflowers should ever be classified or treated as weeds in the wild.

New Mexico also has two introduced, non-native species of *Cirsium* and an additional two species in the plumeless thistle genera *Carduus* and *Onopordum* that are noxious weeds. These four exotic thistles can occasionally become problematic for land managers or landowners and elicit a most extreme hatred of any plant with the word "thistle" in its common name—regardless of its origin. Eradication efforts with the spade, chemical herbicides, local ordinances, and release of non-native insects have received great amounts of publicity and support. This intense focus on killing noxious thistles may result in some local control of exotic thistles, but has also caused the unnecessary destruction of native thistle plants and populations. Years of experience with ranchers and mountain home owners digging up native thistles, NM Department of Transportation spraying herbicide on hundreds of individual New Mexico thistle along Highway 60 near Magdalena and the endangered Sacramento Mountains thistle on Highway 82 near Cloudcroft, and other unnecessary native thistle destruction have shown us the need for a thistle identification guide.

This identification guide focuses on the thistle genus *Cirsium* and the two common plumeless thistle species that may be mistaken for *Cirsium*. It does not include other non-native plants with the word "thistle" in their common names, such as Russian thistle, sowthistle and starthistle.

**Know the species of thistle
you are killing! It may be a
native plant and destroying it
is actually harmful...**



Marjorie Burnett

Thistle Morphology and Terminology

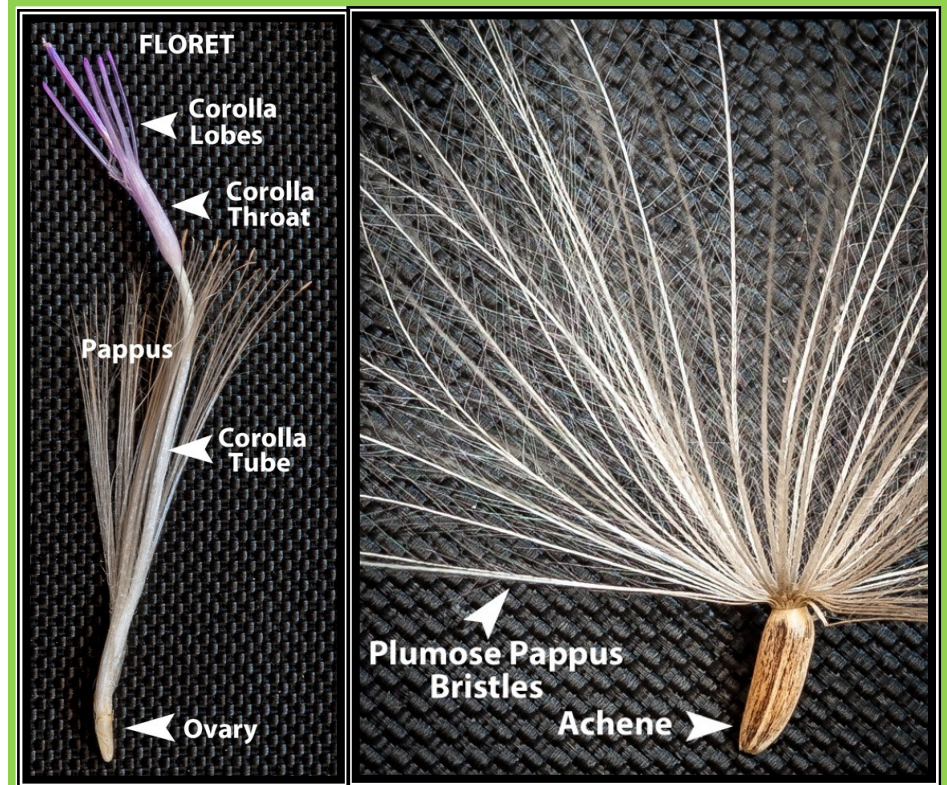
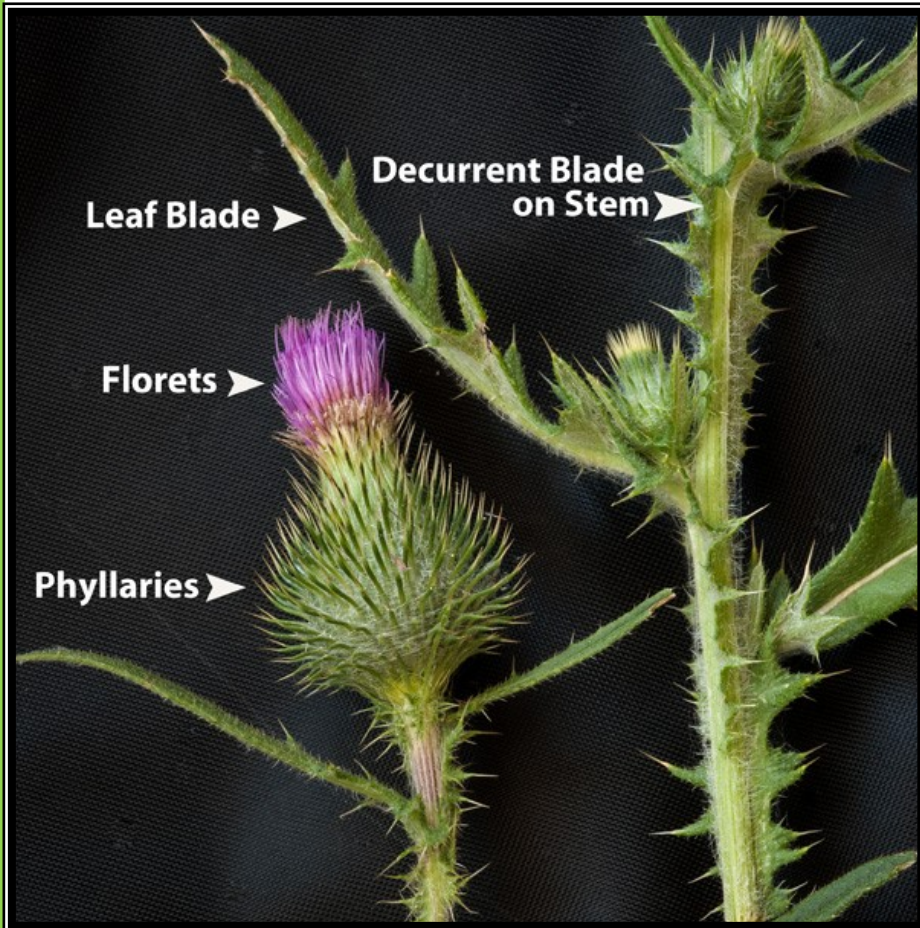
Thistles are in the Compositae (a.k.a. Asteraceae) family of plants, which have a flower head (capitulum) for an inflorescence. The thistle flower head is composed of a receptacle with many small flowers (florets) surrounded by an involucre of several bracts called phyllaries. Most thistles have sharp spines on the leaves and phyllaries—some quite painful on the hand.

Barbellate: short, tiny barbs—on a pappus bristle.

Decurrent leaf: a leaf blade extending downward on the stem beyond the point of attachment and creating two narrow ridges or irregular spiny wings on the stem.

Floret: simply a small flower.

Flower head: collectively the florets and involucre of phyllaries.



Glabrous: smooth—without hairs; glabrescent is sparsely hairy.

Involucre: A group of bracts (phyllaries) surrounding the base of a flower head.

Pappus: a ring of slender bristles (for thistles) above the ovary and outside the corolla tube.

Phyllaries: small green bracts in whorls around the florets of a composite flower head. Collectively called an involucre.

Pinnatifid: leaf blade pinnately cleft or lobed, but clefts not reaching the midrib.

Plumose: feathery; a pappus bristle with numerous slender branches.

Root sprouts: asexual reproduction of new rosettes (clones) sprouting from the creeping roots of an established plant.

Rosette: a juvenile whorl of leaves on the root crown that persists for one or more years before producing an adult stem with flower heads.

