A SIMPLER STRATEGY FOR LIVE-TRAPPING POCKET GOPHERS (RODENTIA: GEOMYIDAE)

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During 2014-2015, we trapped Texas pocket gophers (*Geomys personatus*) in coastal South Texas for a translocation study (Hansler et al. 2017). In the 2017 paper, the trapping method was briefly described in three sentences. Herein we provide more detail on the technique and discuss a preliminary experiment demonstrating that cantaloupe is an effective bait for pocket gophers (Rodentia: Geomyidae). Because of their fossorial lifestyle (Williams 1982), pocket gophers are inherently difficult to live trap at the surface because they rarely come above ground. They are usually live-captured by digging and inserting a live trap in their burrow (Sherman 1941; Baker & Williams 1972; Hickman 1979) sometimes using a specially constructed device (Connior & Risch 2009; Moore et al. 2019). Burrow depths for *Geomys personatus* average 240 cm and range from 80–440 cm (Kennerly 1954). We used standard Sherman live traps near the surface. Baits, such as granola or peanut butter, used for trapping non-fossorial rodents yielded little success in the original study and were not even discussed (Hansler et al. 2017). We observed that captive gophers housed in aquaria seemed to prefer cantaloupe over conventional feed such as rat biscuits, granola, pelleted rodent foods, and a variety of other fruits and vegetables. We therefore began using cantaloupe as bait and it appeared that we captured more gophers with cantaloupe than we did using other baits or no bait. To evaluate whether this observation was correct, we conducted a trial in fall of 2015 in the Flour Bluff area of Corpus Christi, Texas. This study was designed to compare using cantaloupe with using granola and gopher scat bait.

Active gopher mounds were located by identifying those that were darker in color due to the moisture still present in the sand. An

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open entrance to the burrow or freshly plugged entrance signaled that a gopher was active and present in the burrow system below. Wearing gloves so we would not spread human scent in the gopher burrow, we dug into the surface entrance locating where the tunnel bifurcates. We then widened that tunnel to accommodate the trap. Non-collapsible Sherman traps were turned upside down so the foot treadle that springs the door closed was on the roof of the trap. We then coated the floor of the trap with moist sand obtained from inside the gopher's tunnel. Gophers are more likely to enter the trap if the floor is covered in sand rather than left as exposed metal (Sherman 1941). Soil cannot be used on the treadle side of the trap as this would impede the spring mechanism and the door will not close. Placing the trap so the treadle is on the roof allows for a gopher to enter the trap, thus hitting the treadle with its back as it turns around, and consequently causing the door to shut and trap the gopher inside. After coating the floor with sand, we placed the bait in the back of the trap and inserted the trap into the burrow up to the point where the tunnel bifurcates. This ensured that a gopher traveling from either direction would encounter the trap thus reducing the number of traps needed for each burrow system. We filled in the hole behind the trap leaving only a small slit for light and outside air to enter the trap which seems to encourage gophers to investigate the trap. In our previous study, traps were usually investigated within 30 min of setting. If traps were not filled or triggered, or a gopher was not trapped within that time period, the trap usually remained untouched even if left for hours or days. Because of the threat of fire ants and exposure to extreme temperatures for any trapped gophers, we did not leave traps in the ground for more than one hour. After one hour, we pulled up the traps to check for gophers. Gophers that were trapped were weighed, sexed, and released immediately into the tunnel where they were trapped. Traps were soaked in soapy water, rinsed thoroughly, and dried between sessions.

We set 23 sets of three traps each for a total of 69 traps. Every set had one trap with a small slice of cantaloupe, one trap with a tablespoon of granola, and one trap with a tablespoon of gopher scat.

Table 1. Results of trapping using cantaloupe, granola, and gopher scat as bait. Twenty-three traps were set for each type of bait. Percentages are in parentheses.

	Bait Type		
	Cantaloupe	Granola	Scat
Trapped	4 (17.4)	0	0
Filled	11 (47.8)	8 (34.8)	14 (60.9)
No Activity	8 (34.8)	15 (65.2)	9 (39.1)

We put three traps for every trial in close proximity to ensure that terrain and location was not a mitigating factor for trapping.

Results of the trapping are presented in Table 1. Four gophers were trapped with cantaloupe; no gophers were trapped in any of the other traps. This supports our initial observations that cantaloupe is a more effective bait for trapping than granola or scat. This agrees with the previous cantaloupe-baited trapping results of approximately one trapped gopher out of every six traps set (Hansler et al. 2017). Scat as bait operated as a deterrent to the gophers with 14 out of 23 scat baited traps being filled with dirt. The traps set with scat were almost twice as likely to be filled with dirt as both the cantaloupe and the granola baited traps. Granola baited traps were almost twice as likely to be uninvestigated as those baited with cantaloupe or scat. Cantaloupe may be an effective bait because of the moisture content of the melon. Pocket gophers do not drink free water (Hanley 1944; DeVries & Sikes 2009) and may prefer foods with high water content to meet their metabolic water demand. In addition, because the scat baited traps seemed to offend the gophers, scat may be employed as a deterrent to keep gophers out of areas such as gardens or yards.

Connior & Risch (2009) compared trapping success for their box traps (made of wood and measuring approximately 40–50 cm long by 12 cm wide by 10 cm deep) with the pipe traps used by Baker &Williams (1972). Both had a 25–50% capture success for their trials. Our cantaloupe baited traps had a 17% success rate (4/23). However, Connior & Risch (2009) checked each trap up to six times, with traps reset if plugged with dirt. For our project, each trap was only checked once, one hour after it was set, as noted above. An additional

advantage with our method, other than not having to dig down to locate the main tunnel and having to refill the hole immediately, is that it is easy to set a set a large number of traps, especially if light weight Sherman traps are used.

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