

Appendix F: Deer Management

Appendix F-1 Hunter Safety



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FRANKLIN WILDLIFE
391 ROUTE 32
N FRANKLIN CT 06254
860-642-7239



To: Town of Guilford
From: Howard Kilpatrick, Deer Project Leader, CT DEP Wildlife Division
Charles Bruckerhoff, Hunter Safety Coordinator, CT DEP Wildlife Division
Date: 7 February, 2011
RE: Hunt review of the East River Preserve in Guilford, CT

We met with Mr. Kevin Magee, Environmental Planner for the town of Guilford, on 26 January 2011 to review the map for the East River Preserve (ERP) and conduct a site visit. The property is just under a square mile (583 acres) and is bordered by the East River and town-owned land to the west. The north and northeast boundary is mostly bordered by the Guilford Conservation Land Trust. The southeast and southern portion is mostly bordered by relatively large parcels of private property. There is a 34-acre in-holding in the southwest portion of the property that is privately owned and is actively hunted. Listed below is an assessment of the types of hunting that may be feasible on the ERP.

Deer Hunting – Large deer populations present many problems from an ecological and public safety perspective. Unmanaged deer populations that have adequate food and cover and limited mortality can double in size every 2 – 3 years. Many towns (Wilton, Ridgefield, and Redding) in southwest Connecticut and large landholding organizations (Audubon, land trust, The Nature Conservancy) have implemented hunts to control or reduce deer population growth. Maintaining deer populations at low levels can help reduce the risk of deer-vehicle accidents, reduce the risk of contracting Lyme disease, and reduce the risk of deer causing ecological damage to native plant communities. The DEP administers firearms deer hunting programs on many properties that are smaller than the ERP (i.e., Millers Pond (280 ac), Quillinan Reservoir (511 ac), Eightmile River WMA (313 ac)). Archery deer hunting occurs on these properties as well as many smaller properties (i.e., George C. Waldo State park (150 ac), East Swamp WMA (85 ac).

Primary state laws regulating deer hunting

- 1) Must be 500 ft from a dwelling occupied by people or domestic animals to possess or discharge a loaded firearm. No minimum distance required to discharge archery equipment.
- 2) Shooting towards a building or person, when within range is prohibited.
- 3) Must be \geq 10 acres in size to use a large caliber rifle. No minimum size required to use a shotgun, muzzleloader or bow and arrow.
- 4) For non state-owned land, permission of the landowner is required for all methods of deer hunting.
- 5) Archery deer hunting is open from September 15th to December 31st. If the property is also open to firearms deer hunting, then bowhunting is usually closed during the firearms season on state lands
- 6) Firearms deer hunting is open from mid November to end of December.

Based on the current deer hunting laws, deer hunting with a shotgun, rifle, muzzleloader and bow and arrow could be allowed on the ERP. There are a few houses along the East River and along the southeast boundary that are within 500 feet of the property which would close a small portion of the ERP to firearms hunting.

Deer Hunting Recommendations:

- 1) Based on the size of the property, limited degree of development on adjacent properties, and the concerns associated with deer overabundance, some form of deer hunting should be permitted.
- 2) Archery deer hunting should be permitted on the southern portion of the ERP, south of the 34-ac in-holding. Firearms and archery deer hunting should be permitted on the remaining portion of the property.
- 3) Post area within 500 feet of houses as 'closed to firearms hunting'.
- 4) Create additional parking along eastern boundary to help distribute hunters on the property.
- 5) Similar to all state-owned lands, allow unlimited access for bowhunting
- 6) Issue a limited number of permits for firearms deer hunting. This can be administered through the DEP state land deer lottery system or the town can administer this through a town-administered lottery or a first-come, first-serve process. On state lands, firearm permits are issued at a rate of 1 permit per 20 acres. If the town wanted to be more conservative, then permits may be issued based on 1 permit per 30 acres.

Turkey Hunting – Turkeys were reintroduced into Connecticut during the mid 1970's. Restoration efforts have been very successful and they are now found in all Connecticut towns and are considered abundant statewide. Turkey hunting is designed to have minimal impact on population growth. During the spring season (Last week of April to last week of May) only bearded birds (males) can be harvested. Statewide, less than 2,000 birds are harvested during the spring. During the fall firearms season (Month of Oct), hunters can harvest birds of either sex. The fall archery turkey season runs concurrently with the fall archery deer season. Statewide, less than 300 birds are harvested during the fall seasons.

