

Toxic Plants in the Tehachapi Area

Julie Finzel

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Grazing Behavior

- How do livestock learn what to eat?
- Most animals avoid toxic plants
- Usually, an animal must be very hungry before it will eat a toxic plant
- There are exceptions to every rule. Some animals get curious



Overview of Plant Toxins

- Toxic plants contain a number of different toxins that can affect an animal including:
 - Nitrates/Nitrites
 - Pyrrolizidine Alkaloids and other Alkaloids
 - Tannins
 - Cyanide
 - Oxalates
 - Thiaminase
 - and more...
- Each toxin produces a different response in the animal
 - Varies by livestock species
 - Can vary based on plant consumed, plant parts, and time of year

Recorded Livestock Poisonings (17+ years) Vet School Lab Data

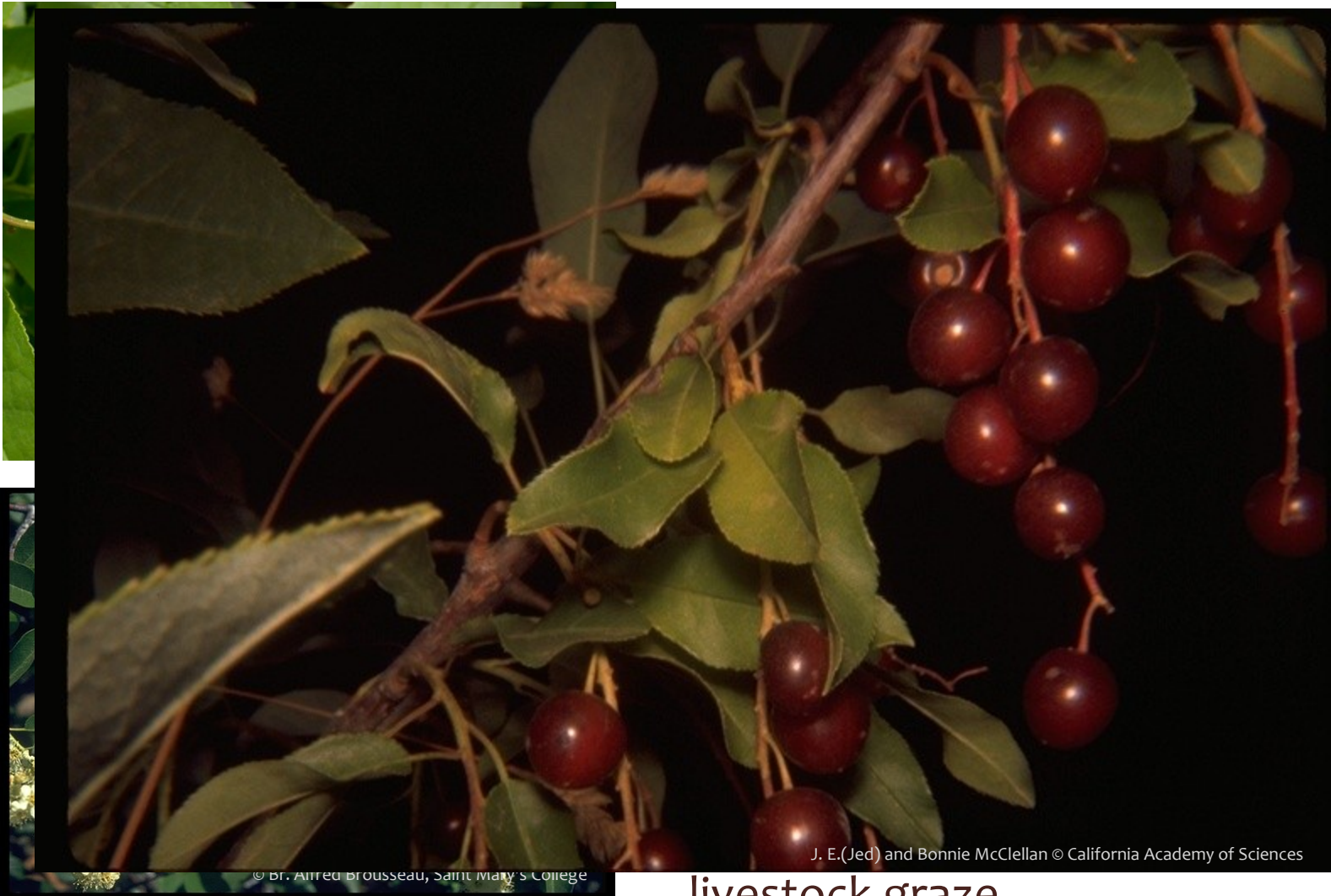


Arrowgrass (*Triglochin* spp.)

- Toxin - Cyanide
- Species affected - Cattle, Sheep, Horses and Goats
 - Most commonly Cattle and Sheep
- Habitat – Mudflats and alkaline places
- Symptoms
 - Sudden Death
 - Salivation
 - Heavy Breathing
- Plants are most toxic when stressed or damaged due to frost, wilting, stunting or physical damage. Plants lose toxicity with drying



Chokecherry (*Prunus virginiana*)



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livestock graze

p,
mp

Cocklebur

(Xanthoxylum)

- Toxic
- Spreads
- horse
- Hab
- Sym
- Su
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- Co
- Toxic
- germ
- mos
- con
- hay or grains



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Keir Morse



Curly Dock (*Rumex crispus*)



- Toxin – Oxalates, Nitrates
- Species affected – Cattle and sheep, horses to some extent
- Habitat – common in irrigated pastures and other moist areas
- Symptoms
 - Sudden death
 - Salivation
 - Incoordination
- No effective treatment, symptoms can appear within 5 hours of consumption

Death Camas (*Toxicoscordion* spp.)

- Toxin – Alkaloids
- Species affected – Cattle, sheep, horses, and goats
- Habitat – moist, grassy places
- Symptoms
 - Sudden death
 - Excess salivation
 - Staggering
- Toxicity varies with stage of growth
