

Invasion by Ground Squirrels in Sensitive Environments

Nebraska Extension



13-lined Ground Squirrel



Photo: University of Nebraska–Lincoln

- ❖ Size: 11" long (including tail)
- ❖ Weight: 4-5 oz.
- ❖ Diet: grains, grasshoppers, mice, etc.
- ❖ Hibernates: October-Mar/April
- ❖ Reproduction: 1 litter/yr/3-14 young



13-lined Ground Squirrel Hole

- ❖ Clean
- ❖ Often a second hole 20 feet away



2-3 inch wide burrow opening



13-lined Ground Squirrel

❖ Trails through grass; note brown grass line



Photo: University of Nebraska–Lincoln

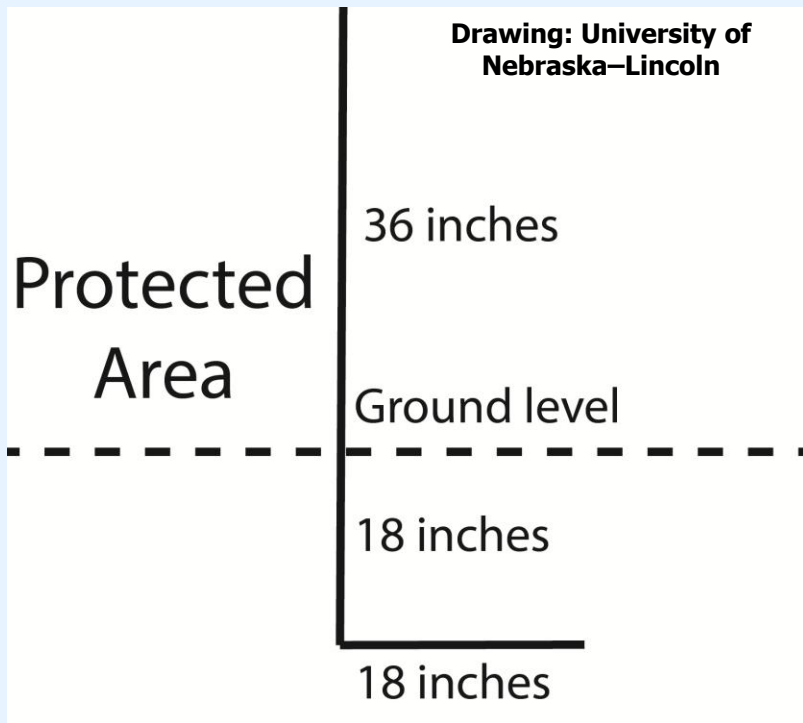


Habitat Modification

- ❖ Allow grass to grow long and thick
- ❖ Deep soil cultivation can disrupt their activities as well



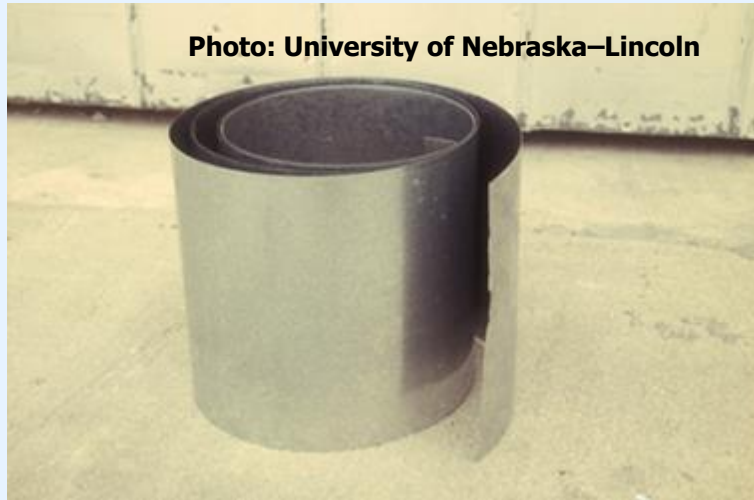
13-lined Ground Squirrel Exclusion



- ❖ Check for underground pipes and power lines
- ❖ Dig an 18" X 18" trench around area you wish to protect
- ❖ Install 0.5" galvanized hardware cloth on the bottom and up the side extending 3 ft above the ground



13-lined Ground Squirrel Exclusion



- ❖ Install 2-3 ft of sheet metal above the hardware cloth to stop climbing
- ❖ Gates should permit gaps no larger than 0.5"
- ❖ Prevent digging under threshold with cement



Frightening Devices & Repellents

- ❖ There are no frightening devices effective on 13-lined ground squirrels
- ❖ No repellents are registered for 13-lined ground squirrels



13-lined Ground Squirrel Control: Toxicants



- ❖ Follow Label Instructions
- ❖ THE LABEL IS THE LAW!



