

# WILDLIFE DAMAGE MANAGEMENT IN ORCHARDS



Kyle Van Why  
Wildlife Biologist  
USDA Wildlife Services

Mid-Atlantic Fruit and Vegetable Convention  
2014

# Wildlife Damage Identification

- There are a wide range of wildlife that can cause damage
- Damage can be similar between species and difficult to identify
- Multiple species may be damaging the same location, complicating ID
- It is important to positively ID the species so management methods can be best targeted
- The most effective management involves the use of multiple methods (don't limit yourself to one tool)
- Scale of damage and management are important to consider
- Seasonal or temporary management may be effective in reducing impacts and most economical



**Mammal vs Bird**  
Often use different  
management strategies



# Wildlife Damage: Who Is To Blame

## Mammals

- White-tailed Deer
- Black Bear
- Raccoons
- Groundhogs
- Feral Swine
- Squirrels
- Beaver
- Rabbits
- Small Mammals

## Birds

- Blackbirds
- Starlings
- Gulls
- Crows
- Songbirds
- Woodpeckers
- Wild Turkey
- Canada Geese



# Damage Identification

It is not easy to ID the species that is causing damage, if direct observation is possible that is the best

Use of surveys

Trail cameras

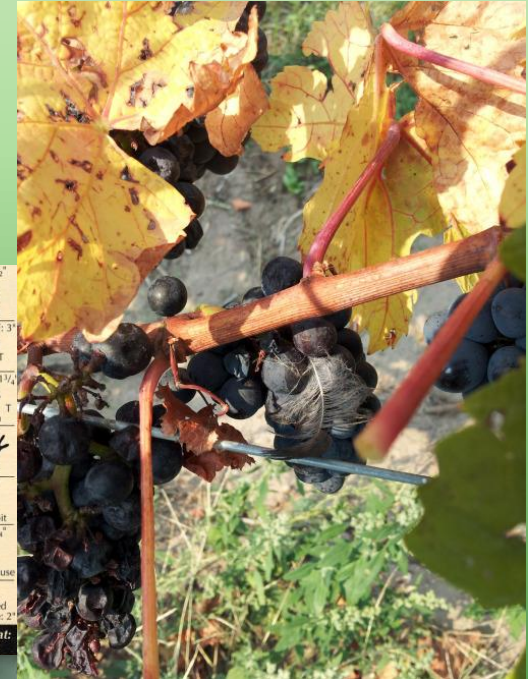
If direct documentation is not possible

Document tracks

Scat

Damage type

Damage season





# Deer Damage

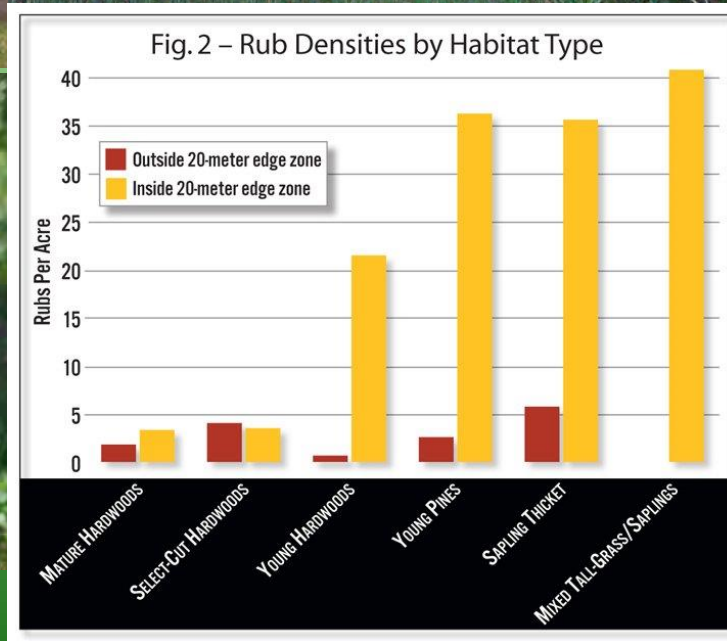
Rubbing



Browse



Feeding



Where do orchards fall, more trees to rub, more rubs, more damage

# Damage Identification

What you see is not always what you get

Keep and Open Mind





# Damage Management

There are Multiple management options when trying to deal with controlling wildlife

