



Ways to Address Deer Problems

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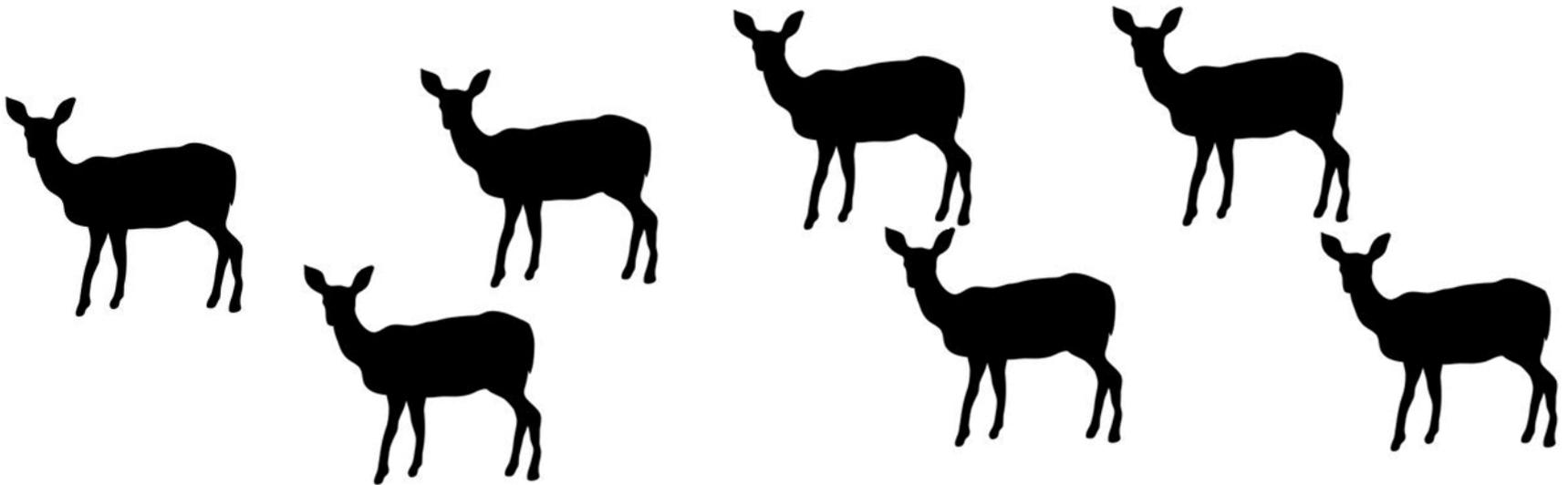
University of Arkansas System



“Oh Deer”

A Conservation Success Story

Area	Pre-1950's	1960's-1980's	Post-1990
National	500,000 (1900)	12,000,000 (1980)	25,000,000 (1995) 30,000,000 (2011)
Arkansas	500 (1920s)	500,000 (1985)	1,000,000 (current)



Deer in Arkansas

- Harvest records as an index of deer population
- Estimate of total number based on harvest
 - An educated guess
- 1 million deer
- 2,959,373 people in Arkansas (2013)

Year	Number
2013-14	213,216
2012-13	213,487
2011-12	192,511
2010-11	186,247
2009-10	170,516

Why problems with deer?

- Because humans move into wildlife habitat.
- Because we intentionally or unintentionally create backyard habitat for them.
- Because more wildlife exist than before (excluding endangered species).