Primary state laws regulating Turkey hunting

- 1) Must be 500 ft from a dwelling occupied by people or domestic animals to possess or discharge a loaded firearm. No minimum distance required to discharge archery equipment.
- 2) Shooting towards a building or person, when within range is prohibited.
- 3) Turkeys can only be harvested with shotguns and archery equipment.
- 4) For non state-owned land, permission of the landowner is required for turkey hunting.

Based on the current turkey hunting laws, turkey hunting with a shotgun and bow and arrow could be allowed on the ERP. There are a few houses along the East River and along the southeast boundary that are within 500 feet of the property which would close a small portions of the ERP to firearms hunting.

Turkey Hunting Recommendations:

- 1) Based on the size of the property, limited degree of development on adjacent properties, some form of turkey hunting could be permitted.
- 2) Archery turkey hunting could be permitted on the southern portion of the ERP, south of the 34-ac in-holding. Firearms and archery turkey hunting could be permitted on the remaining portion of the property.
- 3) Post area within 500 feet of houses as 'closed to firearms hunting'.
- 4) Create additional parking along eastern boundary to help distribute hunters on the property.
- 5) Similar to all state-owned lands, allow unlimited access for bowhunting
- 6) Issue a limited number of permits for firearms turkey hunting. This can be administered through a town-administered lottery or a first-come, first-serve process. On state lands, firearm turkey

permits are issued on a no-lottery basis (no limit). When the state did issue turkey permits on a lottery basis, permits were issued at a rate of 1 permit per 100 acres for firearms turkey hunting.

Small Game Hunting – On lands that are not stocked with pheasants, the most commonly hunted small game species include, squirrels, rabbits, woodcock, and grouse. In general, small game is a “low use” activity and few hunt for these species. Most small game hunting starts in mid October and ends in late February.

Primary state laws regulating small game hunting

- 1) Must be 500 ft from a dwelling occupied by people or domestic animals to possess or discharge a loaded firearm. No minimum distance required to discharge archery equipment.
- 2) Small game can only be harvested with shotguns and archery equipment.
- 3) For non state-owned land, verbal permission of the landowner is required for small game hunting.
- 4) Shooting towards a building or person, when within range is prohibited.

Based on the current small game hunting laws, hunting with a shotgun and bow and arrow could be allowed on the ERP. There are a few houses along the East River and along the southeast boundary that are within 500 feet of the property which would close a small portions of the ERP to firearms hunting.

Small Game Hunting Recommendations:

- 1) Based on the size of the property, limited degree of development on adjacent properties, some form of small game hunting could be permitted.
- 2) Archery hunting could be permitted on the southern portion of the ERP, south of the 34-ac in-holding. Firearms and archery hunting could be permitted on the remaining portion of the property.
- 3) Post area within 500 feet of houses as ‘closed to firearms hunting’.
- 4) No permit quota is used for small game hunting on state lands that are not stocked with pheasants. Due to low use, access is open to all hunters with a valid hunting license.

Waterfowl Hunting – Waterfowl hunting is associated with ponds, lakes, rivers, streams, beaver impoundments, and other flooded wetlands. The East River would be the primary location of most waterfowl hunting on the ERP. Waterfowl hunting is regulated by state and federal laws. Generally speaking, duck hunting in the town of Guilford, north of I-95 is permitted from mid to late October, and again from mid November to early January. Goose hunting is permitted from September to mid October, and again from late November to mid January.

Primary laws regulating waterfowl hunting

- 1) Must be 500 ft from a dwelling occupied by people or domestic animals to possess or discharge a loaded firearm in non-tidal water and 250 ft in tidal water.
- 2) Waterfowl can only be harvested with shotguns and archery equipment.
- 3) Only Non-toxic shot can be used.
- 4) For non state-owned land, verbal permission of the landowner is required for waterfowl hunting.
- 5) Shooting towards a building or person, when within range is prohibited.

The tidal river is public domain and is currently open to waterfowl hunting, provided hunters have access to the river and follow all state and federal hunting laws. However, there are several houses along the East River that are within 250 feet of the tidal river that would close portions of the river to waterfowl hunting and a proposed development would likely increase the amount of area closed to waterfowl hunting.