Primary options are:

- Habitat Management/Exclusion
- Harassment
- Chemical Application (lethal and non-lethal)
- Lethal Control

Management can be conducted during short term periods can have long term effects. It is best to use multiple management methods.

Remember management for mammals is often different than for birds.

Mammals are usually local residents, where birds are often seasonal visitors.



Copyright Nancy McKown 2014

# Habitat Management

Many species can be deterred from using the site by managing habitat around the property

Removal of den trees or edge vegetation

Removal of rock and brush piles

Increasing space between woods and field edges

Reduction in forest fragmentation, reduces corridors for wildlife



Mowing can reduce habitat

Local habitat variables	Landscape habitat variables
Area of the field (-)	Amount of wooded area (+)
Proportion of the perimeter of the field adjacent to wooded area (+)	Amount of forest edge (+)
	Mean forest patch size (+)



Damage to corn from deer  
Edge habitat is important





# Exclusion

- Exclusion can also be an effective tool to reduce crop damage from multiple mammal and bird species
- Electrical fencing can be a very effective tool for deer, bear, hogs, and raccoons
- Fencing can be disassembled to help access fields
- Fences can be moved between sites when they are most vulnerable
- Preeminent fences can be effective but costly
- Netting can be very effective, but time consuming and cost prohibitive
- Fine scale exclusion (base of trees) can be useful



Vole exclusion and bait station



# Electric Fencing Cost Analysis



Type of fence	Deer pressure	Labor and material cost per foot	Material cost per foot
8-foot woven wire	High	\$5 to \$7	\$2 to \$4
7.5-foot plastic mesh	High	\$1 to \$1.50	\$0.65
Slanted 7-wire	High	\$1.75 to \$2.25	\$1.50 to \$2
Vertical 7-wire	Moderate to high	\$1.50 to 2	\$0.75 to \$1.50
Spider Fence 5-wire	Moderate to high	\$0.70 to \$0.80	\$0.35 to \$0.40
Peanut butter	Low to moderate	\$0.30	\$0.10
2-strand polywire	Low to moderate	\$0.35	\$0.18



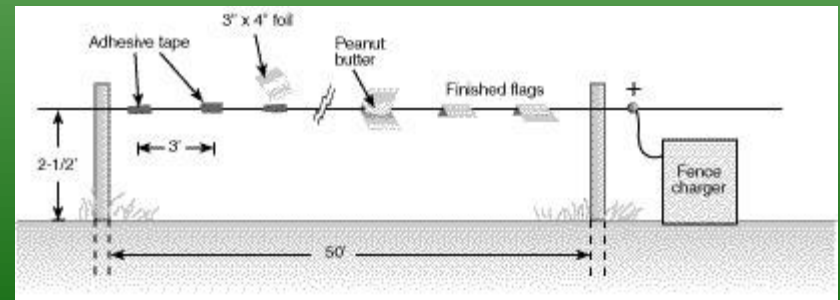
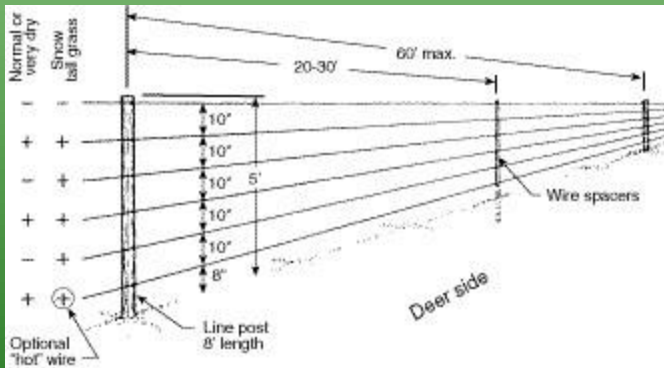
# Electric Fencing

