



Getting to know New Mexico Pocket Gophers

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Pocket gophers (hereafter, gophers) are rodents well adapted to their fossorial (adapted to live underground) lifestyle. There are seven pocket gopher species in New Mexico including Botta's pocket gopher (*Thomomys bottae*), desert pocket gopher (*Geomys arenarius*), Knox Jones pocket gopher (*Geomys knoxjonesi*), northern pocket gopher (*Thomomys talpoides*), plains pocket gopher (*Geomys bursarius*), southern pocket gopher (*Thomomys umbrinus*) and yellow-faced pocket gopher (*Cratogeomys castanops*). There are numerous subspecies associated with some of these species, including 185 for Botta's pocket gopher. Range maps for these species may be found towards the end of this newsletter. Gophers tend to prefer well drained soils with sufficient structure to support vegetation needed to thrive. They typically avoid soils with high clay contents and rocky soils. Desert pocket gophers tend to prefer well drained sandy soils in the flood plains along the Rio Grande. While most gophers avoid soils with high rock or clay contents, northern pocket gophers cover the broadest range of soil types including some rocky and heavier clay soils.

Pocket gophers tend to breed in the early spring or in association with local growing seasons. March and April are peak times for breeding (Miller 1946). However, local climate conditions may influence breeding cycles. For example, the desert pocket gopher breeds in spring and summer and averages two litters per year. While Botta's pocket gophers are thought to breed once per year under natural conditions, a Botta's pocket gopher subspecies (*T. b. navus*) occupying agricultural fields near Davis, California exhibited three breeding seasons in early spring, summer and early winter (Miller 1946). Loeb (1990) found gophers (*T. b. navus*), near Davis, CA., maintained high reproductive activity resulting in 3.6 to 3.9 litters per year in irrigated alfalfa fields compared to 1.7 litters per year in non-irrigated fallow fields. The availability of high quality forage (e.g., alfalfa) under irrigation and subsequent potential for more than one litter per year may be possible for gopher species in New Mexico.

Gestation, the period in which a female is pregnant, ranges from 18 – 22 days and averages about 19 days among gopher species (Animal Diversity Web 2021). For species occurring in New Mexico, average litter sizes range between two and seven young, with an observed

absolute range between one and 12 young. Weaning occurs between 34 and 40 days for most species, with reported weaning for desert pocket gophers and yellow-faced pocket gophers ranging from 30-60 days. Juveniles disperse from their birth burrow systems at about two months of age. Sexual maturity is typically reached during the birth year for females and in the second year for males. Female to male sex ratios vary during the year and are estimated 3-4 to one. Pocket gopher life spans in the wild range from seven to 18 months. Pocket gophers are territorial and fighting during an encounter may be fierce outside the breeding season. Males tend to have territories that cover one to four female territories and possibly more depending on species. Densities range from one to more than 60 per acre depending on habitat quality and species.

Control of pocket gophers should employ an integrated pest management (IPM) approach for optimal success. Employing only one control measure usually has limited impact. It is recommended to integrate multiple control measures (Baldwin 2015). There are four general steps to implementing an IPM program: 1) identify the species causing damage, 2) evaluate control measures, 3) develop and implement a management plan integrating multiple methods, and 4) monitor effectiveness of control program. When evaluating control measures consider time of year, presence of non-target, threatened or endangered species, laws and regulations associated with control methods and costs. Select two or more methods to employ and are appropriate for time of year and circumstances. Monitor the effects of the control effort and adapt as needed to improve success.

Managing vegetation around areas desired for protection may limit habitat for gophers. In agricultural fields, deep plowing or ripping can destroy burrow systems and kill a few gophers. Also, it provides an opportunity to employ trapping or another method once surviving gophers become active after plowing. Most tunnels are in the root zone, with deeper tunnels leading to nests and other refuges. Alfalfa fields represent prime habitat for gophers and are more difficult to employ cultural practices to control gophers. Flood irrigation displaces gophers and provides an opportunity for producers, their dogs and other animals to prey upon them. Natural predators are numerous and include owls, hawks, golden eagles, American crows, snakes, weasels, American badgers, bobcats, foxes, coyotes and domestic dogs and cats. While some species eat large numbers of rodents annually, they often hunt large areas so natural control of gopher populations in localized areas may not reach desired levels.

Toxic baits include two categories: 1) acute toxins (zinc phosphide and strychnine) and 2) anticoagulants (chlorophacinone and diphacinone). Gophers often have a taste aversion to zinc phosphide which may limit bait acceptance. Anticoagulants require multiple feedings over three to five days to reach toxic levels. It is important to place bait in open tunnels and to cover the hole to prevent loose soil from covering the bait and light and fresh air from distracting the gopher as it approaches. Toxic baits can be applied by hand baiting or use of a burrow builder in agricultural fields. Fumigants include gas cartridges and aluminum phosphide. Research demonstrates gas cartridges are not effective on gophers. Aluminum phosphide, a restricted use product, is effective and requires a certified applicators license to apply.

Trapping is one of the safest and most effective methods for controlling gophers, although labor intensive. Two main trap-sets are available (see [November 2020 EASNR newsletter on how to trap a pocket gopher](#)). First, the main tunnel set requires two traps set in opposing directions in the tunnel. Second is the mound set which uses one trap and requires excavating the plug in the mound. This is most easily achieved in a fresh mound. Trapping lateral tunnels may be less effective during summer and for more experienced gophers. However, trapping lateral tunnels is faster and uses fewer traps, extending the number of sets you can make. Gophers are susceptible to trap shyness if missed on their first exposure to a trap.

Implementing individual control methods may not achieve effective control of gophers in an environmentally or financially cost efficient manner. However, integrating multiple methods increases efficacy of population control and should reduce control costs (Baldwin 2015). Consider starting a control program early in the year which may reduce the number of gophers available to breed. Reduce subsequent population size with continued monitoring and control thereby reducing overall costs.

Estimated geographic range of pocket gophers occurring in New Mexico are provided in the range maps below and were accessed through USGS (2021).



Botta's pocket gopher



Knox Jones pocket gopher



Desert pocket gopher



Northern pocket gopher



Plains pocket gopher



Southern pocket gopher



Yellow-faced pocket gopher

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