Sessile: a leaf blade that terminates at the point of attachment or a flower head without a stalk (peduncle).

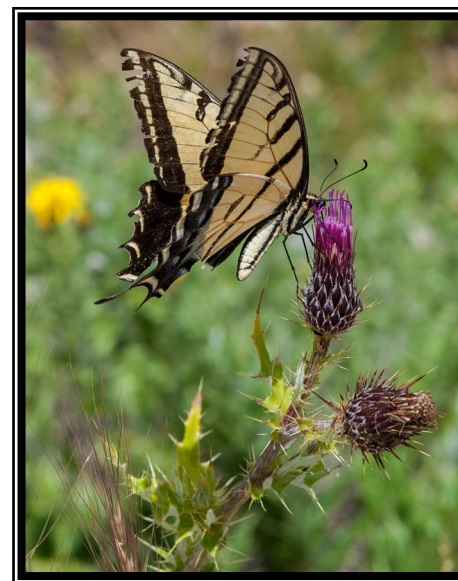
Tomentose: covered with soft, matted, white or gray hair.

Villous: long, soft, shaggy, but unmatted hairs.

Key to the Thistles of New Mexico

- 1 Pappus bristles scabrous barbellate; stem leaf blades decurrent into irregular spiny wings down the stem
 - 2 Phyllaries ovate-lanceolate, 4-10 mm wide; heads usually nodding...*Carduus nutans* Linnaeus MUSK THISTLE
 - 2 Phyllaries linear, 1-2 mm wide; heads erect...*Onopordum acanthium* Linnaeus SCOTCH THISTLE
- 1 Pappus bristles plumose; stem leaf blades decurrent or not
 - 3 Plant dioecious – staminate and pistillate flowers on different plants; involucre small, <2 cm long and 5-10 mm wide...*Cirsium arvense* (Linnaeus) Scopoli CREEPING THISTLE
 - 3 Plants monoecious – flowers perfect; Involucre usually larger
 - 4 Lower and mid-stem leaf blades long-decurrent (>3 cm) into irregular spiny wings down the stem to the next leaf node
 - 5 Upper leaf surface with tiny appressed stiff hairs or spines...*Cirsium vulgare* (Savi) Tenore BULL THISTLE
 - 5 Upper leaf surface glabrous, tomentose or with cobwebby hairs
 - 6 Lower leaf surfaces gray or white tomentose
 - 7 Plants usually <1 m tall; phyllary spines 4-12 mm long... *Cirsium ochrocentrum* Gray YELLOW-SPINE THISTLE
 - 7 Plants usually >1 m tall; phyllary spines 2-4 mm long... *Cirsium texanum* Buckley TEXAS THISTLE
 - 6 Lower leaf surface green, glabrous or with a thin cover of cobwebby hairs; phyllary spines <2 mm long... *Cirsium wrightii* A. Gray WRIGHT'S MARSH THISTLE
 - 4 Lower and mid-stem leaf blades sessile or only short-decurrent for <3 cm below leaf attachment
 - 8 Flowers yellowish or brownish yellow...*C. parryi* (Gray) Petrak PARRY'S THISTLE
 - 8 Flowers purple, lavender, pink, red or white
 - 9 Middle and outer phyllaries lacking a raised glutinous central ridge
 - 10 Corolla lobes longer than the tube; involucre cylindrical or oblong...*Cirsium arizonicum* (Gray) Petrak ARIZONA THISTLE
 - 10 Corolla lobes shorter than the tube; involucre ovoid, hemispheric or campanulate
 - 11 Stem leaf lower surface glabrous or glabrescent
 - 12 Flower heads erect; flowers white or pale lavender; upper stems green...*Cirsium scariosum* Nuttall MEADOW THISTLE
 - 12 Flower heads usually nodding; flowers reddish purple, upper stems maroon...*Cirsium vinaceum* Wooton & Standley SACRAMENTO MOUNTAINS THISTLE
 - 11 Stem leaf lower surface tomentose or villous
 - 13 Phyllaries densely long villous or cobwebby tomentose
 - 14 Plants annual or biennial; involucre prominently spiny with long 5-15 mm, flat, spreading or reflexed phyllary spines...*Cirsium neomexicanum* Gray NEW MEXICO THISTLE
 - 14 Plants perennial; involucre obscured by long dense tomentum...*Cirsium eatonii* (Gray) B.L. Robinson ALPINE THISTLE
 - 13 Phyllaries glabrous or thinly short tomentose...*Cirsium wheeleri*

- 9 Middle and outer phyllaries with a raised glutinous (often pale) central ridge
 - 15 Corolla lobes longer than the tube; florets united in a forward cylindrical column...*Cirsium arizonicum* (Gray) Petrak ARIZONA THISTLE
 - 15 Corolla lobes shorter than the tube; outer florets spreading away from inner florets
 - 16 Involucre green or gray; phyllary spines 2-15 mm long
 - 17 Phyllaries densely tomentose on outer surface, involucre often cobwebby tomentose...*Cirsium neomexicanum* Gray NEW MEXICO THISTLE
 - 17 Phyllaries glabrous or thinly tomentose on the outer surface, sometimes short tomentose on the margins
 - 18 Lower stem leaves decurrent 1-5 cm; stem leaf spines usually >5 mm long...*Cirsium ochrocentrum* Gray YELLOWSPINE THISTLE
 - 18 Lower stem leaves not decurrent more than 1 cm; stem leaf spines usually <5 mm long
 - 19 Phyllaries lanceolate, erose to pectinate fringed on margins; upper (inner) phyllaries often brownish purple tipped...*Cirsium wheeleri* (Gray) Petrak WHEELER'S THISTLE
 - 19 Phyllaries linear lanceolate, entire margins; upper phyllaries green or stramineous tipped
 - 20 Involucre often >3 cm long; corolla lavender or pink...*Cirsium undulatum* (Nuttall) Sprengel WAVY-LEAF THISTLE
 - 20 Involucre often <3 cm long; corolla white...*Cirsium tracyi* (Rydberg) Petrak TRACY'S THISTLE
 - 16 Involucre dark purple; phyllary spines 1-3 mm long...*Cirsium grahamii* Gray GRAHAM'S THISTLE



Two-tailed Swallowtail on Arizona thistle
Capilla Peak, Manzano Mountains

Carduus nutans MUSK THISTLE

NON-NATIVE NOXIOUS WEED

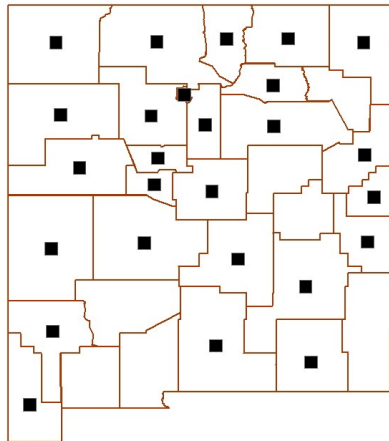
DESCRIPTION: Biennial; 0.6-2 m (2-6.5 ft) tall; stem leaves strongly decurrent making irregular spiny wings on the stem between leaf attachments, glabrous or slightly tomentose on the veins of the lower leaf surface; flower heads solitary at the end of long green branches, usually nodding and large, 4-10 cm (1.6-4 inches) wide; phyllaries prominent, green or purplish, spreading or recurved, spine-tipped, 4-10 mm (0.2-0.4 inches) wide; corolla bright reddish purple; pappus a ring of barbellate bristles. Flowers mid-June thru September.

SIMILAR SPECIES: None. Easily distinguished by its large, nodding, solitary heads, broad phyllaries, and the stems winged with spiny decurrent leaf blades. Care should be taken when weeding this introduced thistle near Cloudcroft. It can grow with or very near patches of the endangered Sacramento Mountains thistle, which also has purple, nodding flower heads.

