Pocket gophers and moles

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Gopher feeding on tree trunk

Killing plants
Gopher munches on under Gilroy lawn

My Evan Weizer
Madison News-Sentinel

GILROY - Russell Hayden is sore. He's tired of the traps, the poison, the gas bombs and the exterminators.

He's tired of the "cardboard" jokes and the banes that keep popping up in his lawn.

In short, Hayden, who owns 210 S. Hesperian Lane, is tired of the gopher who spends his days munching on the tender roots of his summer grass. Not more than that. Hayden's so mad that he's put a $150 bounty on the furry head of the elusive critic or critter.

"This has been crazy," Hayden says referring to his failed attempts to evict his annoyed lawn guest. "We've tried salt. We've tried traps. We've tried smoke bombs. We've tried a slight breeze with a gun."

No luck. Another day, another gopher here. "I guess you saw the front lawn," Hayden says with disgust. "He was that big.

Hayden's ordeal began three months ago when the prairie used and brown patches began to appear on his lawn. Since then, he's tried almost every extermination technique known.

First there were the traps. Hayden set them with commercial gopher bait, and there was grass and finally was gone. The lasted one well fed gopher.

He tried flooding water down the holes, pouring stink bombs into them, dropping pieces of steamers down them and shocking gopher gaunters into them. But if the gopher noticed the inconspicuous, he didn't mention it to Hayden. Finally, Hayden set up a bed on his back porch and waited for the gopher with a shotgun.

"I ended up killing one," Hayden said. "I thought I was going to shoot my feet off or something trying to catch him."

To add insult to injury, Hayden, who works at the Sandburg materials division of the San Jose Fire Department, made the mistake of telling his friends at work about his gopher problem. If anyone was going to know about chemicals to get rid of a gopher, these people would have. But he had forgotten one thing. "Cardboard," the magic in a world in which a groundskeeper down the street was in an attempt to exterminate a gopher, is on sale.

"They give me the notion of all the chemicals not right," Hayden says referring to his colleagues. "But in essence, they would blow up my yard."

Frustrated, he decided to call in the exterminators. "We had a guy who said the house was in the house," Hayden said. "The guy who did the job just didn't make it the job who dug the hole and the gopher didn't work. They both fail, neither worked."

"One of the exterminators told me he caught 810 gophers," Hayden says with a laugh. "Yeah, all except this one."

Actually, the gopher is not the only one he has been bothering in this battles. Hayden is had to dig deep into his wallet, spending nearly twice the $150 exterminator trying to try to rid himself of the gopher, he revealed today.

"The gopher does not need a name," Hayden said with a grin. "The gopher will hopefully be advertised."
Soil erosion made worse by gopher tunnels
Erosion aided by gopher tunnels
On a hillside water surfaces
through gopher tunnel
Are you frustrated?
'Instead of trappin' those gophers, we figgered we'd bring'em out and reason with'em!
Gopher & Mole Control

- Differences – Life Cycles - Feeding
- Snake Oils
- Enhance Natural Predators
- Exclusion
- Poison Baits
- Gassing
- Blasting
- Flooding
- Traps
- Ignore Them
Differences between Moles & Gophers

**Mole**
- Round mound
- Pushed up earth
- Long surface ridges
- Eat earthworms & insects
- Not as territorial
- Holes kept closed or open
- Difficult to catch

**Gopher**
- Crescent mound
- Dumped earth
- Eat plants (roots)
- Very territorial
- Keep holes closed
- Easy to catch
Moles

- 6-8 inches long
- Pointed snout, short arms
- 3-5 young born in spring
- Holes < 2” in diameter
- Tunnels mostly 16-18” deep
- Surface ridges for feeding
- Active all year except in extreme cold
- Eat worms and insects
- Dislodge plants
Mole or Gopher?
Gophers

- 6-12 inches long
- 4 large incisor teeth
- Fur lined external cheek pouches
- Do not hibernate (2 litters/yr) 3-4 young
- Density 15-60 per acre
- Main tunnels > 2” in diameter
- Active mostly in spring and fall
- Eat roots, bulbs, tubers, & seeds
- Kill plants
Mole or Gopher?
Pocket gopher ID

- Incisors always exposed
- Opening of fur-lined cheek pouch
Pocket on gopher cheek
Pocket gopher – crescent shaped mound
Open gopher hole = still digging
Closed pocket gopher hole = gopher inside
Open gopher hole = vacant
Pocket gopher mounds

15-60 per acre
Pocket gopher in allium field
Gophers eat roots & plants
Gopher Mounds & Surface Feeding
Gopher surface feeding on clover and grass roots
Gopher feeding on alfalfa roots
Bermuda grass cache in gopher tunnel
Pocket gopher in olive orchard
Gopher feeding on tree roots
Gopher feeding on vine roots
Mole mounds
Mole hole
Mole mound
Snake Oils