Deer-related Vehicle Accidents

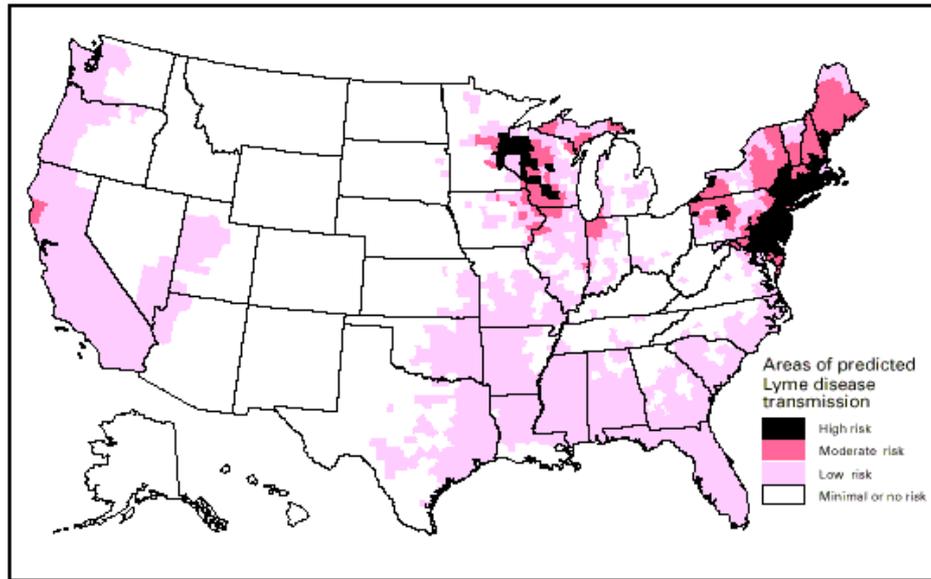
- Estimate 18,000 annually in Arkansas, \$35m in damage.
- Most occur October – December between 5:30pm & midnight.
- Low human injury rate (< 1%)
- Influenced by roadway features, level of urbanization, and human population densities (less related to deer densities or landscape characteristics)
- Safety advice: do not swerve, stay on roadway



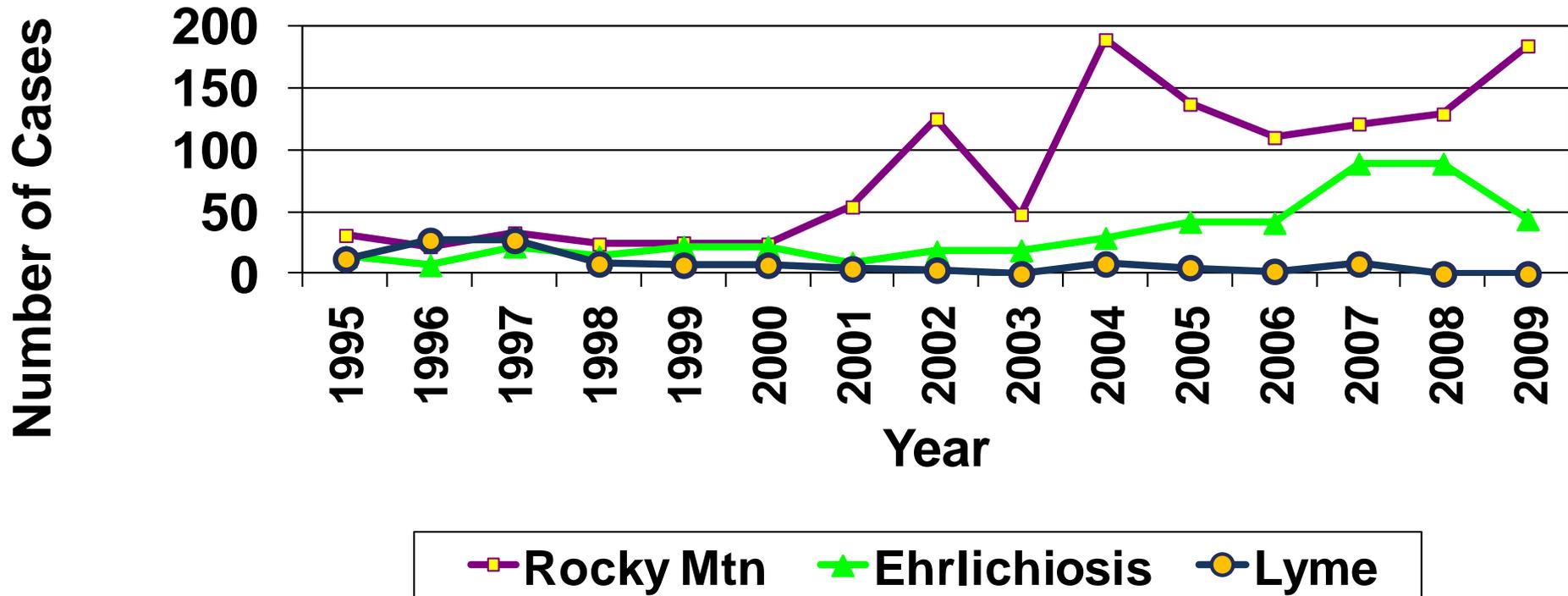
Spike in tick-borne illnesses nationally

