

Moles, Voles, and Other Small Holes: What's Digging in My Yard??



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CFAES



THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL,
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‘Dealing with Wildlife: Geese, Moles, Voles...’

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Human-Wildlife Conflict






As human populations and demand for space continue to grow, people and wildlife are increasingly interacting and competing for resources, which can lead to increased human-wildlife conflict.

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Steps for Managing Wildlife Damage

- 1) Identify the species responsible
- 2) Understand the species habitat needs
- 3) Make cost-effective decisions
 - Bring damage down to a tolerable level
- 4) Employ management options
 - *Often involves persistence, commitment, and continual monitoring*


Trapping
Hunting
Exclusion
Pesticides
Harassment
Education
Habitat Modification

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Mole or a Vole?



Mole



Vole

- Insectivore (worms, beetles, grubs)
- 3 species in Ohio
 - Eastern mole most common


- Rodent (plant material)
- 3 species in Ohio, two are common, AKA meadow mice
 - Meadow vole most common

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Which is Which??


VOLES

Blunt Nose
Front feet = back feet




MOLES

Pointed Nose
Front feet ≠ back feet



SHREWS

Pointed Nose
Front feet = back feet

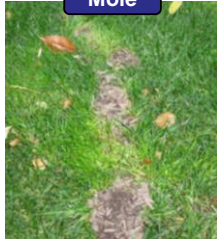


Assess the Damage & ID Responsible Species

Vole



Mole



Assess the Damage & ID Responsible Species

Mole



Vole



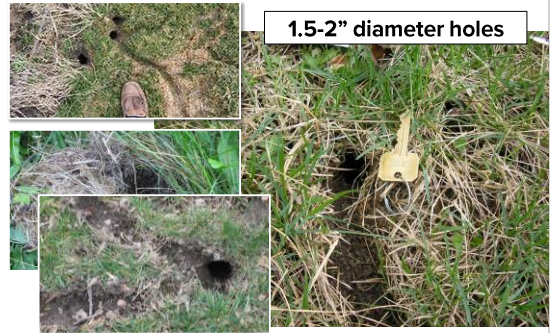
Mole



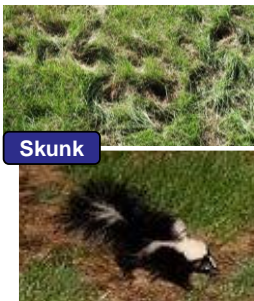
Vole tunnels under mulch.



Voles create shallow holes.



Don't be confused by other holes in your landscape...



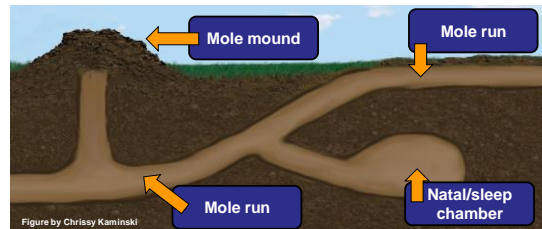
Skunk

Groundhog

~10-12"

Chipmunk

Mole Ecology



- Consumes 3/4 body weight daily
 - 15 feet of tunnel/hour
- 3-5 moles/acre = average density
- Single litter in May, 4-5 young

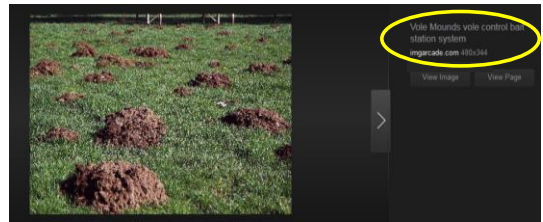


Vole Ecology



- Prolific breeder
 - Every 3 weeks from March-November
 - **Target populations fall-winter**
 - 4-6 young/litter (up to 11)
 - Sexual maturity after 25-40 days
- Densities of 10-100/acre are common
 - Cyclic populations
 - **Population monitoring**

Don't Get Your Critters Confused



Voles DO NOT make mounds of dirt. **Voles** WILL sometimes use mole tunnels to get to plants.
Moles DO NOT eat plants.

Management Options for Moles

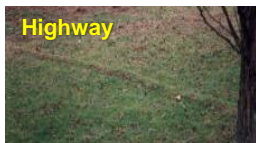


Management Options for Moles

- Trapping
- Pesticides
 - **Poison baits**
 - Repellents
 - Gas cartridges
 - Fumigation
- Harassment
 - Ultrasonic devices



Identifying Mole Damage



- Travel runs and feeding runs
 - Just below soil surface
- Volcanic-like mounds of soil
 - From excavation of deeper runs and burrows



Trapping Moles

- Several types of traps
 - Harpoon, choker loop, scissor jaw, No Mole, Moleinator, Victor Out O' Sight
- All are lethal and effective.

