

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

USDA National Wildlife Research Center - Staff
Publications

U.S. Department of Agriculture: Animal and
Plant Health Inspection Service

July 2003

Is it a Pocket Gopher or Mole?

Wendy M. Arjo

National Wildlife Research Center's Olympia Field Station

Follow this and additional works at: https://digitalcommons.unl.edu/icwdm_usdanwrc

 Part of the [Environmental Sciences Commons](#)

Arjo, Wendy M., "Is it a Pocket Gopher or Mole?" (2003). *USDA National Wildlife Research Center - Staff Publications*. 195.

https://digitalcommons.unl.edu/icwdm_usdanwrc/195

This Article is brought to you for free and open access by the U.S. Department of Agriculture: Animal and Plant Health Inspection Service at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in USDA National Wildlife Research Center - Staff Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Is it a Pocket Gopher or Mole?

BY WENDY M. ARJO

Depending on where you are, the term "gopher" is applied to a variety of mammal species including ground squirrels, prairie dogs and moles. The true pocket gopher is actually very distinguishable once you recognize their appearance and sign, or indicators of the animal. Pocket gophers are burrowing rodents named for their external fur-lined cheek pouches. Unlike mole mounds, which have been characterized as miniature volcanoes, gopher mounds are fan-shaped in appearance. Pocket gophers are distributed throughout the Pacific Northwest, but occur more frequently in the drier climates of eastern Washington and Oregon.

Pocket gophers prefer roots and stems of herbaceous annuals and perennial plants that are often associated with early successional forests. Because of this preference, seedlings

become a very tempting target to a foraging pocket gopher. Commonly, gophers will prune seedling roots and often pull the entire seedling into their burrow. Stem clipping at ground level and girdling are also common with seedlings less than half an inch in diameter the most vulnerable. In deep snow conditions, aboveground girdling of larger trees can occur. Although aboveground girdling is easy to detect, damage by pocket gophers to root systems may go unnoticed until seedlings become discolored or tip over. Several factors have been noted that predispose a stand to pocket gopher damage: 1) current pocket gopher density; 2) soil suitability for burrowing; 3) topography; 4) herbaceous understory; 5) amount of adjacent border with preferred forage; and 6) site preparation.

Management practices to reduce pocket gopher damage include silvicultural practices, such as minimizing disturbance of an area, habitat manipulation, trapping, repellents, fumigation and seedling barriers such as Vexar tubing. Strychnine baiting is the most widely used method to reduce pocket gopher populations prior to planting seedlings. Baits are applied belowground to minimize

negative impacts on aboveground non-target species; strychnine-baited pocket gophers, however, may still pose a threat to subterranean predators such as weasels. In addition, pocket gophers and other small mammals using pocket gopher burrows may consume the bait and die aboveground.

The Olympia Field Station has conducted several tests to determine primary, secondary and tertiary risks that may occur while strychnine-baiting pocket gophers. Population responses of non-target species—golden mantled ground squirrels and yellow pine chipmunks—were monitored on two reforested sites in Oregon. Immediately after baiting, ground squirrel numbers declined; however, the following spring the population recovered. Yellow pine chipmunk populations were not reduced by strychnine baiting, but in fact increased in the treated plots the following spring. This increase may reflect an invasion of chipmunks in the absence of ground squirrels.

Regardless of ground cover, pocket gophers usually die belowground in the nest or close to it. This supports the notion that fossorial (living belowground) rodents baited belowground are unlikely to become secondary hazards. However, this does not entirely eliminate the chance of an occasional aboveground death or the potential for underground predators like weasels to encounter carcasses. Predator-prey interactions are largely unknown since subterranean predator activity is difficult to observe.

Artificial burrow systems were established to investigate interactions of weasels and pocket gophers at the Olympia Field Station. Weasels (80



Burns & Williams
Lawyers
Ann Forest Burns
Bruce H. Williams

Business (206) 527-5942 • Fax (206) 522-5392
5508-35th Ave. N.E., Suite 102 • Seattle, WA 98105
E-mail: aforestburns@msn.com



Site Selected Seed Sales For

Alaska • Washington • Oregon • No. California • W. Idaho

CUSTOM CONE COLLECTION & SEED PROCESSING

Complete Progeny and Seed Orchard Processing Services
Preferred Sources of Christmas Tree Seeds and Seedlings

CUSTOM SEEDLING STOCK

Container Grown (plugs) and Transplant Service (plug + 1)

David Gerdes

Mike Gerdes

F O R E S T E R S

SILVASEED COMPANY

P.O. Box 118 • Roy, WA 98580 • (253) 843-2246

"Serving Many of the Reforestation Needs of the World From This Location Since 1889"

**Calculate after-tax timber
project returns!**

TreeCents®

EXCEL™-BASED TIMBER STAND
INVESTMENT ANALYSIS SOFTWARE

Pretty—Easy—Cheap—Reliable

For private forests:—\$49.95 + tax & ship

For Brochure: FOREST ECON INC.

1150 Alturas, Suite 102, Moscow, ID 83843

Phone (208) 301-4634 • Fax (208) 882-3317
forestecon@moscow.com • www.treecents.com



PHOTO COURTESY OF NWRC OLYMPIA FIELD STATION

Protecting seedlings from pocket gopher damage can be difficult since seedlings can be attacked from both belowground and aboveground.

percent of those tested) readily killed and consumed healthy pocket gophers. All weasels ate strychnine-baited gopher carcasses after 72 hours, but no weasels died from secondary poisoning. Although weasels killed and cached gophers, caches were composed of single animals only. Most of the weasels sampled, but not entirely consumed, both fresh-killed gophers and five-day-old carcasses. Although caching behavior of weasels may increase their exposure to secondary poisoning of strychnine, this in turn may be minimized by the fact that the majority of weasels only sampled carcasses. If strychnine-baited pocket gophers die aboveground, secondary hazards to scavengers and tertiary hazards to insectivores (species that eat insects that cause decay of carcasses), may occur.

The fate of small mammal carcasses was determined on a study site in the Rogue River National Forest. Carcasses disappeared equally from both scavengers and insects. In addition, several insect species were sampled to determine strychnine concentration levels and any potential risks to insectivore species. Fly larvae and ants were found to contain high levels of strychnine; however, little risk is posed to insectivores due to the quantity of insects that would have to be consumed to acquire a lethal dose. Studies by the Olympia Field Station have shown that controlling pocket gopher populations with strychnine baiting poses relatively little risk to non-target species. ♦

Wendy M. Arjo is a research wildlife biologist for the National Wildlife Research Center's Olympia Field

Station. She can be reached at 360-705-4565 or wendy.m.arjo@aphis.usda.gov.

“Print Your Own Oregon Ownership Maps”



Atterbury Consultants, Inc. is selling timberland ownership data in ArcReader Format for the entire state of Oregon for \$395.00. This price includes ownership data for the top 30 timberland owners, sections, townships, county boundaries, and several highways for the entire state. It also includes a free copy of ESRI's ArcReader program which allows users to print maps of the entire state or any portion of it. Users pick the scale and which layers to print.

- Designed for non-GIS people
- Very easy to use
- No GIS experience needed

Call Jon Aschenbach at 503-646-5393 for more information. Download a full sized brochure at www.atterbury.com.

ATTERBURY CONSULTANTS, INC.
3800 SW Cedar Hills Blvd., #190
Beaverton, OR 97005

MUSSELMAN & ASSOC., INC.

Consulting Foresters
7360 SW Hunziker St., #204
Portland, OR 97223-2306
Telephone (503) 684-5727

Experts in timber cruising,
appraisals, and marketing utilizing
efficient data processing.