HABITAT: Wetland margins, or disturbed areas that concentrate runoff in sagebrush scrub and piñon-juniper woodlands, then becoming more widespread at higher, wetter elevations in ponderosa pine and mixed conifer forests. 4,700-9,800 ft elevation.

COMMENTS: Introduced from Eurasia. Attains problematic densities on disturbed soils—mostly along roadsides, urban development, fallow farm fields and heavily grazed mountain pastures. Only occasional and inconsequential in natural undisturbed habitats.

TREATMENT: Exotic biological control agents threaten native thistle species and should not be released. The exotic seedhead weevil (*Rhinocyllus conicus*) has been introduced to NM to control this weedy thistle, but has not been effective at higher elevations because so many flower heads bloom too late in the season. This exotic weevil is now attacking some of our native thistles. See literature section for other control methods.



Musk thistle flower head (nodding)



Decurrent leaf blades on stem



Juvenile rosette



Glabrous or slightly tomentose leaves



3 to 6 feet tall



Cirsium arizonicum ARIZONA THISTLE

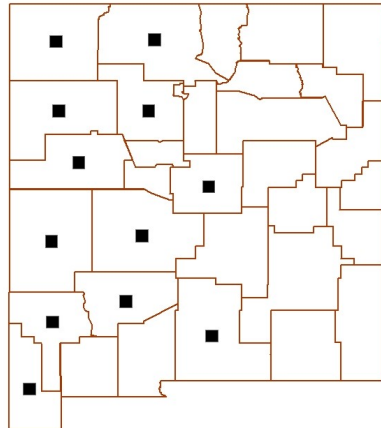
NATIVE WILDFLOWER—DO NOT KILL

DESCRIPTION: Biennial or long-lived perennial; 0.6-1.5 m (2-5 ft) tall; stem leaves usually sessile, occasionally decurrent for 1-3 cm (0.4-1.2 inches) down the stem, usually tomentose, at least on the lower surface, rarely glabrous, regularly pinnatifid; involucre narrowly elongate-cylindrical or oblong, 2-3 cm (0.8-1.2 inches) long; lower phyllaries spreading, usually long spine-tipped, glabrous or inconspicuous tomentum on the margins; florets erect and united in a slightly spreading column; corolla reddish purple, red or pink-purple, lobes much longer than the tube. Flowers July thru September.

SIMILAR SPECIES: Distinguished by its narrowly elongate flower heads, erect florets with long corolla lobes, and relatively long, regularly pinnatifid leaves. There are four named varieties in NM. Variety *arizonica* and var. *rothrockii* differ by the dense white tomentum on the lower leaf surface of the former and glabrous leaves of the latter. Both have red to pink flowers and occur in Grant and Hidalgo County mountains. Variety *chellyense* has purplish flowers, nearly glabrous, decurrent leaves and is only in the Chuska Mountains near the AZ border. Variety *bipinnatum* is the most widespread with purplish flowers and tomentose leaves that are usually sessile.

HABITAT: Rocky openings, canyon bottoms and eroding slopes in ponderosa pine and mixed-conifer forests or oak-piñon-juniper woodlands. 5,300-9,800 ft elevation.

COMMENTS: This species has distinct varieties that some botanists still prefer to treat as species. All our varieties of Arizona thistle are relatively rare in NM with small populations, except the more frequent var. *bipinnatum* in San Juan County canyons. Red-flowered varieties are great hummingbird plants. Small populations near highways and Forest Service roads are vulnerable to destruction by irrational thistle hatred.



Flowers purple in vars. *bipinnatum* (left) and *chellyense*. Red in vars. *arizonica* and *rothrockii* (below).

Leaves usually sessile and gray tomentose, at least below.

Cirsium arvense CREEPING THISTLE

NON-NATIVE NOXIOUS WEED

DESCRIPTION: Root-sprouting perennial; up to 1 m (about 3 ft) tall; stem leaves sessile or slightly decurrent, glabrous or lower leaf surface slightly tomentose, rarely gray with dense tomentum; flower heads numerous, small; involucre <2 cm (0.8 inches) long, ovoid or urn-shaped; phyllaries numerous, in 6-8 series, without prominent spine tips (<1 mm); corolla pink or lavender. Flowers mid-June thru August.

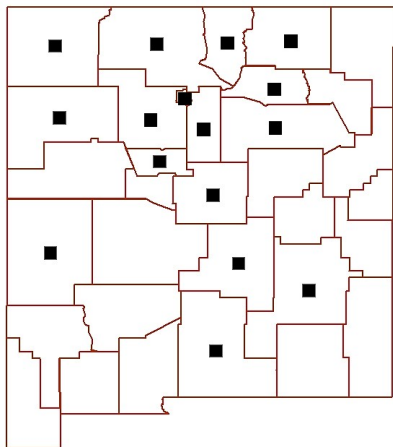
SIMILAR SPECIES: None. Easily distinguished by its tiny flower heads with spines only 0-1 mm long on the numerous phyllaries, and by prolific sprouting from its creeping roots—hence the name ‘creeping thistle’.

HABITAT: Riparian and wetland margins, heavily grazed valley-bottom meadows, or disturbed areas that concentrate runoff. Needs permanently wet soil in the root zone at lower, drier elevations. 5,600-10,300 ft elevation.

COMMENTS: Creeping thistle is the most problematic and pernicious non-native thistle in NM. Patches of stems from root sprouts can become huge and dense to the exclusion of native wetland vegetation. It is damaging to riparian and wetland ecosystems at springs, wet mountain meadows and the margins of ponds and creeks. This species is dioecious—individual plants have only male flowers or only female flowers. It is introduced to North America from Eurasia, so inaccurately (though commonly) called ‘Canada thistle’.

TREATMENT: Mowing, pulling and goat grazing are only temporarily effective in controlling creeping thistle. Exotic biological control agents also threaten native thistle species and should not be released.

See literature section for herbicide control methods.



Involucres small with no prominent spines. Plants short and root-sprouting



Leaves not prominently decurrent



Dense patches—often near water

Cirsium eatonii ALPINE THISTLE

NATIVE WILDFLOWER—DO NOT KILL

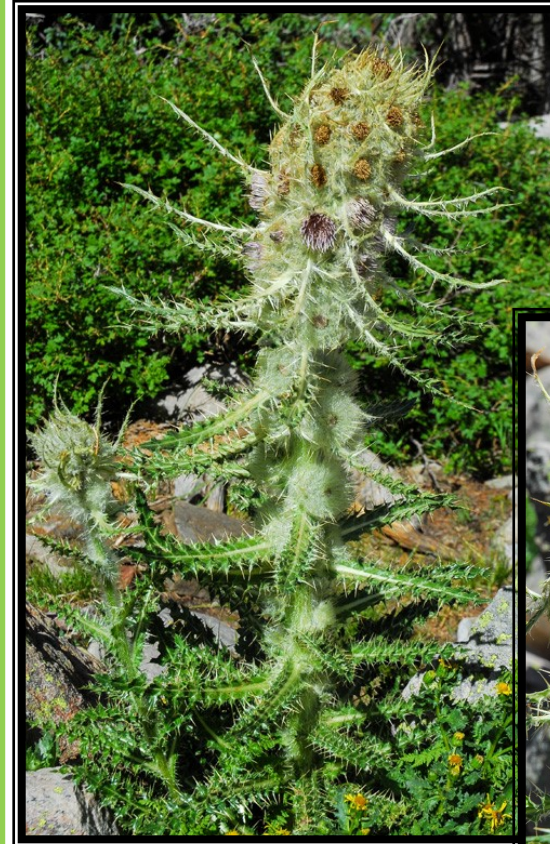
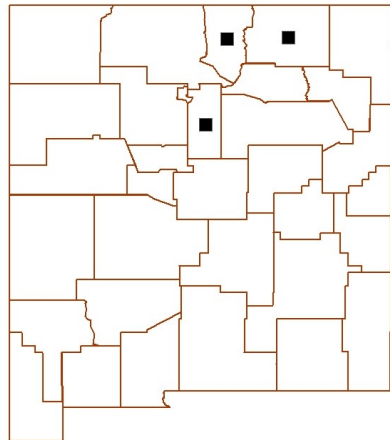
DESCRIPTION: Perennial; up to 1.5 m (about 5 ft) tall; stem leaves usually sessile, sparsely villous or tomentose on the lower surface, glabrous or nearly so on upper surface, margins undulate and spiny-toothed; several flower heads sessile on the main stem or attached by very short branches making a dense, thick, leafy inflorescence that is usually nodding to one side; involucre covered with thin or thick tomentose (phyllaries often obscured by tomentum); corolla pink or lavender. Flowers mid-July thru August.

