

Principles of
Vertebrate Pest Control
(Wildlife Damage Management)

Human-Wildlife Conflicts

- Competition for food and space
- “Nuisance” problems
- Damage to structures, crops, landscaping, other resources
- Public health concerns
- Public safety concerns

Identify the Culprits

- recognize typical damage
- look for confirming evidence
- know the animal's biology & behavior
- legal status

Some species readily adapt
to living close to people...





and sometimes suffer the
consequences...



Define the Problem

- quantify damage or risk
- size of area involved
- population density and distribution
- seasonality or other trends
- predictability

Examine the human factors

- Who's in charge?

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- What's the goal?

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- **Attitudes and tolerances:**
 - for damage
 - for lethal control
 - for pesticide use

Examine the human factors

- Who's in charge?
- What's the goal?
- Attitudes and tolerances:
 - for damage
 - for lethal control
 - for pesticide use
- Who are the neighbors?

Do your homework

- Books, journals
- magazines / periodicals
- expertise of colleagues - networking
 - associations, professional groups
 - Internet / Bulletin Boards

UC-IPM's *Pest Notes* series...

VOLES (MEADOW MICE)

Integrated Pest Management for Home Gardeners and Landscape Professionals

Six species of voles of the genus *Microtus* occur in California. They are collectively called meadow mice or voles. Two species of voles are responsible for the majority of damage. The California vole (*Microtus californicus*) is the most widespread vole in the state, found in the Owens and Central valleys and nearly the entire length of the coast range. The montane vole (*M. montanus*) inhabits northeastern California and the eastern Sierra slope. Voles do not commonly invade homes, and should not be confused with the house mouse, *Mus musculus*.

Voles are intriguing small mammals because some populations regularly go through cycles from low to high numbers with occasional irruptions that can send numbers soaring (up to several thousand per acre).

IDENTIFICATION

Voles are mouse-like rodents somewhat similar in appearance to pocket gophers (Fig. 1). They have a compact, heavy body, short legs, short-furred tail, small eyes, and partially hidden ears. The long, coarse fur is blackish brown to grayish brown. When fully grown they can measure 5 to 8 inches

multiple burrow openings that are each about 1 1/4 to 2 inches in diameter. The runways are easily found by pulling back overhanging ground cover. Fresh clippings of green grass and greenish-colored droppings about 7/8 inch long in the runways and near the burrows are further evidence of voles. With age, the droppings lose the green coloring and turn brown or gray.

BIOLOGY AND BEHAVIOR

Voles are active day and night, year-round. They are normally found in areas with dense vegetation. Voles dig many short, shallow burrows and make underground nests of grass, stems, and leaves. In areas with winter snow, voles will burrow in and through the snow to the surface.

Several adults and young may occupy a burrow system. Home-range size varies with habitat quality, food supply, and population levels, but in most cases it is no more than a few hundred square feet.

Vole numbers fluctuate from year to year; under favorable conditions their populations can increase rapidly. In some areas their numbers are cyclical



Figure 1. Meadow mouse.

plants, bulbs, and tubers. They eat bark and roots of trees, usually in fall or winter. Voles store seeds and other plant matter in underground chambers.

Voles are poor climbers and do not usually enter homes or other buildings. Instead, they inhabit wildlands or croplands adjacent to buildings, or gardens and landscaped sites with protective ground cover. Most problems around homes and gardens occur during outbreaks of vole populations.



Internet Center for Wildlife Damage Management



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WELCOME to the Internet Center for Wildlife Damage Management



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Mice are coming!

Are you Ready? With colder weather approaching mice will be working to enter your home to find a nice warm place for the winter. [Learn how to mouse proof your home.](#)

WHO WE ARE

The Internet Center for Wildlife Damage Management is a non-profit, grant funded site that provides *research-based* information on how to responsibly handle wildlife damage problems. For more info click [Media Kit](#)

Mystery Photo for September

This month's mystery photo is from a Federal Extension educational document. Can you identify this serpent? Here is a hint. It is found in the U.S. Good luck!

Click thumbnail for larger image.



Wildlife Damage News

gathered by [Gretta MacIntyre](#)

- ♦ Aug 24, 2006. [WCO charged in PA.](#) The Sentinel.
- ♦ Aug 21, 2006. [Raccoons Kill Cats.](#) The Olympian.
- ♦ Aug 21, 2006. [Wildlife Disease is part of environmental analysis.](#) Guardian.
- ♦ Aug 15, 2006. [Wildlife Plays a BioTerrorism Surveillance Role.](#) Free Lance Star.
- ♦ Aug 2, 2006. [Monkey Problems in India.](#) AOL News.
- ♦ Aug 1, 2006. [Alligator in Montana.](#) Daily Inter Lake
- ♦ July 25, 2006. [Triathlete hits Bear in Colorado.](#) CBS
- ♦ July 17, 2006 CA. [Officials warn of Plaque.](#) CBS
- ♦ July 1, 2006 [Florida's battle with African Rat.](#) AP
- ♦ June 22, 2006 [Impact of Invasives.](#) Daily Press
- ♦ June 21, 2006 [Wild Goose Chase.](#) KRCG NEWS
- ♦ June 8, 2006. [Increased Hanta-virus threat.](#) USA Today
- ♦ June 5, 2006. [Wildlife-human conflicts growing.](#) Deseret News
- ♦ May 30, 2006. [Marmot Explosion.](#) AP