Toxicants: Baits



Photo: University of
Nebraska-Lincoln

- ❖ Zinc Phosphide: Restricted use pesticide-Pesticide Applicator's License required
- ❖ Contact local extension educator to learn how to obtain a license
- ❖ Pre-bait with 1 tsp of untreated bait around each active burrow for 2 to 3 days before applying treated bait



Toxicants: Baits

Photo: University of Nebraska–Lincoln



**Bait station in open position
(View from top).**

- ❖ Do not place unprotected bait on ground if rain is expected in 2 to 3 days.
- ❖ Use a tamper-resistant bait station to prevent rain, children, pets, and other non-target animals from reaching bait



Toxicants: Fumigants

Photo: University of Nebraska—Lincoln



- ❖ Carbon and Sodium Nitrate
- ❖ Sulfur and Potassium Nitrate
- ❖ General Use Pesticides
- ❖ Select thin versions so the cartridge will fit in hole



Toxicants: Fumigants



Photo: University of Nebraska–Lincoln

- ❖ Aluminum Phosphide:
Restricted Use
Pesticide
- ❖ Fumigation
Management Plan must
be created **PRIOR** to
use

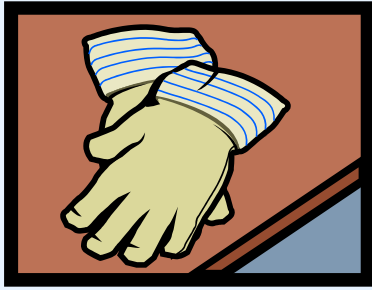


Toxicants: Fumigants



- ❖ Fumes are toxic
- ❖ NEVER use near structures
- ❖ Consider potential fire risks
- ❖ Moist soil holds gas better than dry
- ❖ Cover treated holes quickly to avoid losing fumes but do not bury cartridges



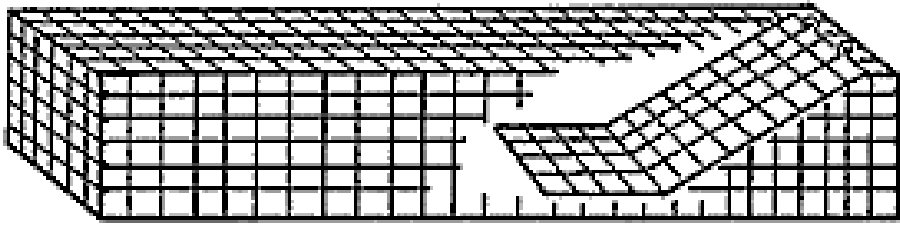


Trapping Safety

- ❖ Wear appropriate safety equipment, such as gloves, when handling traps and animals
- ❖ Avoid setting traps in areas with high human/pet traffic
- ❖ Check traps daily. Don't set them if you can't check them the next day



Burrow Cage Traps



Drawing: University of Nebraska

- ❖ Place trap door up against burrow entrance
- ❖ Prop trap in place
- ❖ Check traps daily
- ❖ Wear gloves when trapping!!



Photo: University of Nebraska-Lincoln



Ground Squirrel Control Through Trapping

- ❖ Rat sized snap traps inside protective container to prevent injury to non-targets like birds
- ❖ Baited with peanut butter, apple, or nutmeat



Groundhog: Names & Biology

- ❖ Whistle pig
- ❖ Gopher
- ❖ Woodchuck
- ❖ Biology
 - 5 to 10 lbs
 - Diurnal
 - 2 to 6 young
 - Disperse in July



Groundhog: Ecological Role

- ❖ Create den habitat for other animals
- ❖ Soil aeration
- ❖ Important component of the food chain
- ❖ Good whistlers



Drawing: University of Nebraska–Lincoln



Den Structure

- ❖ Well drained soil
- ❖ Up to 3 holes
- ❖ Typically under dens, sheds, or in brush
- ❖ Watch out for poison ivy