- More opportunities for human/tick encounters
- Primary reason is increase in white-tailed deer populations (preferred host of adult black-legged ticks)
 - *Jerome Goddard, medical entomologist, Mississippi State Univ.*

National Lyme disease risk map with four categories of risk



Cases of Tick-Borne Diseases in Arkansas



Source: Arkansas Department of Health

Plant Damage ID

- Rough, shredded edge where nipped
- Clean nip > 20 inches from ground
- Tree scarring (rubbing velvet from antlers) on tree trunk up to 3 feet high



A deer rub removes bark off a tree

Plant Damage

**Q: Will deer eat my
_____?**



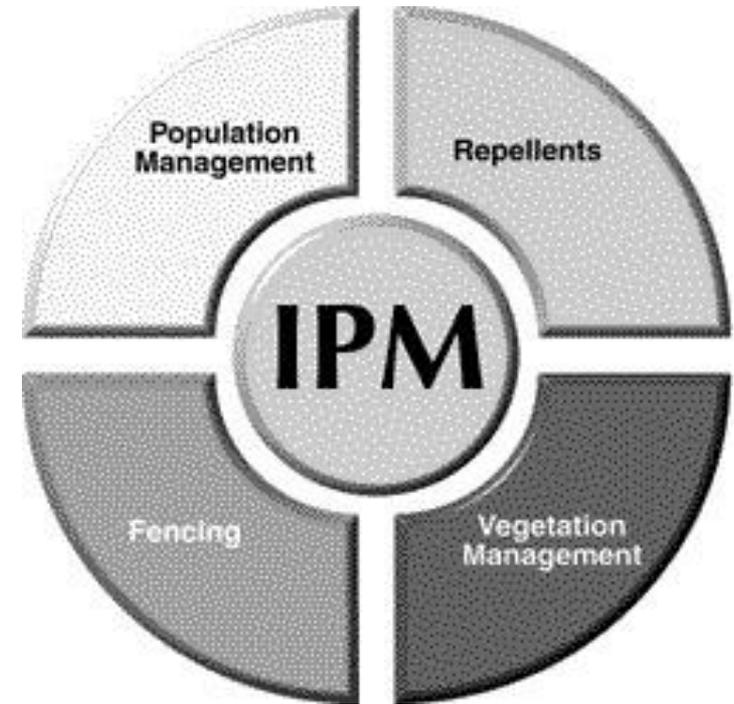
**A: How hungry are
your deer?**

White-tailed Deer Browse Line



Integrated Pest Management for White-tailed Deer

- Multiple methods
 - Fencing
 - Repellents or frightening devices
 - Vegetation management
 - Population reduction



*Source: University of Missouri
Extension Service*

Deer Damage Control Options



- Fencing (attractive?)
- Repellents (limited effectiveness)
- Frightening (limited effectiveness)
- Vegetation management (not always an option)
- Population reduction (over entire deer range)
 - Live trapping and relocation (difficult, not effective)
 - Birth control or sterilization (limited to no effectiveness)
 - Shooting / Hunting (safety concerns, only during hunting season unless obtain depredation permit)

