

Vertebrate Pest Management in Drip/Micro Irrigated Crops

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Vertebrate Damage

- Damage to irrigation lines.
- Loss of irrigation water.
- Loss of yields.



Management Strategy

- Identify the vertebrate pest species.
- Assess options for managing this species.



Management Strategy

- Implement the management action you deem most appropriate.
- Monitor after implementation of management actions to determine effectiveness and to assess potential reinfestations.



Species Identification

- Rodents

- ground squirrel,
- gopher, vole, rat,
- deer mouse



- Rabbits

- jackrabbit, cottontail



- Carnivores

- coyote, fox



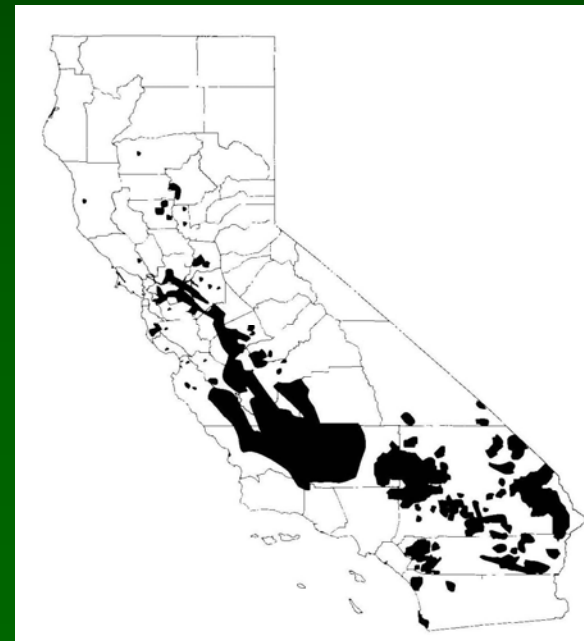
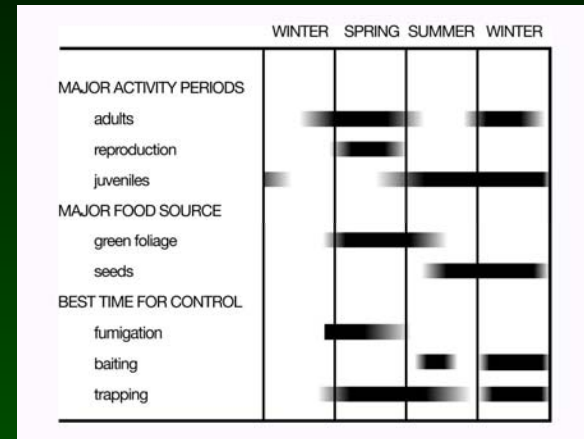
Species Identification

- Look for animals.
- Look for sign.
- Identify teeth marks in drip line.



Assess options

- Is infestation bad enough to warrant control?
- What is the time of year?
- What methods will be cost effective?
- Are endangered species present?



Control Options—Habitat Modification

- Involves altering habitat to reduce the desirability for pests.
- Example:
 - remove brush piles to control ground squirrels.



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Control Options—Baiting

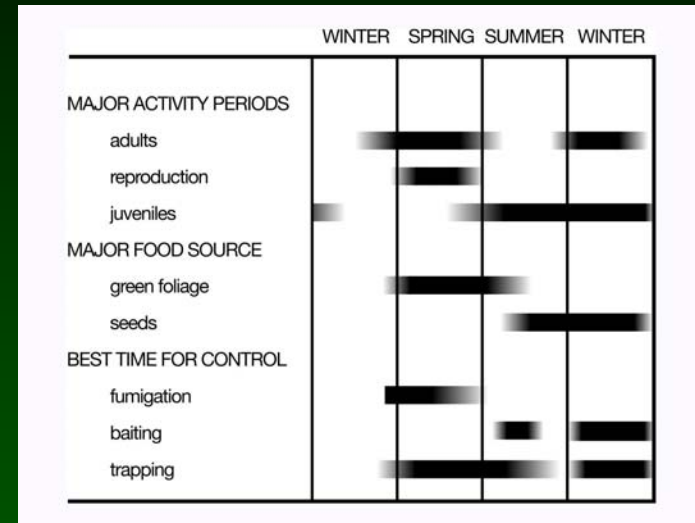
- Involves use of poison baits to control vertebrate pests.
- There are restricted (zinc phosphide, strychnine) use and non-restricted use (anticoagulants) baits.

	Anticoagulants	Zinc phosphide	Strychnine
Ground squirrels	X	X	
Pocket gophers	X	X	X
Voies	X	X	
Rabbits	X ¹		
Carnivores			

¹ only for jackrabbits

Control Options—Fumigation

- Involves use of poison gas in burrows to control vertebrate pests.
- Works best when soil moisture is high (late winter early spring for gophers, after ground squirrels emerge in spring).
- Fumigants should not be used around buildings.



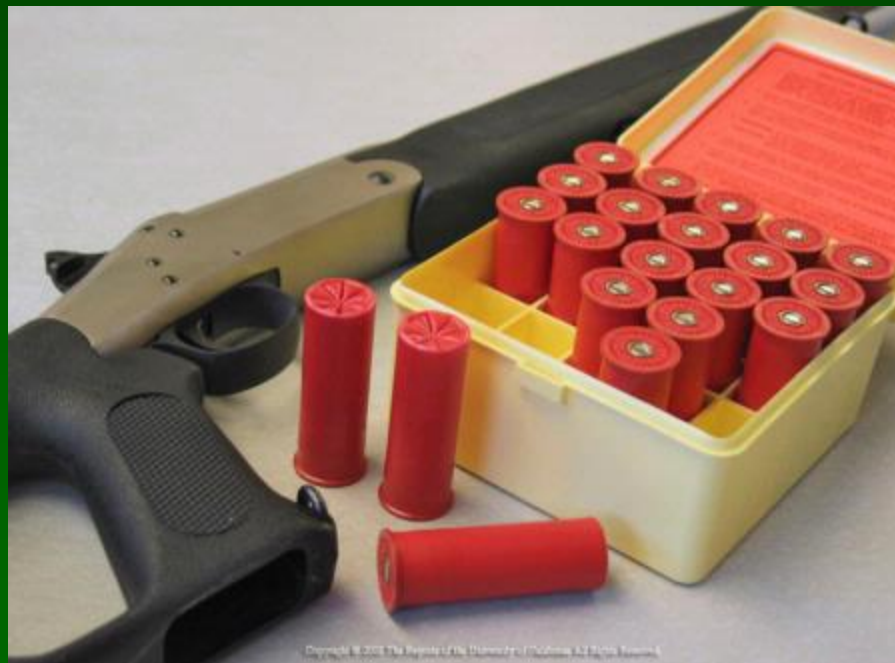
Control Options—Trapping

- Control of small populations of rodents, rabbits, and coyotes.
- Also effective at certain times of the year when other methods are less effective and can be a good follow up to alternative control methods.



Control Options—Shooting

- Shooting can be effective for controlling ground squirrels, rabbits, and coyotes although it is labor intensive.
- Realize lead bullets are no longer allowed within California condor range.



Control Options—Exclusion & Repellents

- Exclusionary devices are not typically practical for limiting damage to drip.
- Chemical repellents have limited utility.
- Frightening devices will not work.



Monitoring

- Regularly check for sign of vertebrate pests (e.g., mounds, burrows, scat, actual observations of pests).
- Follow-up control methods can be used to eliminate individuals that were not removed during initial control efforts.



Questions?