4 of 5 gophers develop a sweet tooth (UC trial with gophers in captivity)
Snake Oils

Battery powered vibrators

Critters quickly get used to them
Fake worms
Snake Oils

Lava rocks soaked in garlic juice
Biodynamic Gopher Control

Skin the Gopher

- Burn the pelt then
- Sprinkle the ashes over the field.
- Burn the body and
  place ashes into the gopher holes during
  spring solstice

Witchcraft?
Beware of the "environmentally-friendly" label - Does it work?
Don’t get fooled

Only old mounds and no recent activity?

1st Option - No gophers – you got em!
2nd Option - Lots of underground life and feeding – just no new digging ! ! !

If you drive into a neighborhood and see no new housing construction – does that mean nobody lives in that neighborhood?
Small Animal Population Dynamics

- Territoriality and scarcity of food and cover due to dry fall and cold and dry spring.
- Predation, disease, interspecific competition.
- Genetic and ecologic factors.
- Fecundity and abundant food and cover due to wet fall and warm wet spring.
- High and low population density of the previous year.
Predators...

Helps – BUT – control is limited
Exclusion...
Barrier needs to be deep enough so the pest will not go under it AND above ground enough so the pest will not go over it
Gopher Baskets
Installing gopher baskets
Gopher basket
Wire lined planter box
Strychnine

**POCKET GOPHER BAIT**

**STRYCHNINE TREATED GRAIN (0.29%)**

Active Ingredient: Strychnine 0.29%
Inert Ingredients: 99.71%
Total: 100.00%

**KEEP OUT OF REACH OF CHILDREN**

**DANGER POISON**

**STATEMENT OF PRACTICAL TREATMENT**

**IF SWALLOWED:** CALL A PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY: If less than ten (10) minutes have passed since the poison was taken, give 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Repeat until vomit fluid is clear. Have patient lie down in quiet, darkened room and keep him warm and quiet. Do not induce vomiting or give anything by mouth to an unconscious person. IF INHALED: Remove victim to fresh air. Apply artificial respiration if indicated. IF ON SKIN: Remove contaminated clothing and wash affected areas with soap and water. IF IN EYES: Flush eyes with plenty of water. Get medical attention if irritation persists.

**NOTE TO PHYSICIAN**

A. Administer 100% OXYGEN by positive pressure to provide as much pulmonary gas exchange as possible, despite seizures.
B. Administer ANTICONVULSANT DRUG intravenously to control convulsions. CAUTION: It may be difficult or impossible to stop the seizure activity without stopping respiration. Be prepared to maintain pulmonary ventilation mechanically. Tracheotomy may be necessary if seizures are prolonged.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

**Botanical from Nux Vomica plant**

*(Strychnos nux-vomica L.)*

Breaks down in weeks in moist soil
Gopher Baiting

Strychnine on grain
Baiting with Strychnine

1\textsuperscript{st} - Probe area to find the tunnels

2\textsuperscript{nd} – Pour bait into tunnels
Probe into main tunnel
Baiting with Strychnine
Manual strychnine bait applicators
Spoon it in & close hole
Mechanical Bait Applicator

Makes an artificial burrow and deposits strychnine bait periodically
Mechanical bait applicator
Tunnel from mechanical bait applicator
Anti-Coagulant Bait Blocks

Diphacinone or Chlorophacinone

RODENT BAIT BLOCK
CHLOROPHACINONE TREATED GRAIN/PARAFFIN
(0.005%)

ACTIVE INGREDIENT:
Chlorophacinone
2-((p-chlorophenyl) phenylacetyl)-1,3-indandione ............... 0.005%
INERT INGREDIENTS ........................................ 99.995%
TOTAL .................................................. 100.000%

KEEP OUT OF THE REACH OF CHILDREN
CAUTION
FIRST AID TREATMENT
If swallowed, call a physician or poison control center. Drink 1 or 2 glasses of water & induce vomiting by touching back of throat. Do not induce vomiting or give anything by mouth to an unconscious person.

Establishment No. ...........................................
EPA SLN No. ..................................................
Calif. Reg. No. .............................................

Net Contents .......................... lbs.