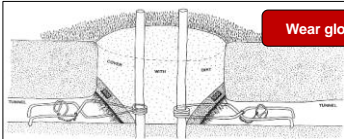


Use multiple traps and trap active, straight feeding runs near soil surface.

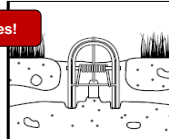
Dig Down to Find the Tunnel



- Follow specific directions for each trap type
 - NoMole & Moleinator placed inside runs
- Straddle the run
 - Harpoon & Victor
- Cover the hole to keep light out



Wear gloves!



Mole Trapping Recommendations

- Trapping mole mounds
 - Must dig down 7-10 inches to access run
 - Water grass = mole to surface



Mole Pesticides – Toxic Baits

- Most poison baits can be used in residential areas, golf course, around homes, and other non-crop grassy areas.
 - Always read the label!
- Must be applied below ground.
- Place in straight, active runs.



Mole Pesticides – Poison Baits

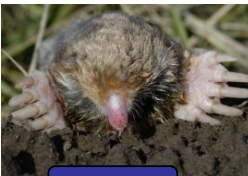
- Granular/pellet baits
 - Zinc phosphide, diphacinone
 - Not preferred food choice
 - Limited effectiveness
- Gel bait
 - eg. *Kaput Mole Gel Bait*
- Worm/Grub-shaped bait
 - Bromethalin
 - Talpirid, Victor Moleworms
 - Bait in the form of worm or grub
 - Anecdotal reports of success
- Secondary toxicity concerns



"Dogs, cats, and other predatory and scavenging mammals and birds might be poisoned if they feed up on animals that have eaten this bait."



Is it a Mole or a Vole?



Mole



Vole

- Insectivore (worms, beetles, grubs)**
 - 3 species in Ohio
 - Eastern mole most common
- Rodent (plant material)**
 - 4 species in Ohio, two are common, AKA meadow mice
 - Meadow and Woodland vole

Quick Quiz!

Is this a vole? **No.**



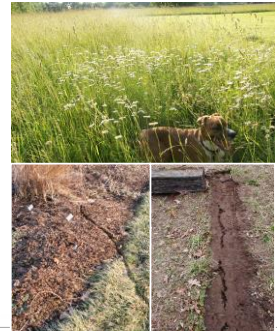
Management Options for Voles



- Habitat Modification
- Exclusion
- Trapping
- Pesticides
 - Repellents
 - Toxic baits

Vole Habitat Modification

- Reduce/eliminate ground cover
 - Landscape grasses
 - Mulch
 - Grass/weeds around trees
 - Grasses cut short into fall
 - Increases predator access
- Remove attractive cover & food sources
 - Straw bales, boards, etc.
 - Bird feeders
 - Fruit drop (especially if using poison baits)



Management Option for Voles

Exclusion

- Hardware cloth cylinders
 - ¼ - 1/8 inch mesh 12" tall
- Use on young trees with grass/weed control



Repellents

- Hot pepper, predator urine
 - Short term protection

Trapping Voles

- Most effective for smaller areas **or** in conjunction with toxic baiting
- ID active areas
 - Cut grass blades/vegetation in runs or around holes
- Snap traps – expanded trigger (use dozens) or multiple catch traps
 - **Hit population hard = longer recovery time**
- Place directly inline with vole runs
 - Cover traps to prevent non-target captures



Trapping Voles

- Good bait = peanut butter and oatmeal
 - No bait if covered successfully
- Past success = future success
 - Odor attracts other voles
- Most effective for smaller areas **or** in conjunction with toxic baiting



Vole Pesticides – Toxic Baits

No toxic baits are available for use in edible gardens or crops.

- Application best in fall
 - After breeding season
 - Gather food for winter
- Chlorophacinone, Diphacinone, Bromethalin
 - Must be used within 50-100 of building/residence with a bait station
- Other toxic baits are restricted use pesticides (RUPs)
 - **Pesticide Applicators License**



Vole Pesticides – Toxic Baits

- Restricted Use:
 - Zinc phosphide
 - Second Gen Anticoagulants
- Specific site restrictions
 - Non-residential
 - Bare ground restrictions
 - Bait stations required
- Tamper-resistant bait stations required
- *Special care must be taken to avoid non-target species exposure*



Think twice about predator management...



www.urbandcoyotersearch.com

Things to remember:

- Target control to where moles/voles are active.
- Use many traps (esp. with voles).
- Do your homework on mole trap operation to avoid error.
- Consider modifying attractive vole habitat.
- Read labels on pesticides to make sure site matches and safety protocols are followed.

Another Quick Quiz!

Name the animal.