Waterfowl Hunting Recommendations:

- 1) Waterfowl hunting can, and legally does occur on some portions of the East River. Based on the distance and direction of houses along this section of the river, hunting opportunities are limited. Due to limited opportunities to safely hunt, we would recommend not encouraging waterfowl hunting.
- 2) If the open fields are maintained as active agriculture (corn or hay fields), then waterfowl hunting in these fields can be conducted safely.

Appendix F-2: Basis for a Policy to Manage Deer at the East River Preserve, Guilford, CT

Mountain lions and wolves were extirpated from the Northeast in the early 1900s. In the absence of these predators, any significant natural mortality from predation has been eliminated, resulting in an overabundance of white-tailed deer throughout the Northeast. Currently in Connecticut, collisions with vehicles ($\approx 18,000$ annually) and hunting ($\approx 13,000$ annually) are the two most significant sources of deer mortality.

Overabundant deer populations have been associated with:

1. **Increased ecological damage to natural ecosystems** (Alverson et al. 1988, Anderson et al. 2001, Anderson et al. 2002, Anderson et al. 2005, Carson et al. 2005, Castleberry et al. 2000, Comisky et al. 2005, Fletcher et al. 2001, Frankland and Nelson 2003).
2. **Increased collisions with vehicles** (DeNicola and Williams 2008, Falk et al. 1987, Haikonen and Summala 2001, Hubbard et al. 2000, Iverson and Iverson 1999).
3. **Increased deer tick abundances and associated tick-borne diseases** (Anderson et al. 1987, Belongia et al. 1997, Daniels et al. 1993, Daniels and Fish 1995, Elias et al. 2006, Magnarelli et al. 2004, Magnarelli et al. 2010, Rand et al. 2003, Stafford 1993, Williams et al. 2009).
4. **Seed dispersal of exotic plants** (Myers et al. 2004, Vellend 2002, Vellend et al. 2006, Williams and Ward 2006, Williams et al. 2008).
5. **Invasion of exotic plant species** (Baiser et al. 2008, Eschtruth and Battles 2009a, Eschtruth and Battles 2009b, Knight et al. 2009).

The deer population at the East River Preserve has been managed over the past several decades, if not since the time of private ownership, through hunting. The Goss family owns an in-holding within the East River Preserve on which they allow hunting deer as do some neighboring landowners. A browse study conducted in summer 2011 (see attached study by Connecticut Agricultural Experiment Station (CAES)) showed that there were twice as many browsed stems/acre on the un hunted Town-owned Timberlands property than on the East River Preserve. These properties are of comparable size and Timberlands is located nearly directly 2 miles north of the East River Preserve. Due to anecdotal reports from the public, neighboring property owners, and the results from this browse study, the CAES report found there is approximately half the density of deer on the East River Preserve than Timberlands. Furthermore, the letter from Senior Wildlife Biologist Suzanne Paton of the United States Fish and Wildlife Service supports the deer browse study and recommends hunting to manage the deer population (Appendix F-2).

In the interest of ecosystem and public health, we are suggesting that the deer population on the East River Preserve continue to be managed using restricted and limited volunteer hunting as has occurred previously on the property for decades.

A report provided by Dr. Howard Kilpatrick of the Connecticut DEEP Wildlife Division is provided (Appendix F-1) documenting that hunting can occur safely on the East River Preserve. If the deer population continues to increased unmanaged, Guilford residents surrounding the East River Preserve should be prepared for increased deer tick abundances and associated tick-borne illnesses, increased collisions with vehicles on surrounding roadways

(Goose Lane, Clapboard Hill Road, Podunk Road, and Nortontown Road), and increased property damage to landscape plantings and gardens. The East River Preserve Management Plan Committee has submitted 2 reference lists with a combined total of over 300 peer-reviewed scientific publications documenting the detrimental impacts overabundant deer herds can have on local ecosystems and human health.

At public forums the East River Preserve Management Plan Committee has heard from representatives on both sides of the hunting issue that they would like a science-based decision to determine how or if the resident deer herd population should be managed. We understand that hunting is an emotional issue and that safety is foremost for the residents and visitors to Guilford. Deer hunting occurs in the Cockaponset State Forest block of Westwoods and occurs on some Guilford Land Conservation Trust property with the blue blazed trail system running through. The Connecticut DEEP Wildlife Division has reported that there have never been any reported deer related hunting accidents in Guilford since 1975, near the time deer hunting was legalized in Connecticut. This proves that mixed use of properties including hunting can and do occur in Guilford and can occur safely. Given that high deer densities can result in increased health risk to humans, including death, and have detrimental impacts on the ecosystem – including plants, trees, birds, other mammals, and invertebrates, we are suggesting that cost-effective deer management with limited, controlled hunting as other municipalities in Fairfield County have instituted, should be adopted at the East River Preserve.