Fencing

- Height
- Spacing between wires
- Low or at ground level



- 8 foot woven wire
- 14 foot better though not 100% deer proof

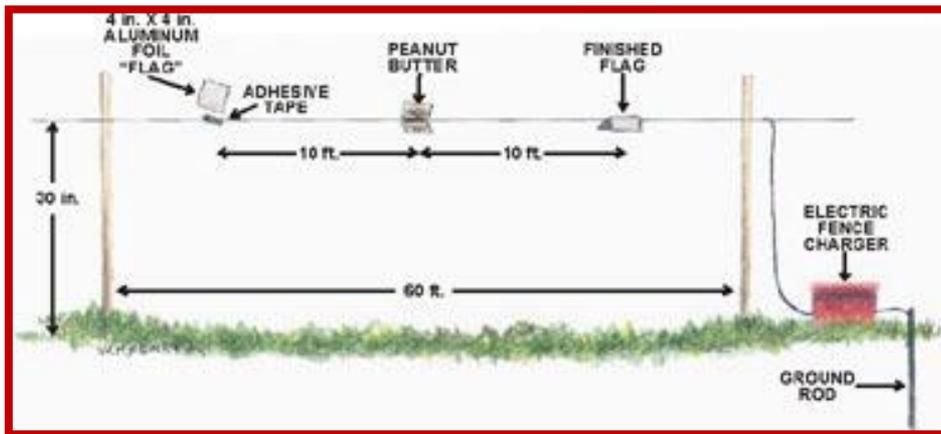
Fencing



- Small inside space

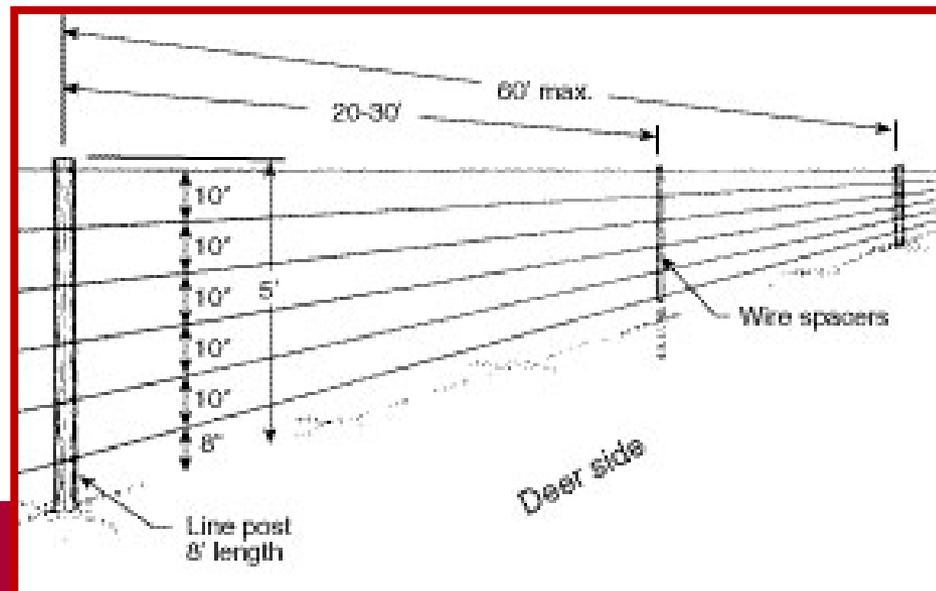
Electric Fencing

- Single or multiple strand electric
- Peanut butter trick



Electric Fencing

- 6-wire vertical high tensile electric
- Spaced so deer cannot crawl through
- Vegetation control by mowing and herbicides
- Visible such that deer will not pass through before sensing the hot wires