There are multiple fencing types and options depending on species. Braided wire, with 3-4 strands below 4 ft can reduce most mammal damage. Height can be increased with 3 strands up to 7ft

Adding flagging can increase visibility of fence to wildlife and increase avoidance

Adding foil with peanut butter will teach visitors that the fence is electrified and increase effectiveness

Solar powered units can be used with many units and allows for increased placement of fencing



# Harassment

Harassment can be an effective management method in reducing damage during peak times of damage

There are remote harassment devices that can be used to help deter wildlife use of a site

Harassment devices have the added bonus of being effective for birds, where most other mammal management methods are not as effective

With all noise making devices, wildlife can become acclimated to their use and they can become ineffective

The combination of noise and light deterrents can be used together to be more effective

Wall Street  
Journal  
11/28/13

## New Scarecrows for Vineyards: Car Dealers' Inflatable 'Dancing' Tube Men

*Some wineries and other farms are using the flailing, fan-blown characters—often seen on car lots—to scare off birds.*





# Harassment

- Key to harassment is effort
- Use lethal control to enhance harassment
- Use multiple techniques
- One time will rarely be effective
- Concerns over noise making devices and adjacent landowners should be taken into consideration
- It is important to continually move noise making devices to increase their effectiveness
- Harassment devices work best when combined with exclusion and other management methods.



Effigies rarely effective

Pyrotechnics



# Biological Controls

- Promotion of predators in Orchards can be beneficial
- Raptors can be attracted by use of nest boxes (kestrels), or perch devices
- Mammal predators (foxes) can be managed with select removal and will often naturally use orchards
- Dogs can also be used as deterrents, either to enhance harassment activities or for guarding purposes (especially during sensitive times of the year)





# Population Management

One of the most effective methods to control mammals locally is through population management

This can be accomplished through:

- Hunting
- Trapping
- Sharpshooting
- Chemical Application



Most crop damage caused by mammals is from animals that live close to or on the property, removal of those individuals can have significant results



# Population Management Mammals

## The First Rule of Conducting Wildlife Control is to Contact your local Wildlife/Game Agency!

In Pennsylvania the Pennsylvania Game Commission can assist with evaluating your property and authorizing lethal control actions, suggest methods, provide contacts for individuals willing to assist with control

Wildlife Conservation Officers can better explain the Game Codes that relate to legal take of wildlife outside the hunting seasons

### PA Code

- **Title 58- Recreation**
  - **Part III - Game Commission**
    - **Chapter 147- Special Permits**
      - **DEER CONTROL – Subchapter R**
        - » Agriculture – 147.551 – 147.559

### PA Code

- **Title 58- Recreation**
  - **Part III - Game Commission**
    - **Chapter 147- Special Permits**
      - **Agricultural Damage Depredation Permit -Subchapter V**
        - » Agriculture – 147.761 – 147.765

### PA Code

- **Game And Wildlife Code - 34**
  - **SUBCHAPTER B - DESTRUCTION FOR AGRICULTURAL PROTECTION**
  - 2121 Killing game or wildlife to protect property





# Population Management Birds

Almost all birds are protected

**No Protection for** pigeons, starlings, house sparrows

**Agricultural Depredation order** (crows, blackbirds, grackles, cowbirds)

Game species can be taken during regulated hunting seasons

Depredation permits – for **almost every other species** causing damage

Issued by the USFWS and State Wildlife Agency

USDA-Wildlife Services provides recommendations on take and methods

\$100 Annually renewal permit

Questions Contact USDA-Wildlife Services to start the Process

Important to know what species are the problem

## No Permit Needed to Harass



# Population Management

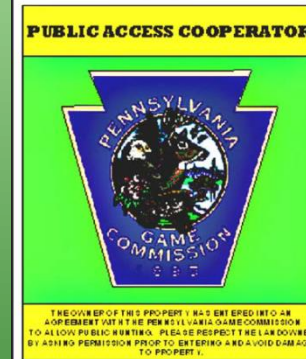
Legal Hunting and Trapping are Viable Management Methods in Controlling Damage

