



California Forest Pest Council

Fostering education on the pests of California's forests since 1951

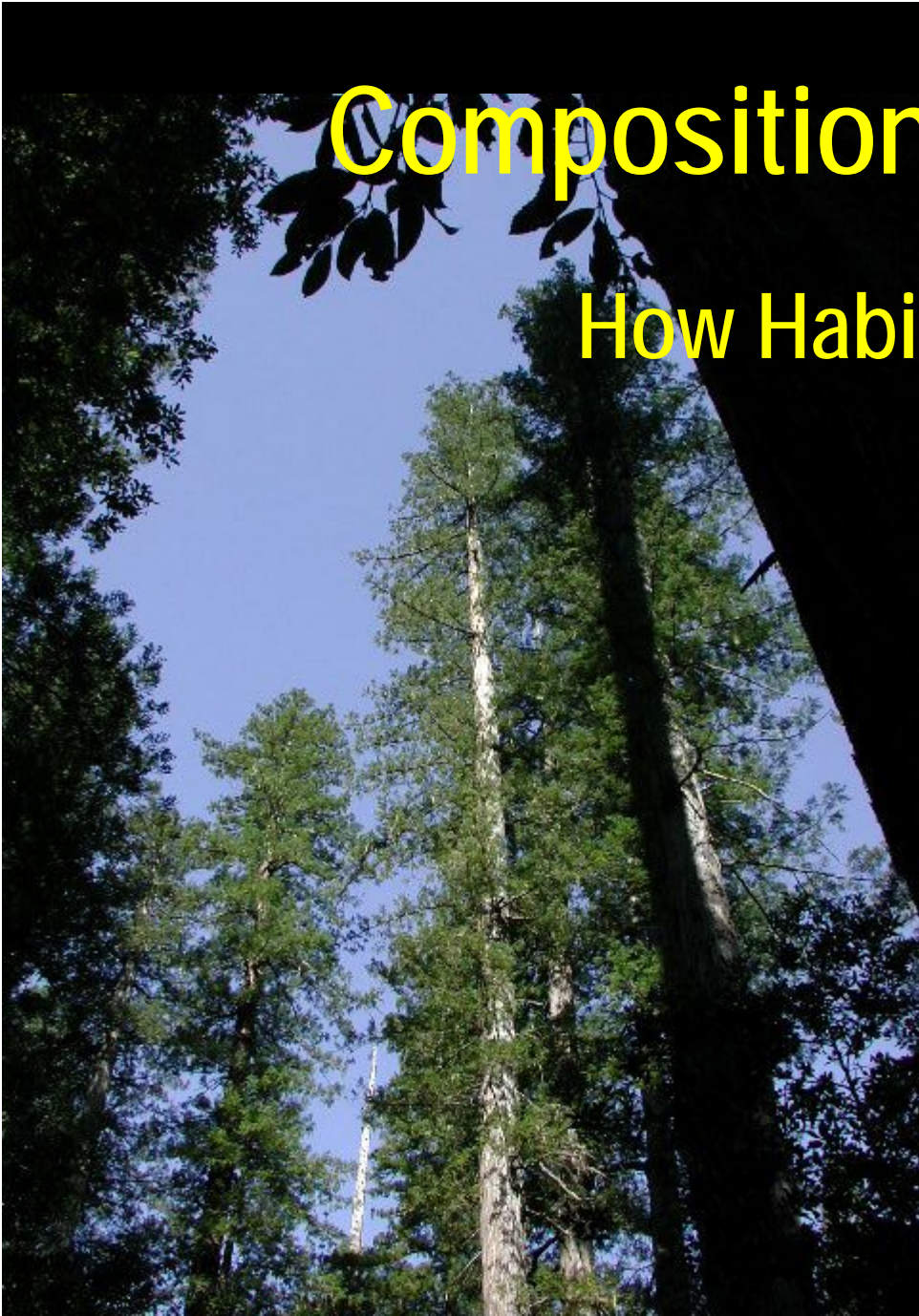
# Animal Damage: Species Accounts

Gregory A. Giusti – Chair  
Animal Damage Committee  
University of California  
Cooperative Extension

# Composition & Structure

## How Habitat Works

- Criteria that promote and maintain:
  - ◆ habitat quality
    - ★ food, water and cover
  - ◆ diversity
    - ★ vertical and spatial diversity
  - ◆ species richness
    - ★ seasonal utilization