- Member of the lily family



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Dogbane/Indian Hemp (*Apocynum* spp.)



- Toxin – Cardiac glycosides
- Species affected – Cattle, sheep, horses and goats
- Habitat – Moist areas
- Symptoms
 - Sudden death
 - Diarrhea
- Plants are generally only consumed when dried in hay because they are bitter
- Toxins are similar to those found in Oleander

Fiddleneck (*Amsinckia* spp.)



- Toxin – Pyrrolizidine alkaloids
- Species affected – Cattle, sheep, horses and goats
- Habitat – Sandy, open places
- Symptoms
 - Weight loss
 - Inappetance
- “Nutlet” seeds and dried plant material is most toxic, any fiddleneck in hay is a concern
- Sheep and goats are generally less affected than cattle and horses

Foxtail (*Hordeum* or *Setaria* spp.)

- Causes physical damage to mouth and surrounding areas
- Species affected – Cattle, sheep, horses, and goats
- Symptoms – Ulcerations and lesions in mouth, tongue, gums, and eyes
- Often causes problems when found in contaminated hay
- Horses most often affected



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Greasewood (*Sarcobatus vermiculatus*)



- Toxin – Oxalates
- Species affected – Cattle, sheep, horses, and goats
- Habitat – Alkaline desert
- Symptoms
 - Sudden death
 - Depression
 - Incoordination
- Sheep most commonly poisoned, but other ruminants affected also
- If consumed with other food greasewood can be valuable forage

Horsetail (*Equisetum* spp.)

- Toxin: Thiaminase
- Species affected: Horses, occasionally cattle and sheep
- Habitat: Moist areas
- Symptoms:
 - Depression
 - Unsteady gait/incoordination
 - Weakness
 - Seizures
- Can be treated by administering Thiamine
- All parts of the plant are toxic, fresh and dried



Klamathweed/St. John's Wort (*Hypericum perforatum*)

- Contains a toxin that results in photosensitization
- Species affected include cattle, sheep, horses and goats
 - Generally only unpigmented skin is affected
- Symptoms – sunburn of lips, mouth, face... any body part that touches the plant and is unpigmented
- Newly shorn sheep are especially susceptible



Locoweed/Milkvetch (*Astragalus* spp.)