SIMILAR SPECIES: A very unique thistle with a dense leafy spike of fuzzy flower heads that sometimes nods above the middle. Colorado thistle also has flower heads on very short branches but it differs in its white flowers and glabrous involucre.

HABITAT: Rocky slopes and ridges in the alpine or meadow openings in subalpine forest. 11,000-12,000 ft elevation.

COMMENTS: Alpine thistle is confined to the high alpine and subalpine elevations of the Sangre de Cristo Mountains. Its habitats are less likely to be impacted by roads and development than other native thistle species at lower elevations. Exotic thistle species are also usually absent from these high elevations.

There are several named varieties of *Cirsium eatonii*, but the only variety in NM is var. *eriocephalum*. This variety is distinguished by its densely fuzzy involucre, pink flowers and stems that tend to nod to one side. It has previously been classified as the species *Cirsium scopulorum*, a name that is still used by some New Mexican and Coloradoan botanists.



Flower heads crowded against main stem; florets lavender or pink; involucre covered with villous tomentum



Stem often nodding



Leaf bases clasping and not decurrent

Cirsium grahamii GRAHAM'S THISTLE

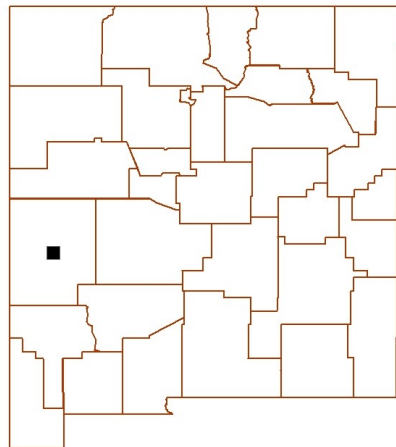
NATIVE WILDFLOWER—DO NOT KILL

DESCRIPTION: Biennial; up to 1 m (about 3 ft) tall; stem leaves usually sessile or sometimes short-decurrent, densely gray tomentose on the lower surface, glabrous or nearly so on upper surface, margins coarsely toothed or deeply pinnatifid with spine-tipped teeth; flower heads 1 or few per stem; involucre 2-3 cm (0.8-1.2 inches) long, ovoid, glabrous or thinly tomentose; phyllaries brownish purple with a glutinous central ridge, only the tips spreading with short 1.5-2.5 mm spines; corolla deep purple. Flowers late July to mid-September.

SIMILAR SPECIES: *Cirsium grahamii* is distinguished by its biennial habitat, small 2-3 cm long involucre, purple phyllaries with short spine tips and deep purple flowers. *Cirsium wrightii* can also have purplish short-spined phyllaries, but that color phase has pink or pale purple flowers and is confined to populations in the Pecos River valley of southeastern NM. *Cirsium arvense* is a root-sprouting perennial with smaller <2 cm involucre and pink or lavender flowers. *Cirsium wheeleri* has purplish flowers and similar foliage, but is a root-sprouting perennial with longer phyllary spines.

HABITAT: Riparian canyon bottoms and moist meadows in pine forest. 5,500-8,700 ft elevation.

COMMENTS: Graham's thistle is very rare in NM and has been collected only three times in the state in 1900, 1903 and 2002. All New Mexico observations of this thistle were along the West Fork or Middle Fork of the Gila River in the Mogollon Mountains of southern Catron County. It should be looked for elsewhere in the Mogollon Mountains and further south in Grant and Hidalgo counties.



Flowers and phyllaries dark purple with a glutinous central ridge and short terminal spine



Max Licher



Max Licher

Lower leaf surface with dense gray/white tomentum



Gene Sturla



Max Licher

Cirsium neomexicanum NEW MEXICO THISTLE

NATIVE WILDFLOWER—DO NOT KILL

DESCRIPTION: Biennial; 0.6-2 m (2-6.5 ft) tall; stems and leaves densely or thinly gray tomentose on all surfaces; leaves sessile or short-decurrent as spiny wings on the stem, margins shallow pinnatifid with spine-tipped teeth; flower heads solitary at the ends of branches; involucre 2-3 cm (0.8-1.2 inches) long and 2-4 cm (0.8-1.7 inches) wide, hemispheric or bell-shaped, loosely or cobwebby tomentose, prominently armed with long, spreading spine-tipped phyllaries; corolla usually pink, sometimes lavender or white. Flowers May thru June, rarely in July or August at higher elevations.

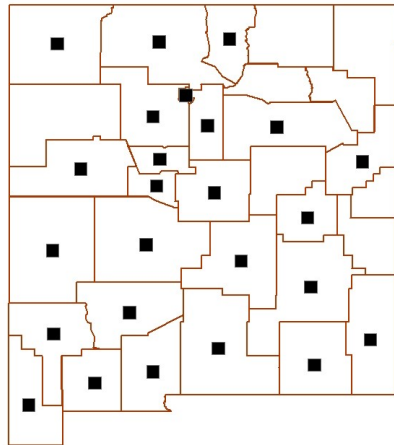
SIMILAR SPECIES: *Cirsium neomexicanum* is distinguished by its broad, bell-shaped, tomentose involucre of long, widely spreading, spine-tipped phyllaries. *Cirsium ochrocentrum* and *Cirsium wheeleri* can also have long-spined phyllaries, but their involucre are ovoid or urn-shaped and nearly glabrous with only a little tomentum on the phyllary margins. Their upper leaf surfaces are also glabrous or only slightly hairy.

HABITAT: Usually on rocky slopes, roadsides and dry arroyos in desert grasslands and piñon-juniper woodland, occasionally up to mixed conifer forest on south-facing scree slopes. 4,100-9,000 ft elevation.

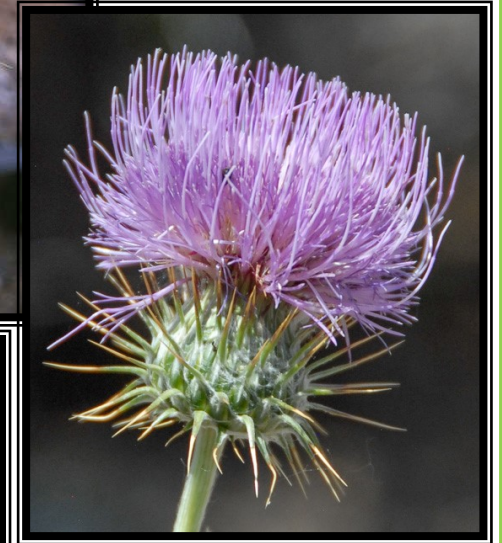
COMMENTS: New Mexico thistle is wide-spread and sometimes abundant in arid parts of NM. It is a beautiful early summer wildflower along highways where it has been targeted for destruction by irrational thistle hatred.



New Mexico thistles
on Highway 60 east of
Magdalena



Phyllaries spreading and tomentose. Flowers Pink, lavender or white.



