





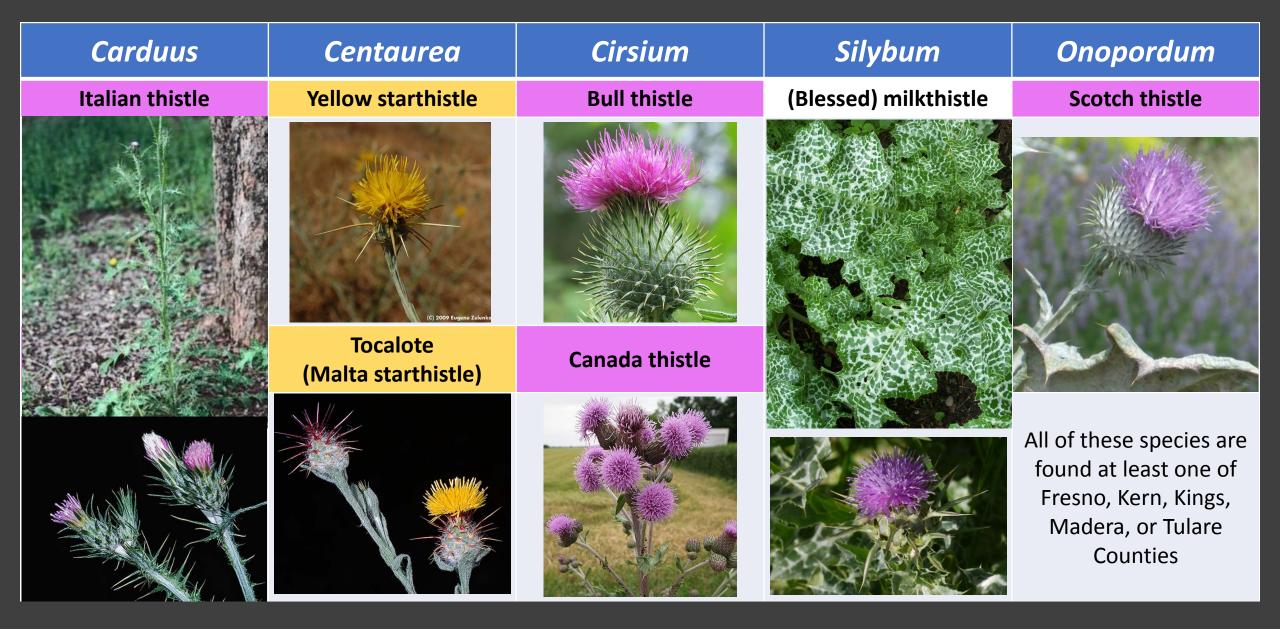


Thistles: Identification and Management

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Common thistles in the San Joaquin Valley



Identification

- Many species start as a basal rosette in fall
- Mature plants can have dense & bushy or tall & stemmy appearance

Purple/pink or yellow-flowered









Identification

- Why does thistle species matter?
 - Varying levels of risk to animals
 - Varying competition with forage
 - Varying susceptibility to control options









Identification – 1. Italian thistle

- Carduus pycnocephalus
 - narrow, spiky flower heads
 - winged, spiny stems branching above the base
 - found in Fresno, Kern, Madera, Tulare



Identification – 2. *Centaurea* thistles

- YELLOW STARTHISTLE (C. solstitialis)
 - long, yellow/white spines on phyllaries
 - can get a bushy structure
 - found in Fresno, Kern, Madera, Tulare
- TOCALOTE (MALTA STARTHISTLE, C. melitensis)
 - stouter flower heads and shorter, redder spines on phyllaries
 - <u>found in all 5 counties</u>



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Identification – 3. *Cirsium* thistles

- Canada thistle (*C. arvense*)
 - smooth stems, non-spiny flowerheads
 - flowers Jun-Oct
 - found in Fresno, Kern, Tulare
- Bull thistle (*C. vulgare*)
 - large spiky looking flowerheads
 - lots of branching, dense plant
 - flowers Jun-Oct
 - found in all 5 counties