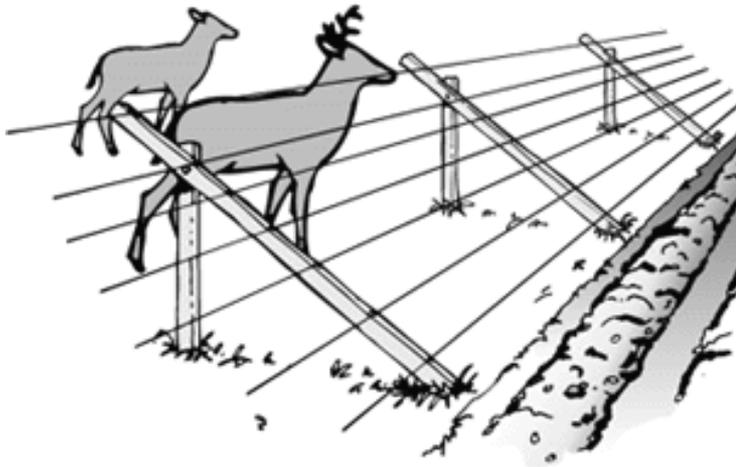
Electric Fencing

- Double row electric



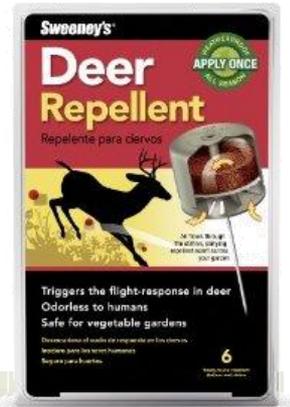
Electric Fencing

- Slanted & electric
- Confuses deer's depth perception
- Used to protect commercial nurseries



Frightening Devices

- Types
 - Visual
 - Auditory
 - Tactile
- Examples
 - CD's, aluminum foil pans
 - Motion-detection water sprinkler
 - Fishing line fence?
 - Flashing lights
 - Pyrotechnics
 - Barking dogs
 - Ultrasonic devices (not effective)
 - Deer whistles on vehicles



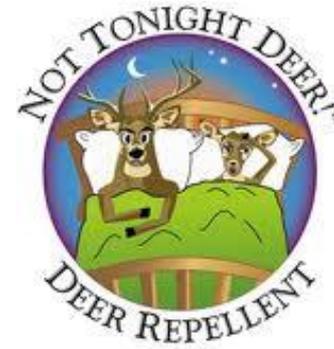
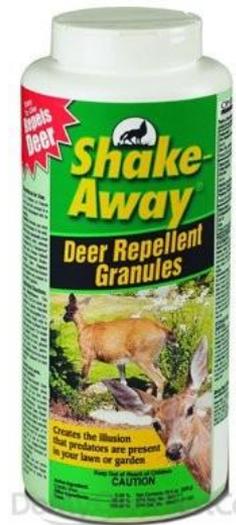
- The diminishing of a physiological, emotional, or behavioral response to a frequently repeated stimulus
- Adapt to different circumstances; sometimes curious
- Frightening devices need to be changed (e.g., moved, removed, interchanged) often

Frightening Devices vs. Habituation



- Types
 - Fear (e.g., predator scents)
 - Conditioned aversion
 - Pain
 - Taste

Repellents



- Homemade
 - Soap (Irish Spring)
 - Human hair or urine
- Commercial
 - Active ingredients
 - Egg-based or protein-based more effective; none 100% effective
 - Reapplications necessary
- Effective in some situations
 - Five or more weeks depending on feeding pressure & deer density

Repellents



Deer Repellent Demonstration Study (in progress)

- Azaleas
- October – May, 2012–13, and 2013-14
- Treatments (4)
 - Sprayed with Deer Stopper, Repels-All, Plantskydd
 - Applied Milorganite
- Controls (2)
 - Inside cage
 - Uncaged
- 6 replicates
- Set out for deer