Stems and foliage gray tomentose



Leaves sessile or short-decurrent



Cirsium ochrocentrum YELLOWSPINE THISTLE

NATIVE WILDFLOWER—DO NOT KILL

DESCRIPTION: Perennial; up to 0.9 m (3 ft) tall; stems tomentose, 1-several from a central base; leaves densely gray tomentose on lower surface, less hairy and green on upper surface; lower stem leaves decurrent as spiny wings for 1-5 cm (0.4-2 inches), margins pinnatifid with stout yellowish spines; involucre 2.5-4.5 cm (1-1.8 inches) long, ovoid or urn-shaped; phyllaries glabrous, slightly fringed on the margins, with a pale glutinous central ridge, terminated by a stout yellow or orange spine 4-12 mm (0.2-0.5 inches) long; corolla usually pink or red, sometimes lavender or white. Flowers June to September.

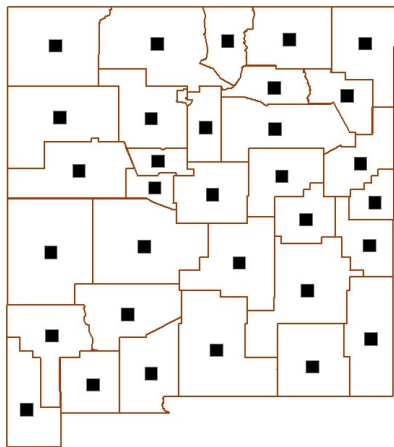
SIMILAR SPECIES: *Cirsium ochrocentrum* var. *martinii* has reddish flowers, well-spaced stem leaves, and occurs in Catron, Grant and Hidalgo counties. Variety *ochrocentrum* has pink or lavender (rarely white) flowers and more crowded stem leaves. It is often difficult to distinguish from *Cirsium undulatum*, which usually has shorter phyllary and leaf spines, more tomentum on the upper leaf surface and usually lacks decurrent leaves. *Cirsium ochrocentrum* also tends to occupy somewhat lower and drier elevations than *C. undulatum*.

HABITAT: Arid shrub and grasslands from Chihuahuan Desert up to piñon-juniper woodland, often on disturbed soils. 3,300-7,200 ft elevation.

COMMENTS: Yellowspine thistle is our most common native thistle and frequently found on disturbed roadsides throughout the state. It is an especially important wildflower for insect pollinators.



Uncas Skipper and Tephritid fly on yellowspine thistle near Carrizozo



Flowers pink, lavender or white in variety *ochrocentrum* (left) and reddish in variety *martinii* (below); phyllaries have a pale glutinous central ridge and tipped with stout 4-12 mm spines



Leaves short-decurrent. Green above and gray tomentose below.

Cirsium parryi PARRY'S THISTLE

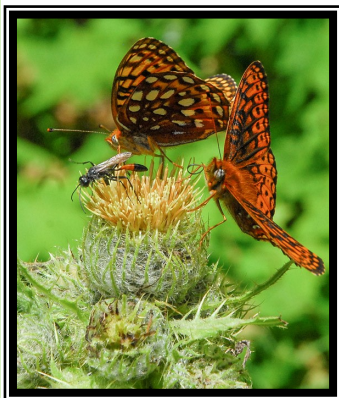
NATIVE WILDFLOWER—DO NOT KILL

DESCRIPTION: Biennial; 0.9-2 m (3-6.5 ft) tall; usually single stem at the base then branching; leaves often sparsely tomentose, equally green on both surfaces; stem leaves clasping the stem, not decurrent, margins nearly entire or pinnately toothed with weak spines; involucre 1.5-3 cm (0.6-1.2 inches) long, hemispheric or bell-shaped; phyllaries linear or more broadly lanceolate with a slender spine tip, densely silvery fringed on the margins; corolla yellow or brownish yellow. Flowers July to September.

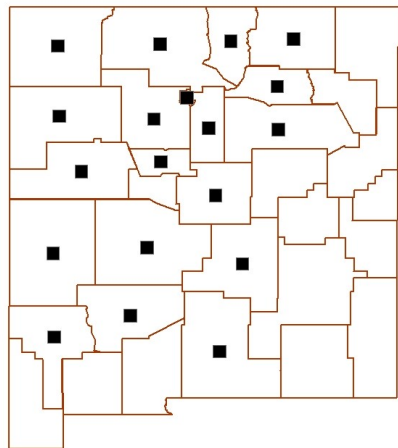
SIMILAR SPECIES: *Cirsium parryi* is the only yellow-flowered thistle in NM so is easily distinguished from all other thistles by flower color. It is very variable on different mountain ranges and continues to be split into local species by some botanists. The plants in the Sacramento Mountains have very small flower heads and lanceolate phyllaries with a fringe of tiny spines instead of linear phyllaries fringed with long silvery cilia (see inside cover photo). These have been named *Cirsium inornatum* and may be worthy of taxonomic distinction as a species or subspecies.

HABITAT: Stream banks or damp soils in coniferous forest, aspen glades and mountain meadows. 7,800-11,200 ft elevation.

COMMENTS: Parry's thistle is less spiny than most native thistles so is often eaten by horses and cattle and can disappear from over-stocked ranges. It is an important wildflower for insect pollinators.



Northwestern
Fritillaries and
a thread-
waisted wasp
on Parry's
thistle above
Santa Fe



Corolla yellow or brownish yellow; phyllaries silvery fringed; flower heads often crowded at branch ends



Leaf bases clasping, but not decurrent



Cirsium scariosum MEADOW THISTLE

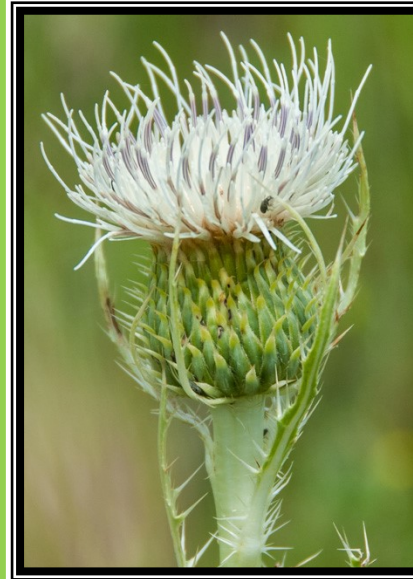
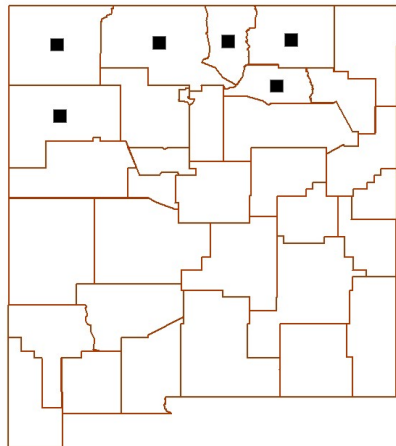
NATIVE WILDFLOWER—DO NOT KILL

DESCRIPTION: Biennial; up to 1.5 m (about 5 ft) tall; single densely leafy stem; leaves stiff, glabrous or very sparsely tomentose, equally green on both surfaces, not decurrent, margins toothed with spines; flower heads sessile or on short stalks above the middle of the stem; involucre 2-3.5 cm (0.8-1.4 inches) long, ovoid to hemispheric; phyllaries glabrous, sometimes fringed on the margins, spine tips spreading, 1-5 mm long; corolla white, or tinged with lavender. Flowers mid-July to early September.

SIMILAR SPECIES: The New Mexico populations of this species are the southern-most variety *Cirsium scariosum* var. *coloradense*. This variety is distinguished by its erect stems with white flower heads near the top and arrayed with stiff green leaves. *Cirsium eatonii* var. *eriocephalum* also has sessile or short-stalked flower heads and stiff green leaves, but its involucre is densely fuzzy and flowers are pink or purplish. *Cirsium wrightii* is another white-flowered thistle in wet meadows, but has succulent leaves with long decurrent bases and is confined to southern NM.

HABITAT: Moist soils around impoundments, spring seeps and streams in mountain meadows and coniferous forests. 7,300-10,00 ft elevation.