Identification – 4. Blessed milk thistle



- Silybum marianum
 - Distinct, thick white veins
 - large, broad leaves without deep lobes
 - dense plant with multiple, wingless stems
 - long perpendicular phyllaries on large heads
 - found in Fresno, Kern, Madera, Tulare



Identification – 5. Scotch thistle

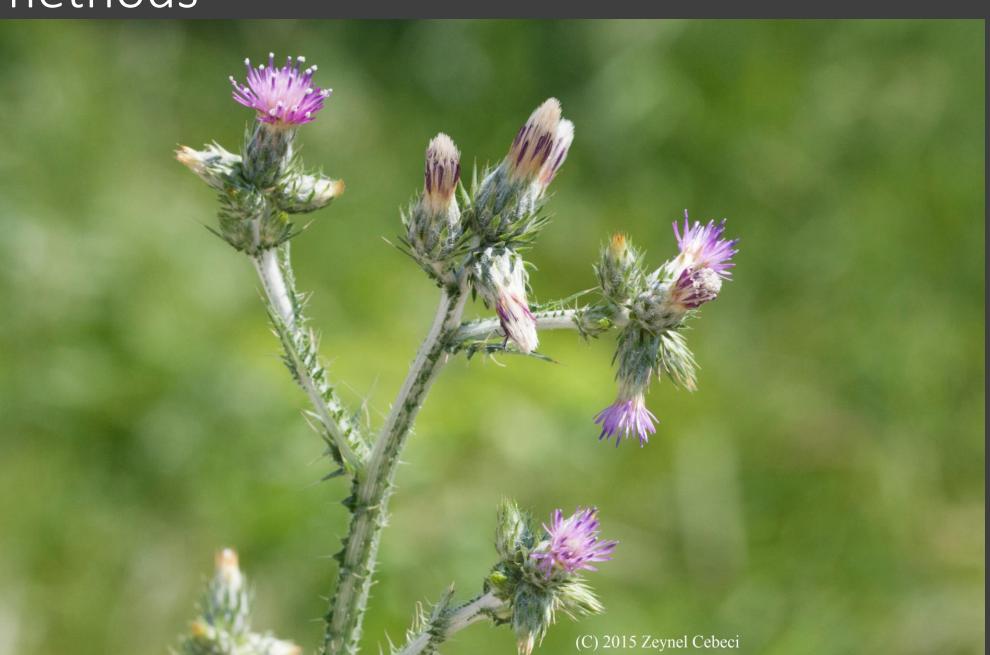
- Onopordum acanthium
 - many stems and branching
 - large "globe-shaped" flowerheads
 - whitish woolly leaves and winged stems
 - flowers July-Sep
 - found in Fresno, Kern, Tulare



Carduus

Italian thistle

- Hand-pull, cut or mow when flowering, before seeds mature
- Herbicides most effective during rosette and rapid growth
 - Targeted grazing?
- * May need to sever the root belowground to prevent regrowth from hand pulling





Centaurea

Yellow starthistle

- Hand-pull individual plants, cut or mow (early flowering, spiny stage)
- Targeted goat grazing
- Herbicides most effective during rosette or pre-bolting stages

Tocalote (Malta starthistle)

 Similar to yellow starthistle control, slightly earlier





Cirsium

Bull thistle

- Hand pull, till, or mow at early flowering
- Sheep, goats, horses may graze it
- Herbicides most effective during rosette and rapid growth

Canada thistle

- Mowing (repeat after 3-4 weeks)
- Herbicides effective on young plants, variable timing