References

- Alverson, W. S., D. M. Waller, and S. L. Solheim. 1988. Forests too deer: edge effects in northern Wisconsin. *Conservation Biology* 2:348-358.
- Anderson, R. C., E. A. Corbett, M. R. Anderson, G. A. Corbett, and T. M. Kelly. 2001. High white-tailed deer density has negative impact on tallgrass prairie forbs. *Journal of the Torrey Botanical Society* 128:381-392.
- Anderson, C. E., K. A. Chapman, M. A. White, and M. W. Cornett. 2002. Effects of browsing control on establishment and recruitment of eastern white pine (*Pinus strobus* L.) at Cathedral Grove, Lake Superior Highlands, Minnesota, USA. *Natural Areas Journal* 22:202-210.
- Anderson, J. F., R. C. Johnson, L. A. Magnarelli, F. W. Hyde, and J. E. Myers. 1987. Prevalence of *Borrelia burgdorferi* and *Babesia microti* in mice on islands inhabited by white-tailed deer. *Applied and Environmental Microbiology* 53:892-894.
- Anderson, R. C., D. Nelson, M. R. Anderson, and M. A. Rickey. 2005. White-tailed deer (*Odocoileus virginianus* Zimmermann) browsing effects on tallgrass prairie forbs: diversity and species abundance. *Natural Areas Journal* 25:19-25.
- Baiser, B., J. L. Lockwood, D. La Puma, and M. F. J. Aronson. 2008. A perfect storm: two ecosystem engineers interact to degrade deciduous forests of New Jersey. *Biological Invasions* 10:785-795.
- Belongia, E. A., K. D. Reed, P. D. Mitchell, C. P. Kolbert, D. H. Persing, J. S. Gill, and J. J. Kazmierczak. 1997. Prevalence of granulocytic *Ehrlichia* infection among white-tailed deer in Wisconsin. *Journal of Clinical Microbiology* 35:1465-1468.
- Carson, W. P., J. A. Banta, A. A. Royo, and C. Kirschbaum. 2005. Plant communities growing on boulders in the Allegheny National Forest: evidence for boulders as refugia from deer and as a bioassay of overbrowsing. *Natural Areas Journal* 25:10-18.