- Toxin – Alkaloids; Selenium
- Species affected – Cattle, sheep, horses, and goats
- Habitat – Dry, open places
- Symptoms
 - Excitability
 - Difficulty eating
- So called “locoweed” because animals act a bit crazy
- Plant is toxic at all stages of growth, different species can be more toxic than others
- Excess intake can cause self toxicity

Milkweed (*Asclepias* spp.)

- Toxin – Cardiac glycosides
- Species affected – Cattle, sheep, horses, and goats
- Habitat – Dry places at <7,000 ft
- Symptoms
 - Depression and weakness
 - Dilation of pupils
 - Seizures
- Only 3 species of milkweed are toxic:
 - *A. eriocarpa*
 - *A. speciosa*
 - *A. fascicularis*



Nightshades (*Solanum* spp.)



- Toxin – Alkaloids
- Species affected – Cattle, sheep, horses, and goats
- Habitat – Variable
- Symptoms
 - Gastrointestinal upset
 - Drowsiness
 - Weakness
- Toxicity varies from species to species, seasonally, and within each plant. For example, unripe berries are more toxic than ripe berries.



Oleander (Nerium spp.)



- Toxin – Cardiac Glycosides
- Species affected – Cattle, sheep, horses, and goats
- Drought and insect resistant
- Symptoms
 - Sudden death
 - Depression
 - Diarrhea
- Clippings are the primary cause of poisonings
- 5 – 10 medium sized leaves can be lethal to a horse or cow
- Toxicity remains when dry

Poison Hemlock (*Conium maculatum*)

- Toxin – Coniine (alkaloids)
- Species affected – Cattle, sheep, horses, goats, and humans
- Habitat – Low areas, dry or moist, <5,000 ft
- Symptoms
 - Birth defects
 - Nervousness
 - Weakness
- Used to put Socrates to death
- Loses toxicity when dry



Ragwort and Groundsel (*Senecio* spp.)



- Toxin – Pyrrolizidine alkaloids
- Species affected – Cattle, sheep, horses and goats
- Habitat – Variable
- Symptoms
 - Chronic appetite loss
 - Weight loss
- Sheep and goats are not as affected as cattle and horses
- Plants are poisonous both fresh and dried

Russian Knapweed (*Acroptilon repens*)

- Toxin: Lactones
- Species affected: Horses
- Habitat: Varied
- Symptoms:
 - Weight loss
 - Abnormal curling of lips
 - Yawning
- Invasive weed – takes over and forms monocultures
 - Reproduces via roots, even a 1” piece of root can grow a new plant
- Related to Yellow Starthistle



Toyon (*Heteromeles arbutifolia*)

- Toxin – Cyanide
- Species affected – Cattle, sheep, horses, and goats
- Habitat – Chaparral, Oak, and Conifer woodlands
- Symptoms
 - Sudden death
 - Salivation
 - Heavy breathing
- Toyon poisoning has killed goats that were offered fresh clippings



Yellow Starthistle (*Centaurea solstitialis*)



- Toxin: Lactones
- Species affected: Horses
- Habitat: Varied
- Symptoms:
 - Weight loss
 - Abnormal curling of lips
 - Yawning
- Invasive weed – takes over and forms monocultures
- Related to Russian Knapweed

Water hemlock

(*Cicuta douglasii* and *maculata*)

- Toxin – Alcohols
- Species affected – All classes of livestock and humans
- Habitat – Wet, marshy places and along streams
- Symptoms
 - Sudden death
 - Muscle spasms
 - Severe convulsions
- Among the most poisonous plants in North America
- All parts of the plant are poisonous



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Thank You!

Questions?