COMMENTS: Meadow thistle is uncommon in the mountains of northern NM. It is only occasionally found here in small populations—usually in wet meadows.



Flower head with glabrous involucre and white flowers



Erect stems with flower heads on very short branches



Cirsium texanum TEXAS THISTLE

NATIVE WILDFLOWER—DO NOT KILL

DESCRIPTION: Biennial; 0.9-1.8 m (3-6 ft) tall; stem tomentose, usually and branching well above the base; leaves regularly pinnatifid, green and nearly glabrous on upper surface, densely white tomentose on lower surface, blade strongly decurrent usually down to the next leaf; flower heads small, at the ends of long slender branches; involucre 1.5-2.5 cm (0.6-1 inch) long, ovoid to hemispheric; phyllaries glabrous or nearly so with a pale glutinous central ridge, spine tips spreading, 2-4 mm long; corolla pink or purplish pink. Flowers late April to June, rarely re-blooming in late summer.

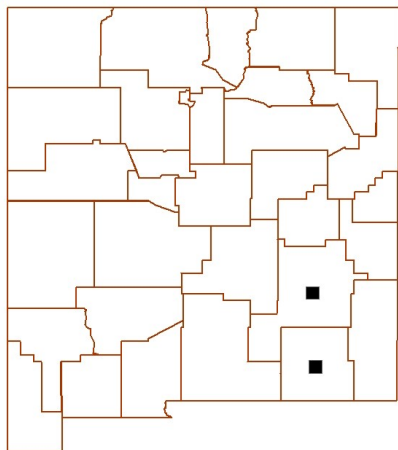
SIMILAR SPECIES: *Cirsium undulatum* lacks long decurrent stem leaf blades and does not usually occur below 5,000 feet elevation in NM. *Cirsium wrightii* is very similar, but can be distinguished by its leathery semi-succulent leaves that are nearly glabrous, shorter (0-1 mm) phyllary spines, paler flowers, and wetland habitat.

HABITAT: Riparian valley bottoms and other low areas like road ditches that retain runoff. 3,000-3,700 ft elevation.

COMMENTS: Texas thistle occupies riparian areas in the Black River and lower Pecos River basins, which are heavily impacted by agriculture, urban and recreational development. Surviving populations occur in small, localized habitats and are vulnerable to destruction by irrational thistle hatred. All NM populations have long decurrent leaf blades—possibly from ancient hybridization events with *C. wrightii*.



Honey bee on Texas thistle in Carlsbad



Flowers bright pink; phyllaries have a pale glutinous central ridge and tipped with short 2-3 mm spines



Stem and lower leaf surface densely tomentose; leaf blade long-decurrent



Cirsium tracyi TRACY'S THISTLE

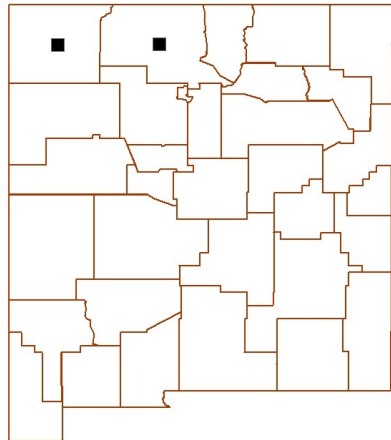
NATIVE WILDFLOWER—DO NOT KILL

DESCRIPTION: Perennial; 0.6-1.2 m (2-4 ft) tall; stems tomentose, 1-several from a central base; stem leaves gray tomentose on both surfaces, but less so and greener on upper surface, sessile or not more than 1 cm (0.4 inches) decurrent, margins pinnatifid with widespread teeth tipped by yellowish spines; involucre 2-3 cm (0.8-1.2 inches) long, ovoid to spherical; phyllaries glabrous or nearly so with a pale glutinous central ridge, terminal spines slender, spreading, 2-6 mm long; corolla white. Flowers late May to early September.

SIMILAR SPECIES: Similar to *Cirsium undulatum* in almost all respects except the lavender to pink flower color of *C. undulatum*. Involucre length overlaps with other high elevation populations of *C. undulatum* and is not diagnostic. Corolla lobe length is generally shorter and averages about 7 mm for *C. tracyi* and about 10 mm for *C. undulatum*. Fortunately, all NM populations of *C. tracyi* have white flowers, which aids identification. *Cirsium tracyi* does not root sprout as do many high elevation forms of *C. undulatum*.

HABITAT: Ponderosa pine and Gambel oak forests, piñon-juniper and sagebrush swales, and disturbed roadsides. 6,100-9,000 ft elevation.

COMMENTS: Some Colorado and Utah populations of Tracy's thistle are more difficult to distinguish from wavey-leaf thistle because they have pale lavender or purplish pink flowers. Roadside populations of Tracy's thistle are vulnerable to mowing and herbicide treatments.



Flowers white; phyllaries with short spines and pale glutinous central ridge



Leaf blades not decurrent; usually several stems from near the base



Cirsium undulatum WAVY-LEAF THISTLE

NATIVE WILDFLOWER—DO NOT KILL

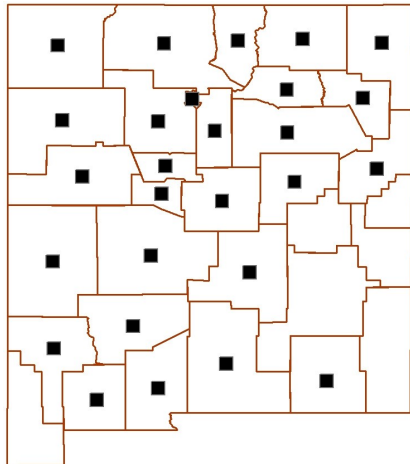
DESCRIPTION: Perennial, sometimes root sprouting; 0.6-1.5 m (2-5 ft) tall; stems tomentose, 1-several from a central base; stem leaves gray tomentose on both surfaces, but less so and greener on upper surface, sessile or not more than 1 cm (0.4 inches) decurrent, margins with irregular widespread teeth tipped by yellowish spines or less often pinnatifid; involucre 2.5-4.5 cm (1-1.8 inches) long, ovoid to spherical; phyllaries glabrous or nearly so with a pale glutinous central ridge, terminal spines slender, spreading, 2-8 mm long; corolla usually lavender or purplish, sometimes pink, lobes >8 mm long. Flowers late May to early September.

SIMILAR SPECIES: *Cirsium ochrocentrum* tends to have regularly pinnatifid stem leaves with short-decurrent blades and is usually more prominently armed with stout spines on the phyllaries and upper stem leaves. It is common in deserts and grasslands while *C. undulatum* is usually a montane thistle. *Cirsium wheeleri* is distinguished by its slender stems, fewer broader phyllaries, and corolla lobes <8 mm long.

HABITAT: Mixed conifer and ponderosa pine forests down to the high plains, often on disturbed roadsides. 5,000-9,400 ft elevation.

COMMENTS: A widespread and highly variable species. Plants usually solitary at lower elevations, but populations in conifer forest under-

story are often root sprouting colonies of short-stem plants and gray tomentose rosettes.



Flowers usually lavender or purplish, sometimes pink; phyllaries with pale glutinous central ridge and spines 2-8 mm long



Stems branching from near the base; leave sessile or very short-decurrent

Cirsium vinaceum SACRAMENTO MTS. THISTLE

NATIVE WILDFLOWER—ENDANGERED—DO NOT KILL

DESCRIPTION: Root sprouting perennial; 0.9-2 m (3-6.5 ft) tall; a single glabrous, dark maroon stem branching above the middle; leaves regularly pinnatifid, green and glabrous, blade short-decurrent; flower heads nodding; involucre 2-3 cm (0.8-1.2 inches) long, bell-shaped; phyllaries nearly glabrous, dark maroon, flattened-elongate, spreading and reflexed; corolla pinkish purple. Flowers mid-June to early September.