SONOMA COUNTY AGRICULTURAL COMMISSIONER
2555 Mendocino Avenue, Rm. 101-P
Santa Rosa, California 95401
Anticoagulant Baiting Trial for Pocket Gopher Control

- Five groups of eight animals.
- Groups baited with twenty grams Chlorophacinone treated oats.
Anti-coagulant Baits

• Chlorophacinone and diphacinone are multiple feed toxicants and must be fed on over several days in order to be effective
• Results indicate that an animal must consume at least 25% its’ body weight in bait
UC Replicated Trial - 1988
# Average Number of Active Gopher Systems (Out of 15)

**Weeks After Treatment**

<table>
<thead>
<tr>
<th>Date</th>
<th>1/15</th>
<th>3/15</th>
<th>4/12</th>
<th>5/10</th>
<th>6/14</th>
<th>12/7</th>
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</thead>
<tbody>
<tr>
<td><strong>SON. BLK.</strong></td>
<td>15.0 A</td>
<td>4.7 C</td>
<td>3.3 C</td>
<td>3.0 D</td>
<td>3.3 B</td>
<td>3.0 C</td>
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<tr>
<td><strong>EATON BLK.</strong></td>
<td>15.0 A</td>
<td>9.7 B</td>
<td>9.0 B</td>
<td>4.0 C</td>
<td>5.7 B</td>
<td>4.3 BC</td>
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<tr>
<td><strong>STRYCHNINE</strong></td>
<td>11.0 B</td>
<td>7.7 B</td>
<td>8.3 B</td>
<td>9.0 B</td>
<td>10.0 A</td>
<td>7.3 B</td>
</tr>
<tr>
<td><strong>UNTREATED</strong></td>
<td>15.0 A</td>
<td>14.7 A</td>
<td>13.7 A</td>
<td>13.3 A</td>
<td>12.7 A</td>
<td>12.7 A</td>
</tr>
</tbody>
</table>

*Level of Significance 5%*
Reduction in gopher activity (one treatment) after 3-39 weeks

- Untreated (control) = 10%
- Strychnine = 50%
- Bait blocks = 80%

UC Trial 1988
Eaton Bait Blocks

Anti-coagulant

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Diphacinone</td>
<td>0.0025%</td>
</tr>
<tr>
<td>Diaphanone, Sodium Salt</td>
<td>0.0027%</td>
</tr>
<tr>
<td>Active ingredient</td>
<td>0.0052%</td>
</tr>
<tr>
<td>Weight (average)</td>
<td>114.5g</td>
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</tbody>
</table>
Gassing

- Car exhaust (C0)
- Aluminum phosphide
- Zinc phosphide
- Sodium Nitrate + Sulfur
- Potassium Nitrate + Sulfur

Dangerous – Does not work very well – Gophers close off tunnels when gas is perceived
**Gassing**

**Zinc phosphide**

**Poison Peanuts: Mole & Gopher Bait II 4 oz.**

Sweeneys Original Poison Peanuts kill moles and gophers. Simply sprinkle Sweeneys onto the mound or in the tunnel. Contains pelleted Zinc Phosphide which can also be used with a [Gopher/Mole Tool](#) to apply without caving in the tunnel.
Gassing
Gassing

Active Ingredients:
Sodium Nitrate.....46.2%
Sulfur.............34.8%
Charcoal............ 8.7%
Other Ingredients...10.3%
Total..............100%
Blasting with $\text{O}_2$ & propane
Blasting with $\text{O}_2$ & propane
Watch out in a dry climate
“Rodenator” (O₂ + propane)
TRAPS

Paul Vossen’s non patented “mobile gopher & mole getter machine”
Pincer-style traps (Cinch)

Small size for gophers & moles

Large size for big gophers only
Find the main tunnel - it goes in both directions and its large
Dig the hole out so the trap fits.
One trap in each direction in tunnel
Cover the hole to exclude light and dogs – not absolutely necessary
Gopher Caught in Cinch Trap
Mole Caught in Cinch Trap
Cinch trap in a lawn main tunnel
Traps set into main tunnel and covered

Lawn takes 6-8 weeks to recover visually
Cinch traps set in lawn clean out holes
Cinch trap in a lawn clean out hole
Setting a cinch trap in a mole tunnel
Other types of mole traps
Box traps (Guardian) for gophers
Gophers can't resist the incredible BLACKHOLE Gopher Trap. This trap is designed to keep gophers away. It is the last gopher trap you'll ever buy!
Pincer-style traps (Macabee)
Many Brands

Victor® EASYSET® Gopher Traps
Easy to set, sure to catch, without poisons or chemicals
A trap set in each direction in the main tunnel and one set in the clean out tunnel.
Gopher main tunnel is the size of a tennis ball
Gopher clean out hole or mole hole is smaller – about golf ball sized
How to make trapping work

- Be smarter than the gopher or mole
- Be very persistent
- Check your garden every day
- Set a trap immediately when new activity is evident
- After trapping a gopher, put a bait block in the tunnel and cover it up
Happy Hunting
OR
Just Enjoy the Cute Little Warm Fuzzies