Silybum

(Blessed) milkthistle

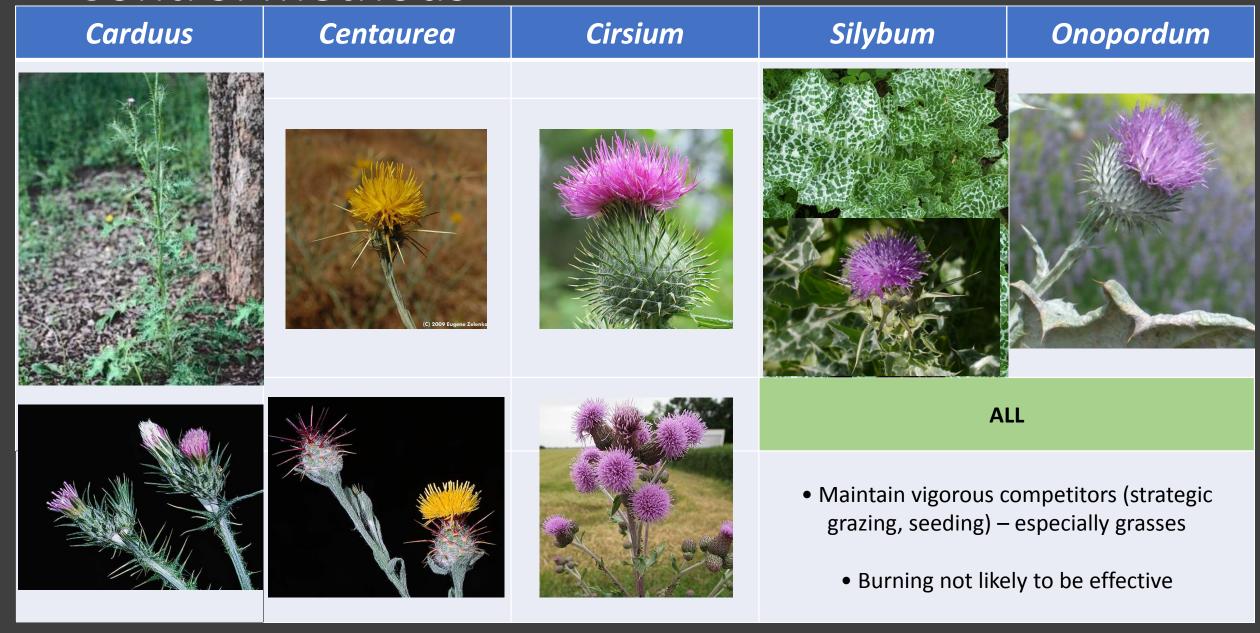
- Mowing before flowers open
- Tilling to control seedlings, young plants
- Herbicides most effective during rosette and rapid growth



Onopordum

Scotch thistle

- Dig up individual plants
- Sheep, goats, horses may graze it
- Herbicides most effective during rosette



Carduus	Centaurea	Cirsium	Silybum	Onopordum
Italian thistle	Yellow starthistle	Bull thistle	(Blessed) milkthistle	Scotch thistle
 Hand-pull, cut or mow when flowering, before seeds mature Herbicides most effective during rosette and rapid growth 	 Hand-pull individual plants, cut or mow (early flowering, spiny stage) Targeted goat grazing Herbicides most effective during rosette or pre-bolting stages 	 Hand pull, till, or mow at early flowering Sheep, goats, horses may graze it Herbicides most effective during rosette and rapid growth 	 Mowing before flowers open Tilling to control seedlings, young plants Herbicides most effective during rosette and rapid growth 	 Dig up individual plants Sheep, goats, horses may graze it Herbicides most effective during rosette
Targeted grazing?	Tocalote (Malta starthistle)	Canada thistle	ALL	
	 Similar to yellow starthistle control, slightly earlier 	 Repeated mowing (3-4 wks) Herbicides effective on young plants, variable timing 	 Maintain vigorous competitors (strategic grazing, seeding) – especially grasses Burning not likely to be effective 	

Quiz

• Which thistle is this?

 Based on the picture, what kind of treatment is possible at this stage of growth?



Quiz

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Quiz

• Which thistle is this?

 Based on the picture, what kind of treatment is possible at this stage of growth?



Key reference

DiTomaso, J.M., G.B. Kyser et al. 2013. **Weed Control in Natural Areas in the Western United States.** Weed Research and Information Center, University of California. 544 p.

Available from ucanr.edu – buy the book here: http://anrcatalog.ucanr.edu/Details.aspx?itemNo=3547

Other weed publications available at http://wric.ucdavis.edu/publications/pubs.htm

Thank you!

Photo credits

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