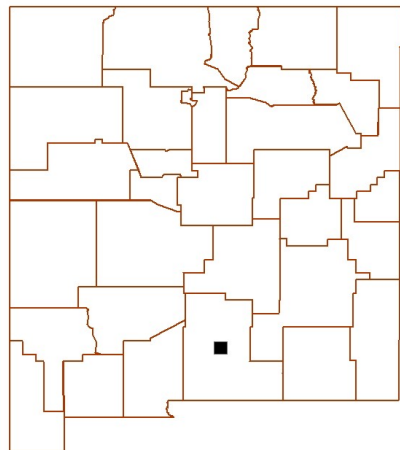
SIMILAR SPECIES: The nodding heads, reflexed phyllaries, and maroon involucre and stems of *C. vinaceum* should not be mistaken for any other NM thistle. The noxious weed, *Carduus nutans*, does grow in and near patches of *Cirsium vinaceum* and also has nodding purple flower heads with reflexed phyllaries. Extreme care should be taken when attempting to kill *Carduus nutans* in proximity to *Cirsium vinaceum* populations.

HABITAT: Sacramento Mountains springs that deposit wet travertine and wet calcium carbonate soils along spring runs in mixed conifer forest and wet mountain meadows. 7,500-9,500 ft elevation.

COMMENTS: This endangered wetland thistle grows only on springs in the Sacramento Mountains near Cloudcroft. It is threatened by aquifer depletion, livestock grazing and insect predators. The exotic seed-head weevil *Rhinocyllus conicus* has recently been introduced to the Sacramento Mountains to control musk thistle, but is also attacking Sacramento Mountains thistle.



Nevada bumblebee on *Cirsium vinaceum*



Flower heads nodding; phyllaries reflexed; flowers pinkish purple; involucre and stems dark maroon



Leaves glabrous; stem leaves short-decurrent

Cirsium vulgare BULL THISTLE

NON-NATIVE NOXIOUS WEED

DESCRIPTION: Biennial; 0.9-1.5 m (3-5 ft) tall; stems 1-several with villous spreading hairs; stems leaves strongly decurrent making irregular spiny wings on the stem between leaf attachments, gray tomentose on lower leaf surface; green on upper surface with short, appressed stiff hairs, margins toothed or pinnatifid with prominent spine-tipped lobes; flower heads at the ends of long green branches; involucre ovoid or urn-shaped in flower, 3-4 cm (1.2-1.6 inches) long, cobwebby tomentose; phyllaries numerous, linear-lanceolate, lacking glutinous central ridge, spreading and spine-tipped; corolla purple or reddish purple. Flowers mid-July thru September.

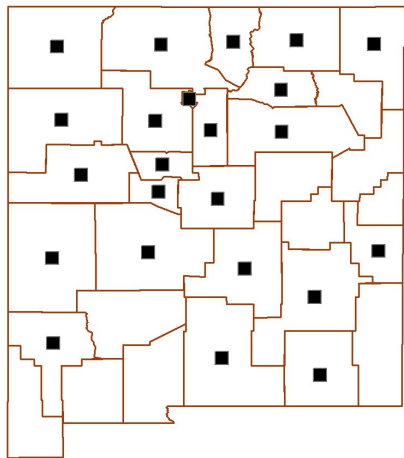
SIMILAR SPECIES: None. Easily distinguished by its cobwebby involucre of numerous linear phyllaries lacking glutinous central ridges, and short, stiff appressed hairs on the upper leaf surface (bend the leaf and use a hand lens to see these).

HABITAT: Roadsides or disturbed areas that concentrate runoff and wetland margins from mixed conifer forest down to piñon-juniper woodlands. 4,500-9,800 ft elevation.

COMMENTS: Introduced from Europe. Rarely attaining problematic densities on disturbed soils, mostly along roadsides. Only occasional and inconsequential in natural undisturbed habitats.

TREATMENT: Exotic biological control agents also threaten native thistle species and should not be released. This exotic biennial usually occurs in low enough density to control by hand digging.

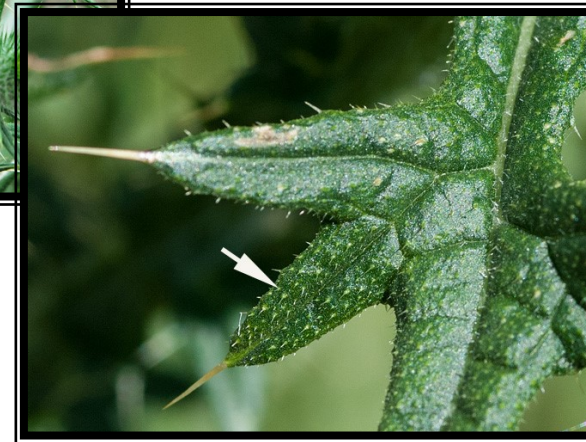
See literature section for other control methods.



Flowers purple or reddish purple; involucre cobwebby with numerous narrow spine-tipped phyllaries; phyllaries lack a pale glutinous central ridge



Stem leaves long-decurrent down the stem; upper leaf surface with tiny stiff hairs



Cirsium wheeleri WHEELER'S THISTLE

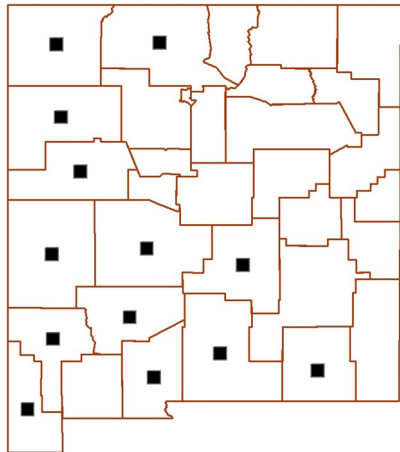
NATIVE WILDFLOWER—DO NOT KILL

DESCRIPTION: Slender perennial, often root sprouting; up to 0.6 m (about 2 ft) tall; stems tomentose, 1-few; stem leaves gray tomentose on lower surface, but less so and greener on upper surface, sessile, not decurrent, margins with irregular widespread teeth tipped by spines or less often pinnatifid; involucre 1.5-2.5 cm (0.6-1 inch) long, ovoid to spherical; phyllaries broadly lanceolate with a glutinous central ridge and minutely fringed margins, terminal spines stout, spreading, 2-7 mm long, upper spineless phyllaries often have reflexed or coiled tips that are tinged brownish purple; corolla pink or pinkish purple, lobes <8 mm long. Flowers mid-July thru September.

SIMILAR SPECIES: *Cirsium undulatum* is also a montane thistle, but has thicker stems; narrower, more numerous phyllaries tipped with slender spines; and longer >8 mm corolla lobes. *Cirsium wheeleri* is distinguished by its fewer, wider phyllaries with prominent stout spines and corolla lobes <8 mm long. *Cirsium arvense* is also a root-sprouting perennial, but has numerous small phyllaries with spines <1 mm and is dioecious (separate male and female plants).

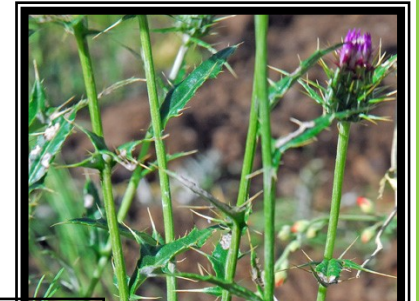
HABITAT: Mixed conifer forest down to canyons in piñon-juniper or oak woodlands. 5,700-9,600 ft elevation.

COMMENTS: Occurs in a wide range of mountain elevations, but is most common in the understory of ponderosa pine-Gambel oak forest. Small populations near highways, Forest Service roads and campgrounds are vulnerable to destruction by irrational thistle hatred. Juvenile rosettes have taproots that will often form deep-seated root sprout branches that make small dense colonies for rosettes and flowering stems.