Habitat Modification

- ❖ Allow the grass to grow tall
- ❖ Remove/fill rock walls
- ❖ Flooding



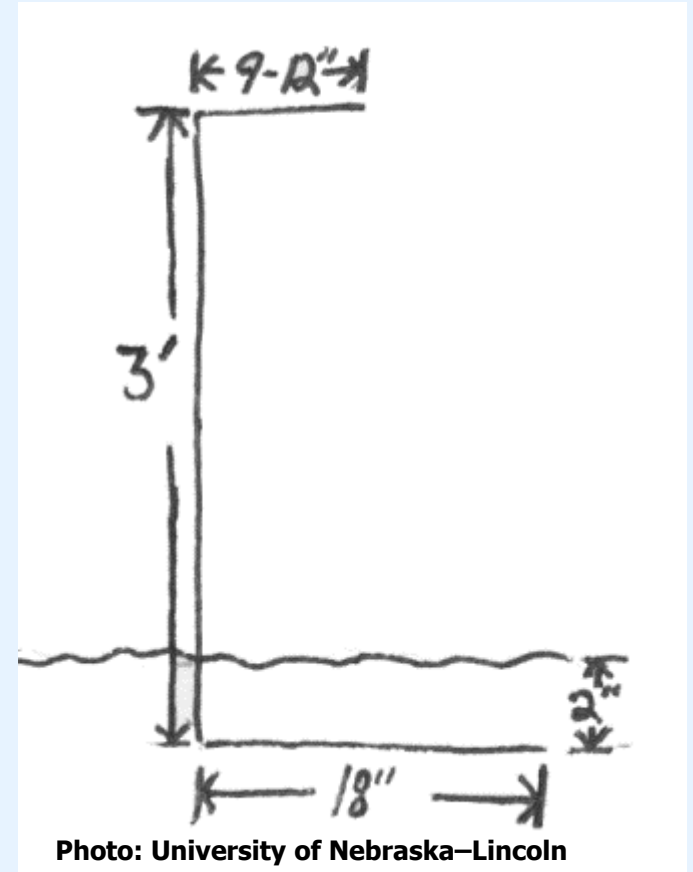
Photo: University of Nebraska–Lincoln



Exclusion

❖ Fencing

- Useful for high value situations
- $\frac{1}{2}$ -inch hardware cloth
- Wobbly or overhang
- Add an electric line for greater effectiveness



Frightening Devices

Ineffective

Photo: University of
Nebraska–Lincoln



Motion-activated
sprinkler

Photo: University of
Nebraska–Lincoln



Effigies

Photo: University of
Nebraska–Lincoln



Ultrasound

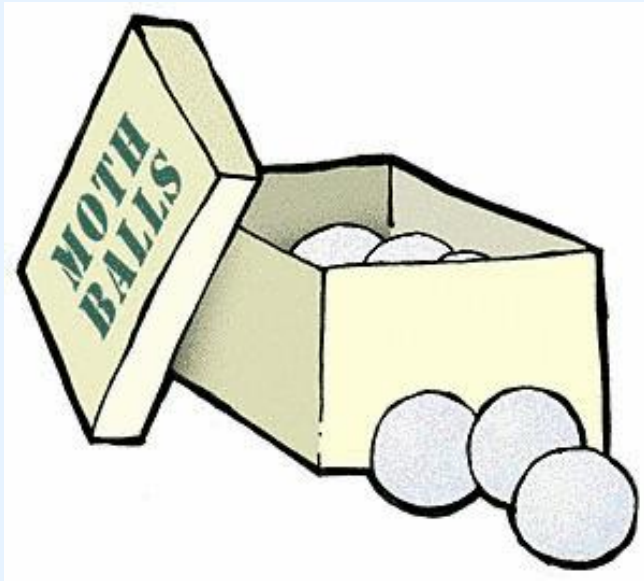


Repellents

- ❖ Some research shows bobcat urine reduces woodchuck gnawing of trees.
- ❖ Do NOT use urine on plants destined for human consumption
- ❖ Rain often requires reapplication
- ❖ Hot sauce hasn't been shown to work



No Mothballs!



Woodchucks just kick mothballs out of the den

- ❖ Naphthalene-anticipated carcinogen
- ❖ Paradichlorobenzene-possible carcinogen
- ❖ Injurious to animals
 - Abdominal pain, vomiting, seizures, & tremors
 - Kidney damage
 - Liver damage



Pesticides--Toxicants



- ❖ Follow Label Instructions
- ❖ THE LABEL IS THE LAW!
- ❖ What kills them can kill you!



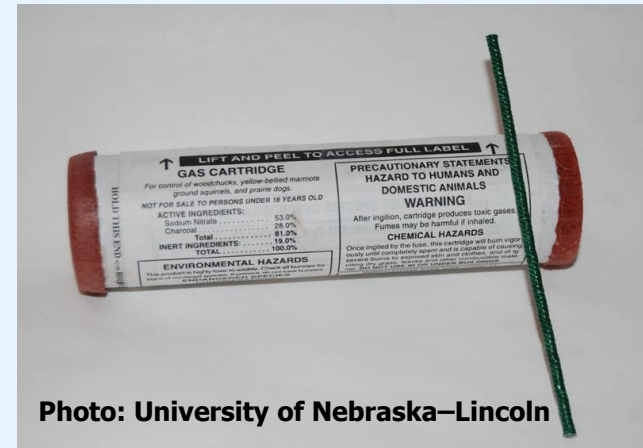
Gas Cartridges-GUP

❖ Advantages

- Shorter setup time
- Less bulky compared to traps

❖ Disadvantages

- All den entrances must be plugged
- Fire hazard
- Can't be used near structures
- No confirmed kill
- Sometimes sites need retreatment