Plant skydd



32-6D

Repels-ALL



31-6E

Control-
Cage



33-6D

Deer
Stopper



36-6F

Repellents vs. Survival Instinct

- High deer density + limited food = plant damage
- Less wary, more visible
- Less palatable or tasty plant materials consumed, even with repellent
- Northern states: consumption of otherwise indigestible plant parts



Select Plants that are Less Susceptible to Deer Damage

- Plants which are less palatable or less preferred
 - “deer-resistant”
 - “deer proof”
- Counteracting conditions
 - “Survival Instinct”
 - Deer population density
 - Food availability



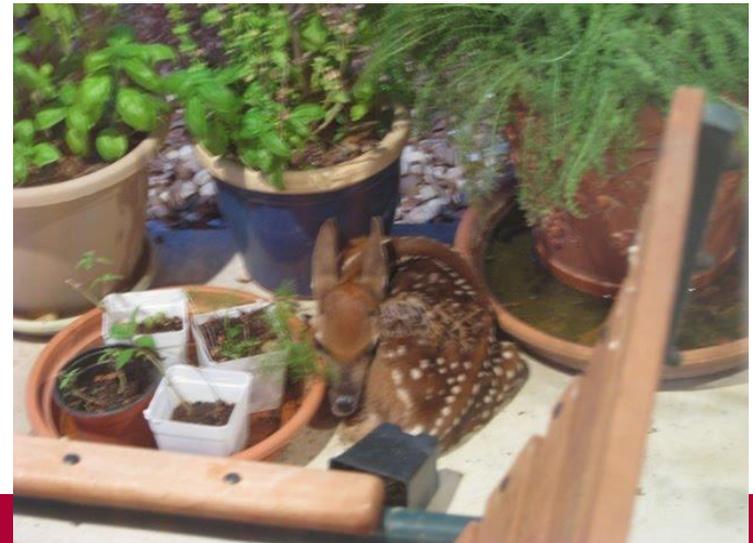
Community Efforts

- Vegetation management
- Ban on Deer Feeding
- Birth control and/or sterilization
- Live trapping and relocation
- Urban or residential archery deer hunts



Vegetation Management

- Remove deer habitat within deer range (food, cover, water sources)
- Keep open, mowed areas
- Remove brush or other thick cover



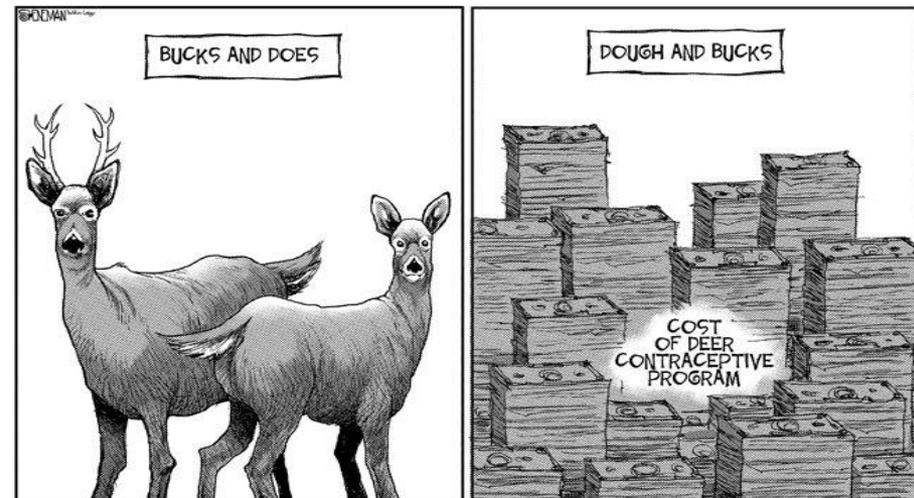
Ban on Deer Feeding

- Reasons for feeding
 - Draw deer away from problem areas
 - Humane, not let starve
 - Aesthetic
- Issues
 - Concentrates deer resulting in excessive plant damage in the vicinity
 - Disease transmission among deer
 - Encourages additional population growth