Flower pink or pinkish purple; phyllaries broad with spreading spines; upper phyllaries often tipped with dark brownish purple

Plants often root sprouting; stem leaves with spine-tipped teeth, not decurrent, gray tomentose on lower surface, greener and nearly glabrous on upper surface



Cirsium wrightii WRIGHT'S MARSH THISTLE

NATIVE WILDFLOWER—ENDANGERED—DO NOT KILL

DESCRIPTION: Biennial; up to 1-2.5 m (3-8 ft) tall; stem glabrous usually single and branching well above the base; leaves irregularly toothed with small spines, semi-succulent and leathery, glabrous or slightly cobwebby on both surfaces, blade strongly decurrent down to the next leaf; flower heads small, at the ends of long slender branches; involucre 1.5-2.4 cm (0.6-1 inch) long, hemispheric or bell-shaped; phyllaries glabrous with a pale glutinous central ridge, tips spreading, spine tip 0-1 mm long; corolla white or purplish pink. Flowers August to early October.

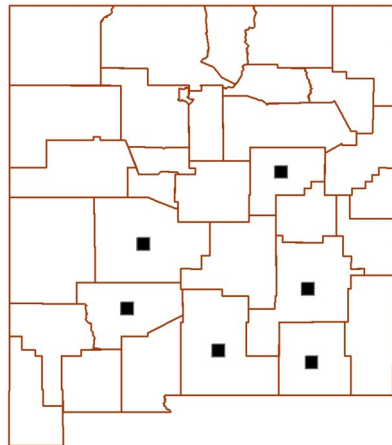
SIMILAR SPECIES: *Cirsium texanum* is similar, but is gray tomentose on the lower leaf surface, has more prominent spines on the phyllaries and leaf teeth, lacks leathery semi-succulent leaves and does not require wet-soil habitat. *Cirsium grahamii* has dark purple flowers, stem leaves that are gray tomentose on the lower surface and not decurrent.

HABITAT: Spring-fed wet meadows and salt marshes (ciénegas). 3,200-7,900 ft elevation.

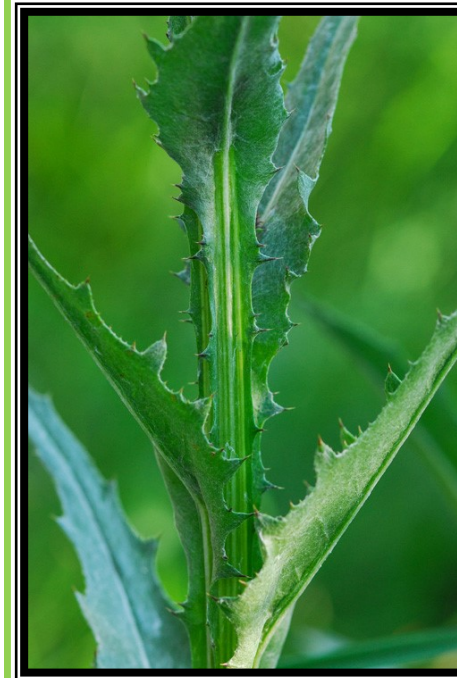
COMMENTS: Ciénega wetlands are among the most endangered habitats in NM. All Wright's marsh thistle habitats are threatened by aquifer depletion, but some are also threatened with urbanization, agriculture and livestock grazing. Populations west of the Pecos River have white or pale pink flowers while Pecos River basin populations have purplish pink flowers—possibly

from ancient hybridization events with *C. texanum*.

American Bumble Bee on Wright's marsh thistle at Blue Hole Ciénega in Santa Rosa



Flowers white or purplish pink; phyllaries have a pale glutinous central ridge and spreading tips with only 0-1 mm spines



Leaves semi-succulent and leathery, almost glabrous; stem leaves long-decurrent down the stems; branching usually at or above the middle of the stem



Onopordum acanthium SCOTCH THISTLE

NON-NATIVE NOXIOUS WEED

DESCRIPTION: Biennial; 0.6-2.5 m (2-8 ft) tall; stem leaves strongly decurrent making broad, irregularly spiny wings on the stem between leaf attachments, gray tomentose on both surfaces; flower heads one or a few at the ends of branches, erect; involucre broadly ovoid, 2-3 cm (0.8-1.2 inches) long, 2-4 cm (0.8-1.6 inches) wide; phyllaries numerous, linear, spine-tipped, cobwebby, spreading to erect; corolla purple, rarely white; pappus of pink to reddish, minutely barbellate bristles. Flowers mid-June thru July.

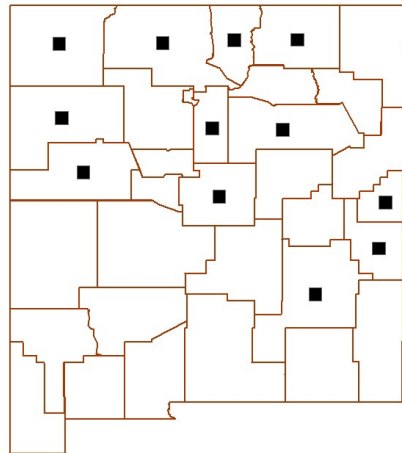
SIMILAR SPECIES: None. Easily distinguished by its gray tomentose stems and leave strongly decurrent leaf blades making broad spiny wings down the stems.

HABITAT: Disturbed soils in riparian areas and through grasslands, piñon-juniper woodlands, ponderosa pine forests. 4,000-7,600 ft elevation.

COMMENTS: Introduced from Europe. Scotch thistle is a large handsome plant that is the national emblem of Scotland. Sometimes attains problematic densities on disturbed areas—mostly along roadsides, livestock facilities, and urban development. Only occasional and inconsequential in natural undisturbed habitats. This exotic plant arrived in NM in the late 1980s and rapidly spread along the highways to the northern and eastern parts of the state

TREATMENT: Exotic biological control agents threaten native thistle species and should not be released. Mowing of flowering stems before seed set is used to control Scotch thistle in highway rights-of-way.

See literature section for other control methods.



Flowers purple; phyllaries numerous, linear and spine-tipped

Leaves gray tomentose on both surfaces



Stems broadly spiny winged with decurrent leaf blades



Native Insects on Native Thistles

Native thistles are important to biological communities because they support a wide variety of native pollinator and plant-eating insects. Most pollinators are generalists, but some herbivores specialize on thistles. Just a few examples...

Many bee species like this mining bee



Beetles including flower beetles, weevils and scarabs like this Green June Beetle



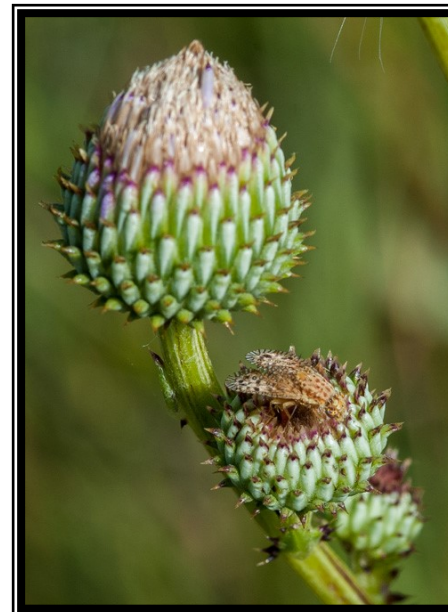
Butterflies like this Black Swallowtail



Flower flies like this Tachinid (left) and Common Oblique Syrphid (below)



Thistle specialists like the Tephritid fly, *Paracantha gentilis*, (lower left) and Plume Moth, *Platyptilia carduidactyla*, (lower right) lay their eggs only in thistle heads where the larvae consume the developing seeds.



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Visit the Native Plant Society of New Mexico website at Visit the Native Plant Society of New Mexico website at <http://www.npsnm.org/education/thistle-identification-booklet/> to print this booklet to print this booklet.