How to Use This Site

- ♦ Need to identify the cause of the damage? [Click ID](#)
- ♦ Need to learn how to control the damage? [Click Control](#)
- ♦ Need more control techniques? [Click Control2](#)
- ♦ Need to find equipment? [Click Equipment](#)

UC Publication 21385

Wildlife Pest Control around Gardens and Homes

T. Salmon, D. Whisson, and R. Marsh
2006

\$25 + shipping



Make a Plan, and Do It

- step-by-step, with a time line
- components / elements of damage control
 - Exclusion
 - Habitat Manipulation
 - Frightening / behavioral change
 - Repellents
 - Removal / Population reduction
- evaluate your success or failure

Components:

- ✱ Exclusion

Components:

- ✱ Exclusion
- ✱ **Habitat Manipulation**

Components:

- ✱ Exclusion
- ✱ Habitat Manipulation
- ✱ Frightening / behavioral change

Woman Foils Bear with Zucchini

Sept. 24, 2010

Frenchtown, Montana

The zucchini was the first thing she spotted when she tried to save her collie, Brin, from the attacking bear.

According to Montana Fish, Wildlife and Parks, shortly after midnight Wednesday, a woman living in the mountains near Frenchtown let her three dogs outside. One began barking. She opened the door and saw an adult black bear running toward her dog. She told officials she screamed and the bear swung toward her.

It moved toward her open door and she kicked at it, but the bear swiped her leg with its paw and turned back toward the dog.

She grabbed the large zucchini off her counter and threw it at the bear, hitting it near the head. The woman received minor scratches on her leg that did not require medical attention. The collie was taken to a Missoula veterinarian for treatment and observation and does not appear to have life-threatening injuries.

Components:

- ✱ Exclusion
- ✱ Habitat Manipulation
- ✱ Frightening / behavioral change
- ✱ **Repellents**

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- ✱ Exclusion
- ✱ Habitat Manipulation
- ✱ Frightening / behavioral change
- ✱ Repellents
- ✱ **Removal / Population reduction**

Pesticides include...

- Toxicants (poisons)
- Fumigants (poisonous gasses)
- Repellents

...basically anything with a “label” (and an EPA Registration Number)

Basic Pesticide Rules:

- **Read and Follow** the label
- **Use** appropriate personal protection equipment & clothing
- **Know** your legal responsibility

About “home remedies”

■ Legality

- On one's own property vs commercial use
- UC typically does not recommend

■ Efficacy

■ Hazard

- To the applicator
- To non-target species

Agency Responsibilities

- **County Agricultural Commissioner**
- **USDA APHIS Wildlife Services**
- **California Department of Fish and Game**
- **U.S. Fish & Wildlife Service**
- **California Department of Pesticide Regulation**
- **Department of Health Services: Vector-Borne Disease Section and Veterinary Public Health Section**

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Every day California residents, industries, organizations, and agencies call on California Wildlife Services for its expertise in protecting agriculture, property, human health and safety, and natural resources from damage or threats posed by wildlife. Managed by wildlife biologists, Wildlife Services responds with effective, professional, and selective strategies to resolve conflicts between humans and wildlife.

Managing Wildlife Damage

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Wildlife Services is a mission area of USDA's Animal and Plant Health Inspection Service

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The Economic Benefit Of The Wildlife Services Program In California
An Economic Assessment Conducted By The National Wildlife Research Center
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"Who you gonna call???"

USDA APHIS Wildlife Services

North District:

Del Norte*, Siskiyou, Modoc, Humboldt,
Trinity, Shasta, Lassen, Mendocino, Tehama*,
Glenn, Butte, Plumas, Sutter, Yuba, Nevada, &
Sierra Counties

** limited to technical assistance only*

Jim Shuler, District Supervisor

(530) 336-5623

County Agricultural Commissioner

'Nuisance Wildlife Control Operators' (NWCOS)

--a growing industry



for example:

Gregg Crawford, "The Gopher Guy"

Common Wildlife Problems:

Rats & Mice

Voles (Meadow mice)

Ground Squirrels

Pocket Gophers & Moles

Deer

Birds

Others ...?

University of California
Agriculture and Natural Resources



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