Opening up the property to hunters and trappers to remove local populations of mammals that are causing damage

Many lethal take programs are not available unless access to the property is allowed

Know your sportsmen, are the hunters targeting only one species, sex, ageclass. Are they really helping you out

**LOOK FOR THESE SIGNS TO IDENTIFY A COOPERATOR ENROLLED IN ONE OF OUR PUBLIC ACCESS PROGRAMS.**



# Population Management: Mammals

- Target the species or individuals causing the problems
- Use sportsmen to your advantage
- Target problem individuals
  - Doe for population control
  - Bucks for rubbing damage
- Use trap types that are effective and species specific
  - Cage traps, species specific traps, leghold traps

Management during specific seasons can solve problems during other times of the year





# Population Management: Birds

- Numerous trap types, very species specific
- Traps for individuals or larger groups
- Seasonal effectiveness
- Contact a professional for specifics on trapping different species



Crow Decoy Trap



Pigeon Trap



Starling Trap

# Chemical Applications: Mammals

There are 2 tools available for fumigating groundhog burrows

Gas cartridge applications – widely available, no permit required

These CO2 smoke bombs that are inserted into burrows

Animals asphyxiate

The burrows need to be covered

Groundhogs will excavate burrows that have been filled



Aluminum Phosphide - restricted use pesticide, applicators license required

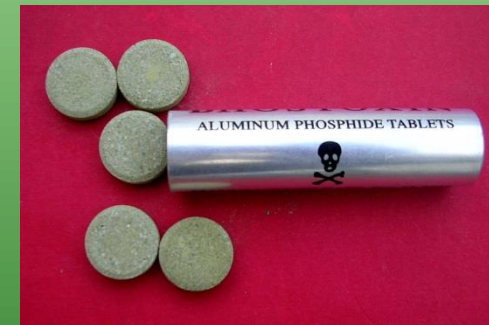
Pellets inserted into burrows

Animals are poisoned

The burrows need to be covered

Requires moisture levels to be right to release gas

Major threat to human health **Poisoning**



**Toxicants for Other Rodents can be used, best to contact a rodent control specialist**

# Chemical Application: Birds



Methyl Anthranilate- flavoring in grape products, naturally occurring compound, irritates birds causing dispersal and avoidance, does not affect other wildlife. Identified as a pleasant grape odor.

Can be fogged or sprayed- Washes off or deteriorates 2-4 weeks

Numerous commercially available forms

Limited number of chemicals available for use to control nuisance birds

Restricted use to agencies or certified applicators

Repeated applications or limited effectiveness

No not use chemicals against label instructions

Ensuring good bait acceptance key to bird control

One Exception DRC -1339

Used for Starlings, Pigeons, Crows

Restricted Use Pesticide, Agency only Application

Baiting and application restrictions

Contact USDA-Wildlife Services for more info.



# Population Management

If in doubt on where to get equipment, management tools, or best management practices do your homework or call a professional for advice or assistance

There may be new equipment, better tools, permitting requirements, tricks, and tips that can make management easier and more cost effective

