

A LIVE TRAP FOR POCKET GOPHERS

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## A LIVE TRAP FOR POCKET GOPHERS<sup>1</sup>

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**Abstract:** An effective pocket gopher live trap for *Geomys*, *Pappogeomys*, and *Thomomys* was constructed from a plastic tube and a modified rat trap. Over 70 percent of the active sets produced a capture.

Although fossorial mammals of the family Geomyidae are unique biologically (Howard and Childs 1959) and of economic importance to agriculture (Buechner 1942, Ellison 1946), much is yet to be learned of their natural history, evolutionary trends, systematics, cytogenetics, physiology, and control (Howard and Ingles 1951, Miller 1964, Anderson 1966, Patton and Dingman 1968, Thaeler 1968). The primary limiting factor for many studies is the difficulty of trapping unharmed specimens. Our inability to obtain consistent results in live-trapping various species of pocket gophers (especially of the genera *Pappogeomys* and *Geomys*) with the described traps (Scheffer 1934, Sherman 1941, Ingles 1949, Howard 1952) led us to design and evaluate a number of different types. The trap described herein is the most effective model in terms of numbers of animals obtained and the low percentage of animals physically harmed.

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### MATERIALS AND METHODS

In the following description the first specifications are for a smaller trap used for *Geomys*, *Thomomys*, and small *Pappogeomys*. Specifications, if different for the larger trap required for large *Pappogeomys*, are given in parentheses after the first measurements. The trap body is made of plastic pipe with an internal diameter of 6.5 cm (8.0 cm) and a length of 30.0 cm. A modified rat trap is mounted on the pipe with two  $\frac{3}{16}$ - $\times$  1-inch stove bolts (Fig. 1). Modifications to the rat trap include (1) removal of bait pan, (2) bending the end of the wire (Fig. 1B), which retains the killing bar (Fig. 1I), at a right angle to its axis and parallel to the surface of the trap, (3) replacing the staple that anchors the wire (Fig. 1B) with an eyescrew (Fig. 1C), and (4) replacing the staples anchoring the killing bar with heavy wire staples made from coat hangers (Fig. 1D). These staples

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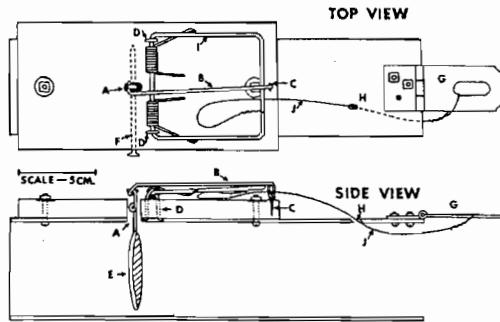


Fig. 1. Schematic diagram of the top and side views of the gopher trap.

extend through the wooden portion of the trap and are bent to prevent the killing bar from working loose from extended use.

After the rat trap is mounted to the pipe, a 10- × 22-mm slot is drilled through both the trap and pipe for attachment of the trigger mechanism (Fig. 1A). The trigger is made from a wire coat hanger (Figs. 1, 2). The pressure plate portion of the trigger (Figs. 1, 2, left) is covered with light galvanized sheet metal. The trigger unit is inserted into the 10- × 22-mm slot from the inside of the tube and a nail is driven into the side of the rat trap and through the small loop of the trigger (Figs. 1, 2, left).

The trap door is made from a 2.5-inch (3-inch—it may be necessary to shorten a larger safety hasp for the large trap) safety hasp, bolted to the top of the trap with  $\frac{3}{16}$ - ×  $\frac{1}{2}$ -inch stove bolts (Figs. 1G, 2, right). A 16-gauge trip-wire (Fig. 1J) is attached through the slot of the safety hasp, passed through a hole drilled in the top of the trap about 5 cm from the hasp and slightly off center (Fig. 1H), and attached to the killing bar of the rat trap. The length of the trip-wire is such that when the killing bar is completely closed, the safety hasp is securely held over the opening of the trap (Fig. 2, right). The distal end of the trap can be closed with sheet metal or wire.

For small gophers such as *Thomomys*,

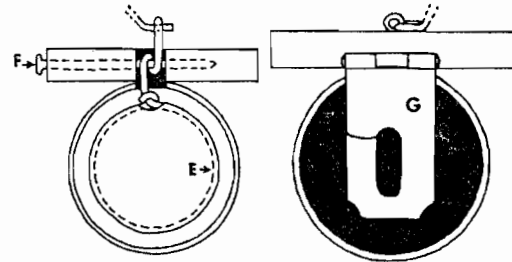


Fig. 2. Diagram of cross section of trap through trigger mechanism (left). Diagram of trap door, showing safety hasp in closed position (right).

the smaller trap is larger than the burrow. To be effective and to minimize escapes, the internal diameter of the trap should be reduced to the diameter of the burrow. To reduce the internal diameter of the smaller trap, we used an insert made from a 6-cm section of the 6.5-cm pipe. If approximately one-fourth of the side of the section is removed, the insert will fit into the trap.

### SETTING

The set is made by cocking the rat trap while holding the safety hasp in position (Fig. 1). The safety hasp is held open by the stiff trip-wire. About 4 cm of the pipe is inserted into the gopher burrow, and sufficient dirt is placed over the tube and rat trap to prevent light from entering the trap. If light enters the trap from the trigger or tube, gophers will frequently plug the burrow short of the trap and thus reduce trapping success.

### RESULTS

Trapping success for three genera of pocket gophers is presented in Table 1. *Pappogeomys*, *Geomys*, and *Thomomys* are readily taken with 70 percent of the active sets each producing a capture. The high number of inactive sets probably resulted from setting more than one trap in the same

Table 1. Results of trapping with a new live trap for pocket gophers.

GENUS	NUMBER OF SETS	ACTIVE SETS	NUMBER CAUGHT	TRAP SUCCESS (percent) <sup>a</sup>
<i>Pappogeomys</i>	244	210	164	78
<i>Thomomys</i>	165	98	88	90
<i>Geomys</i>	190	118	83	70
Total	599	426	335	79

<sup>a</sup> Percentage success of active sets.

burrow system or picking up sets without allowing sufficient time to trap the animal. Although we baited a number of sets, we do not feel that this adds to the trapping success of *Pappogeomys* and *Geomys*.

In a study plot near Lubbock, Texas, we trapped, marked, and recaptured over 40 specimens of *Pappogeomys*. Individuals were recaptured over eight times with an unbaited trap. In 200 captures at the Lubbock site, only one animal was injured. In the Davis Mountains, near Fort Davis, Texas, over 175 captures allowed us to mark and release more than 125 gophers (*Pappogeomys* and *Thomomys*). In the Davis Mountains, only five animals were killed as a result of trapping—one from heat, two from drowning, and two because of problems in an earlier model of the described trap.

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