Gas Cartridges

- ❖ Best after a rain
- ❖ Tape to a stick to push deeper in den
- ❖ Use after dark

Photo: University of Nebraska—Lincoln



Photo: University of Nebraska—Lincoln



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Photo: University of Nebraska—Lincoln



Phosphine Gas--RUP

- ❖ Fumigation Management Plan required BEFORE Use
- ❖ Extremely Toxic
- ❖ Gas liberates when it meets moisture

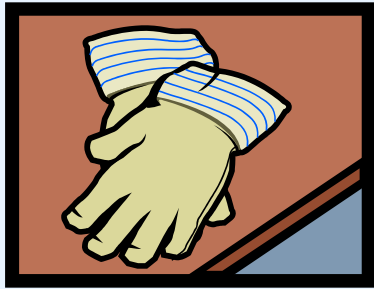


Photo: University of Nebraska-Lincoln



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Trapping Safety

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Cage Trapping

❖ Single-door

- 10x12x32
- Set trap away from hole
- If blocking hole set 2 traps minimum (1 facing hole another facing away from hole)



Cage Trapping-Two Door

❖ 8"x8"x30"

- Set after dark
- Force woodchuck to enter trap
- Cover so light only enters from exit end of trap
- No bait needed



Cage Trapping

- Cover all traps at least 50% of length
- If using bait
 - ✓ Lettuce (Romaine)
 - ✓ Cantaloupe
 - ✓ Apple
 - ✓ Carrot
 - ✓ Whatever they are eating from garden
 - ✓ Freshen bait regularly



Propane-Oxygen Exploders

- ❖ Propane-Oxygen Exploders are NOT legal in all states, including Nebraska.
- ❖ Many prohibit the use of explosive devices to take wildlife.



Photo: University of Nebraska–Lincoln



Hazing—Being Unwelcoming

- ❖ Haze at first sign of presence
 - Backfilling
 - Flooding (don't flood near structures)
- ❖ Be persistent. Do it daily.
- ❖ Success may take weeks.



Photo: University of Nebraska—Lincoln



Disposition

- ❖ Relocation-not practical
- ❖ Translocation-not humane, possibly illegal (as it is in Nebraska)
- ❖ Euthanasia
 - CO_2
 - Shooting (follow all safety guidelines and never shoot a woodchuck suspected of rabies in the brain)

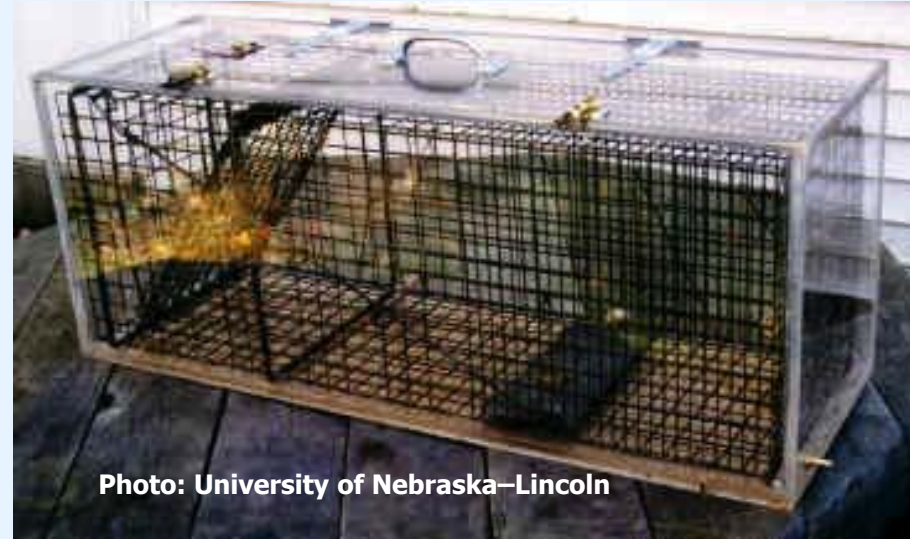


Photo: University of Nebraska–Lincoln



Image: University of Nebraska–Lincoln

Drawing shows proper bullet placement



Resources/Information

- ❖ Internet Center for Wildlife Damage Management
 - <http://icwdm.org>
- ❖ Prevention and Control of Wildlife Damage
 - <http://icwdm.org/handbook/index.aspx>
 - Local Extension/Pesticide Safety Education Program Office
 - Learn more about becoming a Licensed Pesticide Applicator. Only necessary for Restricted Use Pesticides (Wildlife Damage Control Category 14)



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