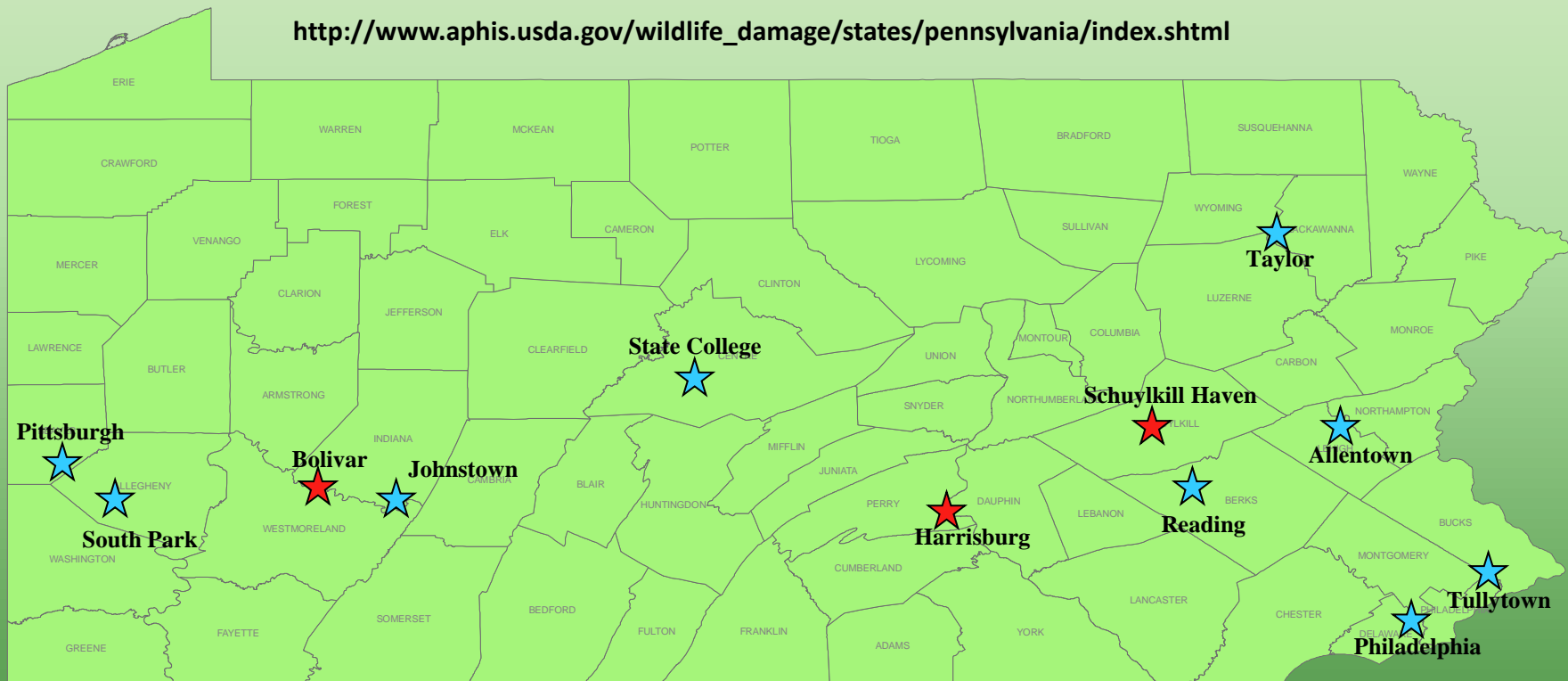


Protecting People | Protecting Agriculture | Protecting Wildlife

# Wildlife Services Offices in Pennsylvania

## 1-866-487-3297 (1-866-4USDAWS)

[http://www.aphis.usda.gov/wildlife\\_damage/states/pennsylvania/index.shtml](http://www.aphis.usda.gov/wildlife_damage/states/pennsylvania/index.shtml)



### Western District Office

4820 Route 711, Suite  
A  
Bolivar, PA 15923  
724-238-7320

### Pennsylvania State Office

Farm Show Complex  
Maclay St. Entrance, 2nd  
Floor  
PO Box 60827  
Harrisburg, PA 17106  
717-236-9451

### Eastern District Office

152 Schuylkill Mtn Rd.  
Schuylkill Haven, PA 17972  
570-739-1216

# Questions?



Or Just Hire Jackie Chan to Protect your Crops