# Habitat elements determine species associations



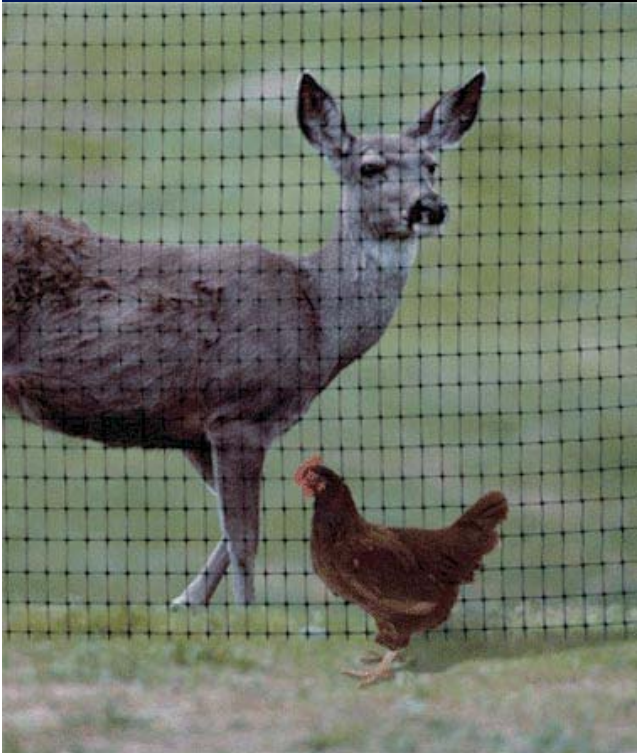
- **Thermal Cover**
  - ◆ structures, landscaping
- **Nesting Cover**
  - ◆ structures, vegetation
- **Roosting Cover**
  - ◆ attics, tree cavities, trees
- **Hiding Cover**
  - ◆ landscaping, wood piles,
- **Foraging Cover**
  - ◆ cover crops, landscaping

# Vertebrate Taxonomy (mammals)



- Rodents
  - ◆ pocket gophers, voles, rats, mice, squirrels, muskrats, porcupines, beaver, etc.
- Insectivores
  - ◆ moles, bats
- Carnivores
  - ◆ raccoons, skunks, canids (coyotes & foxes), cats, bears
- Marsupials
  - ◆ opossums

# Vertebrate Pest Management



- *Focus should be on minimizing damage:*
  - ◆ identify damage and responsible specie,
  - ◆ determine extent of *damage*,
  - ◆ evaluate damage management alternatives,
    - ★ both lethal and non-lethal options
  - ◆ evaluate alternatives that can prevent future conflicts.

# Vertebrate Pest Management

- **Non-Lethal Alternatives**

- ◆ Exclusion
- ◆ Repellents
- ◆ Frightening
- ◆ Prevention

- **Lethal Alternatives**

- ◆ Trapping
- ◆ Toxic Baits
- ◆ Shooting



When we change trees into forage  
it invites feeding behavior.



# Species Accounts



# Moles. Order *Insectivora*



- Strictly fossorial (very seldom found about ground).
- Mostly carnivorous in its diet with a very wide food preference for worms, grubs, pupae, etc.
- Live cycle of most species not well known.
- Not generally considered a pest of forest trees (nurseries might be an exception)

# Pocket Gophers - *Rodentia*

- Primarily fossorial but is capable of above ground foraging.
- Does not hibernate.
- A strict vegetarian.
- A very wide food preference list of plant species.
- Usually one litter/yr with 2-4 young/litter.
- Most damage occurs below ground.
- Seedlings at greatest risk but can kill larger trees from successive feeding activity.



# Voles - *Rodentia*



- Nest below ground, but feed exclusively above ground.
- Very high reproductive potential starting in Nov. peaking in March.
- Social animals, often living in colonies.
- Primarily herbivorous.
- Young trees at greatest risk to above ground damage.
- Damage to young trees can be hidden from view by weeds.

# Aplodontia - *Rodentia*

- A species of limited concern to young coastal redwood plantations with a high degree of slash.
- An ancient species of very limited distribution.
- The Pt. Arena mountain beaver is an isolated population given special regulatory consideration.



# Porcupine - *Rodentia*

- A large rodent that can cause serious damage to pole size pine stands.
- Historically a problem in the Sierra-Nevada's and intermountain region.
- Does not hibernate.
- Craves salt causing it to chew on wooden tool handles.



# Beaver - *Rodentia*



- A large rodent that feeds on wood and uses wood to construct dams to alter its habitat.
- Will feed on a large variety of tree species usually near stream corridors.
- Can create problems from both tree damage and flooding.

# Forest Ground Squirrels- *Rodentia*

- Chipmunks, golden-mantled ground squirrels, Belding ground squirrels.
- Once a huge problem when aerial seeding of plantations was a common practice.
- Can be a problem in young plantations using nursery stock.
- More numerous in the Sierra-Nevada's and the intermountain region.



# Woodrats - *Rodentia*



- Do not hibernate.
- Are primarily herbivorous but have been known to scavenge on deer carcasses.
- Can be a problem in young (<30 yr) redwood plantations.
- Damage to sprouting stumps can be significant.

# Rabbits and Hares - *Lagomorpha*

- Neither rabbits or hares hibernate.
- Rabbits use underground burrows, hares do not.
- Damage can be distinguished from deer by “slanted” cut at point of feeding.
- Damage can be sporadic and localized.



# Deer and Elk - *Artiodactyla*

- Large animals that can damage trees by foraging or rubbing antlers (males).
- Damage to terminal buds can affect tree growth and form.
- A game species offered special regulatory protection.



# Black bears - *Carnivora*



- Problematic in NW California.
- Coast redwood and Doug-fir 11-20" dbh at most risk.
- Tree feeding behavior is seasonal.
- Damage often associated 1-2 years post commercial thinning activities.
- Problem has been recognized since the early 1950s.

# Summation

- Animal damage can be sporadic and very localized.
- Damage can be seasonal depending on species involved.
- Silviculture can affect animal damage feeding behaviors.
- Animal damage prevention should be given the same level of observational diligence as other pests and pathogens.