Birth Control or Sterilization

- Contraception effective in penned deer
- Obstacles with free-ranging deer
 - Requires booster which means identification and revisiting individual deer
 - Must be a closed population; influx of outside deer nullifies the effectiveness
 - Expense
 - Sterilization of bucks even less effective than contraception



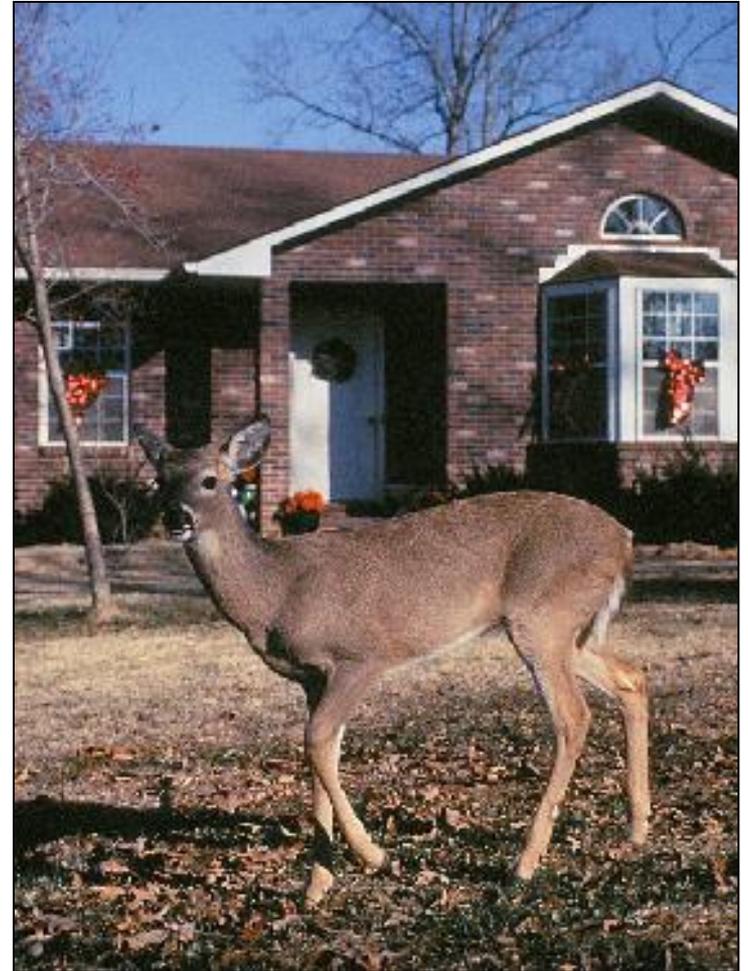
Live Trapping & Relocation

- Under the authority of a state wildlife agency
- May be effective for short-term deer reduction
- Expensive
- Relocated deer often don't survive
 - Capture myopathy
 - New habitat may already be at carrying capacity



Urban Archery Deer Hunts

- Arkansas Game & Fish Commission
 - Fairfield Bay
 - Heber Springs
 - Lakeview
 - Bull Shoals
 - Horseshoe Bend
 - Cherokee Village
 - Russellville
 - Eureka Springs
 - Hot Springs Village



Resources

- Dealing with Wildlife
(<http://www.arnatural.org/wildlife/dealing/default.htm>)
 - Do it yourself solutions, legal aspects & permits, invasive and non-native wildlife species, health and safety issues, species specifics, who to call, sick, injured or orphaned wildlife, FAQs, additional resources, quick survey
- National eXtension website (www.eXtension.org)
- Arkansas Game & Fish Commission website
(www.agfc.com)
- Internet Center for Wildlife Damage Management
<http://wildlifedamage.unl.edu/>
- Managing White-tailed Deer in Suburban Environments:
A Technical Guide, Cornell University