- Castleberry, S. B., W. M. Ford, K. V. Miller, and W. P. Smith. 2000. Influences of herbivory and canopy opening size on forest regeneration in a southern bottomland hardwood forest. *Forest Ecology and Management* 131:57-64.
- Comisky, L., A. A. Royo, and W. P. Carson. 2005. Deer browsing creates rock refugia gardens on large boulders in the Allegheny National Forest, Pennsylvania. *The American Midland Naturalist* 154:201-206.
- Daniels, T. J. and D. Fish. 1995. Effect of deer exclusion on the abundance of immature *Ixodes scapularis* (Acari: Ixodidae) parasitizing small and medium-sized mammals. *Journal of Medical Entomology* 32:5-11.
- Daniels, T. J., D. Fish, and I. Schwartz. 1993. Reduced abundance of *Ixodes scapularis* (Acari: Ixodidae) and Lyme disease risk by deer exclusion. *Journal of Medical Entomology* 30:1043-1049.
- DeNicola, A. J. and S. C. Williams. 2008. Sharpshooting suburban white-tailed deer reduces deer-vehicle collisions. *Human-Wildlife Conflicts* 2:28-33.
- Elias, S. P., C. B. Lubelczyk, P. W. Rand, E. H. LaCombe, M. S. Holman, and R. P. Smith, Jr. 2006. Deer browse resistant exotic-invasive understory: An indicator of elevated human risk of exposure to *Ixodes scapularis* (Acari: Ixodidae) in southern coastal Maine woodlands. *Journal of Medical Entomology* 43:1142-1152.
- Eschtruth, A. K. and J. J. Battles. 2009a. Acceleration of exotic plant invasion in a forested ecosystem by a generalist herbivore. *Conservation Biology* 23:388-399.
- Eschtruth, A. K. and J. J. Battles. 2009b. Assessing the relative importance of disturbance, herbivory, diversity, and propagule pressure in exotic plant invasion. *Ecological Monographs* 79:265-280.
- Falk, N. W., H. B. Graves, and E. D. Bellis. 1978. Highway right-of-way fences as deer deterrents. *Journal of Wildlife Management* 42:646-650.
- Fletcher, J. D., W. J. McShea, L. A. Shipley, and D. Shumway. 2001. Use of common forbs to measure browsing pressure by white-tailed deer (*Odocoileus virginianus* Zimmerman) in Virginia, USA. *Natural Areas Journal* 21:172-176.
- Frankland, F. and T. Nelson. 2003. Impacts of white-tailed deer on spring wildflowers in Illinois, USA. *Natural Areas Journal* 23:341-348.
- Haikonen, H. and H. Summala. 2001. Deer-vehicle crashes-extensive peak at 1 hour after sunset. *American Journal of Preventative Medicine* 21:209-213.
- Hubbard, M. W., B. J. Danielson, and R. A. Schmitz. 2000. Factors influencing the location of deer-vehicle accidents in Iowa. *Journal of Wildlife Management* 64:707-713.
- Iverson, A. L. and L. R. Iverson. 1999. Spatial and temporal trends of deer harvest and deer-vehicle accidents in Ohio. *Ohio Journal of Science* 99:84-94.
- Knight, T. M., J. L. Dunn, L. A. Smith, J. Davis, and S. Kalisz. 2009. Deer facilitate invasive plant success in a Pennsylvania forest understory. *Natural Areas Journal* 29:110-116.
- Magnarelli, L. A., J. W. Ijdo, U. Ramakrishnan, D. W. Henderson, K. C. Stafford, III, and E. Fikrig. 2004. Use of recombinant antigens of *Borrelia burgdorferi* and *Anaplasma phagocytophilum* in enzyme-linked immunosorbent assays to detect antibodies in white-tailed deer. *Journal of Wildlife Diseases* 40:249-258.
- Magnarelli, L. A., S. C. Williams, and E. Fikrig. 2010. Seasonal prevalence of serum antibodies to whole cell and recombinant antigens of *Borrelia burgdorferi* and *Anaplasma phagocytophilum* in white-tailed deer in Connecticut. *Journal of Wildlife Diseases* 46:781-790.

- Myers, J. A., M. Vellend, S. Gardescu, and P. L. Marks. 2004. Seed dispersal by white-tailed deer: Implications for long-distance dispersal, invasion, and migration of plants in eastern North America. *Oecologia* 139:35-44.
- Rand, P. W., C. Lubelczyk, G. R. Lavigne, S. Elias, M. S. Holman, E. H. Lacombe, and R. P. Smith, Jr. 2003. Deer density and the abundance of *Ixodes scapularis* (Acari: Ixodidae). *Journal of Medical Entomology* 40:179-184.
- Stafford, K. C. 1993. Reduced abundance of *Ixodes scapularis* (Acari: Ixodidae) with exclusion of deer by electric fencing. *Journal of Medical Entomology* 30:986-996.
- Vellend, M. 2002. A pest and an invader: white-tailed deer (*Odocoileus virginianus* Zimm.) as a seed dispersal agent for honeysuckle shrubs (*Lonicera* L.). *Natural Areas Journal* 22:230-234.
- Vellend, M., T. M. Knight, and J. M. Drake. 2006. Antagonistic effects of seed dispersal and herbivory on plant migration. *Ecology Letters* 9:319-326.
- Williams, S. C. and J. S. Ward. 2006. Exotic seed dispersal by white-tailed deer in southern Connecticut. *Natural Areas Journal* 26:383-390.
- Williams, S. C., J. S. Ward, and U. Ramakrishnan. 2008. Endozoochory by white-tailed deer (*Odocoileus virginianus*) across a suburban/woodland interface. *Forest Ecology and Management* 255:940-947.
- Williams, S. C., J. S. Ward, T. E. Worthley, and K. C. Stafford, III. 2009. Managing Japanese barberry (Ranunculales: Berberidaceae) infestations reduces blacklegged tick (Acari: Ixodidae) abundance and infection prevalence with *Borrelia burgdorferi* (Spirochaetales: Spirochaetales). *Environmental Entomology* 38:977-984.