Mole



Identifying _____ Damage



Chipmunk Tunnel Entrances

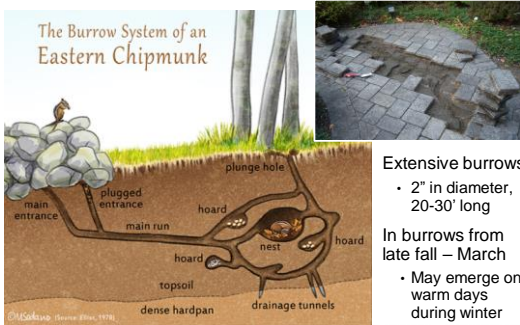


- Roughly 2 inches in diameter
 - Neat, clean edges and no mound of dug-out soil
- Often near buildings, garages, or objects, such as stumps, wood or rock piles



The Chipmunk Burrow System

The Burrow System of an Eastern Chipmunk



Extensive burrows

- 2" in diameter, 20-30' long

In burrows from late fall – March

- May emerge on warm days during winter

Managing Chipmunk Damage

- **No toxic baits labeled for use on chipmunks**

Habitat Modification

- Keep vegetation (cover), rocks, wood piles, and other debris away from buildings

Trapping

- Live traps or rat snap traps
- Set along runways or burrow entrances
- Secure to prevent movement
- Bait: peanutbutter & oatmeal



Habitat Modification

- Remove wood piles, rocks, and other debris near foundations
- Place bird feeders 15-30' away from home
- Keep grass cut short around buildings



WHO IS THE CULPRIT?



Look for well worn trails leading to/from burrow.

Groundhog Habitat: Den System

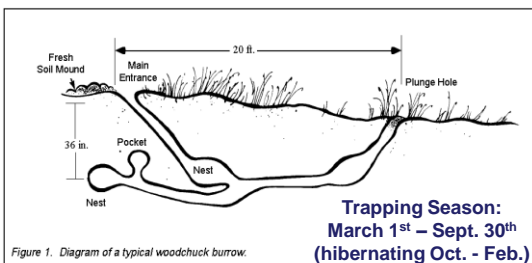


Figure 1. Diagram of a typical woodchuck burrow.

Average 1-2 groundhogs/acre. They will defend their territories (0.6-4 ac) outside of the breeding season.

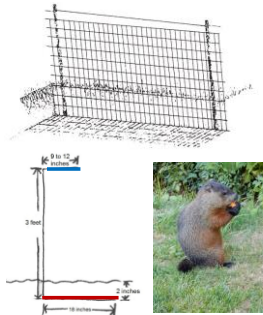
Options for Groundhog Management

- Exclusion & Repellents
 - Protecting gardens
- Habitat Modification
 - Denning areas
- Lethal Control
 - Hunting/shooting – Legal year round
 - Gas cartridges
- Trapping



Groundhog Management – Fencing

- Two-strand (6" & 12") electric fence
- Non-electric, 3-4' tall
 - Heavy gauge 2-inch mesh wire
 - 18" skirt buried 2+"
 - Upper 9-12" - 45-degree angle overhang



So close...



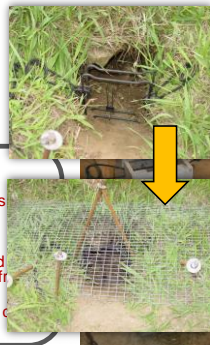
USDA, Wildlife Services

Groundhog Trapping

- Locate dens during spring
- Activity – diurnal, avoid heat in summer
- Snares w/relaxing lock (if not NWCO)
- Cage traps (10"x 12"x 32") or lethal traps

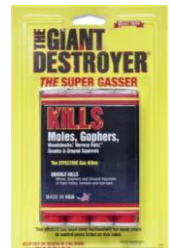
Rules and restrictions for lethal traps:

- Body gripping trap less than 7 x 7 inches or 220)
- No more than 3 feet away from hole
- Must have enclosure or structure around to prevent other animals from getting in from outside
- Tag with name and address on trap and check every 24 hours



Gas Cartridges

- Sodium nitrate or potassium nitrate
- Non-restricted use
- Where to find them:
 - Pocatello - USDA, Wildlife Services (614-993-3444)
 - Farm supply stores – over-the-counter
- Not for use under buildings and structures
- Use during spring, after dusk, & plug all holes
- **Caution:** Avoid non-target burrowing animals



Giant Destroyer:
for use in open fields and non-crop areas, including residential

Take-Away Messages:

- 1) Identify the species responsible and understand the species habitat needs
- 2) Make cost-effective decisions to bring damage down to a tolerable level
- 3) Coexistence is key – must find your own happy place.
- 4) Be persistence, committed, and patient.
- 5) Don't let it get you down. Use your resources.

Don't let the negative experiences outweigh the positive.



Urban spaces and backyards are where many people gain first-hand experience with wildlife.



Remember to be Safe!

- Wear appropriate safety equipment
 - Glove when handling traps or pesticides
- Wash hands after handling traps
- Avoid setting traps in areas with high pet and human traffic
- Don't set traps unless you can check them daily.
- READ THE LABEL.



All Resources Posted at:



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Thank you!

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"Our little mole problem is getting worse."