

## **PROJECT REPORT**

**Project Title:** Development of Gopher Control Demonstration Videos for Online and Kiosk Based Training

**Research Agency:** University of California Cooperative Extension and Statewide IPM Program

**Principal Investigator:** Cheryl Wilen

**Budget:** \$25,464.00

### **Background:**

Of the five species of pocket gophers found in California Botta's pocket gopher (*Thomomys bottae*) is the most widespread. This persistent species is found in both perennial and annual cropping systems as well as in non-agricultural settings such as sports fields, golf courses, and residential lawns. Gophers are active year-round. Pocket gophers are herbivorous, feeding on a wide variety of vegetation, but generally preferring herbaceous plants, shrubs, and trees. Gophers use their sense of smell to locate food. Most commonly they feed on roots and fleshy portions of plants they encounter while digging.

Although generally solitary dwellers, even one gopher can create a burrow system of up to 2000 ft<sup>2</sup> and numerous mounds. Mounds created from soil removed from the tunnels can appear any time during the year in irrigated areas and are the best way to indication of gophers. Mounds are characteristically crescent-shaped and fairly easy to distinguish from mounds or holes created by other burrowing animals.

In a three year lifespan of a gopher, a female may produce about 54 offspring when living in an irrigated area. In non-irrigated areas, a female will produce about 20 offspring. Pocket gophers are classified as non-game mammals by the California Fish and Game Code. They may be controlled at any time and in any legal manner by the owner or tenant of the premises.

Pocket gophers will invade yards, gardens, and croplands to feed on many types of food and non-food plants including vines, shrubs, and trees. Irrigation lines may be damaged by gnawing. The extensive tunnel system diverts irrigation water, not only making the system less efficient, but also causing significant soil erosion. Mounds on lawns and playing fields reduce the aesthetic quality the grass. Even more problematic is the danger of injury to athletes and others on a sports field from stepping onto a mound or onto a void caused by a shallow tunnel.

Learning to control gophers is not trivial. Controlling gophers is best done by trapping, poison baits, or fumigation. Repellent plants, frightening devices and vibrators are not useful and flooding or fumigation has very limited success. While baiting with diphacinone and chlorophacinone may be effective, it is sometimes not desired in areas where children or pets could encounter dead gophers or even the pesticide if it is pushed out of the burrow. Fumigation using aluminum phosphide is one of the most effective chemical methods of controlling gophers and other rodents but also the most dangerous if not used correctly. As with other methods of control, it is important to locate active burrows but the applicator must determine the appropriate dose based on soil moisture. It is also important to emphasize the importance of limiting pellets or other formulations exposure to air and to use cotton gloves instead of the generally required chemical resistant gloves. There are other nuances related to gopher biology that the applicator must be aware of such as completely sealing the hole used to place the pellets. Otherwise the gopher will cover the pellets with soil in the process of sealing out the light from the opening.

Trapping using a Macabee or similar trap (e.g. Victor) is a safe and effective method for controlling pocket gophers and an excellent alternative to using pesticides. However, there is very little information provided to the consumer when purchasing such a trap; not even how to set it. There are a few places online where one can get that information but it is sometimes not intuitive where to find it. Additionally, once a trap is set, the trapper needs to know where to place it. This information is slightly easier to find (e.g. UC IPM Pest Note on Pocket Gophers) but is sometimes hard for the inexperienced trapper to relate the line drawings to actual deployment in the field. As a result of this lack of information or training, many consumers, particularly those in the residential or non-agricultural arenas, resort to baiting or in some cases, over-baiting. The EPA's comparative ecological risk assessment found that the active ingredients used for gopher control can harm non-target wildlife not only by direct consumption of rodenticide bait but also from secondary exposure (consumption by scavengers with rodenticide stored in carcasses' body tissues) when anticoagulants are the active ingredient in the bait. In non-agricultural situations, such as around schools, parks, and homes. Pests can be exposed to rodenticide by direct consumption or secondary feeding (Merola, 2002). In 2005, the American Society of Prevention of Cruelty to Animals Poison Center received nearly 7000 reports involving animal exposures to rodenticides (ASPCA press release, September 2006). There is a strong need for information related to controlling gophers by both professional pest control operators and landscapers and home gardeners to reduce these undesirable outcomes. Moving non-professionals towards effective and appropriate use of toxic baits and trapping will help reduce the potential for gopher populations to develop resistance, and decrease non-target poisoning. Additionally, this training will help sharpen the skills of professionals to employ trapping, fumigating, and baiting as a means to control gophers as opposed to other less reliable methods such as flooding. The better trained the applicators are in using baits and fumigant, the less likely it is that there will be unintentional poisonings and more likely that the products will be available for use in the future.

**Objectives:**

1. Develop at least 2 short narrated videos (1-3 minutes) to be placed on touch screen kiosks maintained by Wilen (Urban IPM) and Salmon (Agriculture) demonstrating trap set up and placement
2. Develop at least 2 longer (5-10 minutes) narrated videos that can be placed on extension websites and also made available for download to use for presentations and other educational events.

**Summary:**

1. Developed a media library of digital video footage on Pocket Gopher and Ground Squirrel related issues for utilization in various outreach efforts.
2. Created three video clips on Pocket Gopher trapping, including *Finding a Pocket Gopher Tunnel*, *Setting a Macabee Trap*, and *Placing a Pocket Gopher Trap*, (<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7433.html> and <http://www.ipm.ucdavis.edu/PMG/r107600511.html> ) to be used on the UC IPM web site ([www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)) and UC IPM Touch-Screen Kiosk.
3. Provided UC Statewide IPM Office with final Pocket Gopher video clips as well as the entire Pocket Gopher and Ground Squirrel media library footage for publishing on the UC IPM web site. Posting locations on the web site include the appropriate IPM Pest Notes web pages and Pest Management Guideline web pages.
4. Added two Pocket Gopher video clips (*Setting a Macabee Trap* and *Placing a Pocket Gopher Trap*) to the UC IPM Touch-Screen Kiosk. Currently there are 22 UC IPM Touch-Screen Kiosks in place throughout California (<http://www.ipm.ucdavis.edu/FAQ/kiosk.html> ). One additional Pocket Gopher video clip (*Finding a Pocket Gopher Tunnel*) will be added to the kiosk when the Spring/Summer 2010 Update is installed.

**Last Updated**  
**01/21/2011**