White-tailed deer facts from the following web sites:

Wikipedia: http://en.wikipedia.org/wiki/Deer and http://en.wikipedia.org/wiki/White-tailed_deer

Foremost Hunting: http://www.foremosthunting.com/Deer/Library/DeerFacts/tabid/465/Default.aspx

Caring for Deer and Forests – A Resource for Eastern North America: http://www.deerandforests.org

National Geographic: http://animals.nationalgeographic.com/animals/mammals/white-tailed-deer/

courtesy of Ohio Dept of Natural Resources

Excerpt from Charles Carpenter's 1886 Report to the State Forest Commission on the Catskill Preserve (Reprinted from Second Annual Report of the Forest Commission)

"Hunting in this region is confined chiefly to grouse, rabbits, squirrels and such small game. Deer are rarely seen and much more rarely killed. The last of the deer were killed off some twelve years ago, when there was a great body of snow fell, on which a crust formed of sufficient strength to bear the weight of a man. Pot-hunters came into this region, presumably from Pennsylvania, and killed large numbers of deer, from which the hides were taken and the carcasses left to rot in the woods. Since that time the hunters have been able to keep pace with the natural increase of the few that were left from the wholesale slaughter. It is fair to suppose that there are not a dozen deer in this whole Catskill region, though the natural features are such as to provide all the requirements for an abundant increase if they were protected and left unmolested to roam the woods at their own sweet will for a few years."

The Finger Lakes Land Trust is a membership-supported, not-for-profit land conservation organization dedicated to protecting the lands that define the character of the Finger Lakes region. Since its founding in 1989, the Land Trust has protected over 15,000 acres of the area's forests, farms, lakeshore, and gorges. Afoot in the Field *is a newsletter provided by the Land Trust for landowners in the Finger Lakes who own properties that are permanently protected with a conservation easement, or who are otherwise committed to, or interested in, land conservation and wildlife habitat protection and improvement. For more information about the Finger Lakes Land Trust and its conservation programs visit www.fllt.org or call our Ithaca office at 607-275-9487.*

Afoot in the Field:
A Resource for Conservation Landowners in the Finger Lakes Region

Winter/Spring 2013 Vol. 4 Issue 1

Sitting in the woods, silent and still, imposing patience upon myself; inwardly restless but externally a statue. Chickadees, crows, and blue jays come and go; squirrels scamper and chatter. As minutes turn into hours it's impossible to keep my mind from wandering, but I try to stay alert to every sound and the slightest motion. I am waiting, hoping… for a deer to appear.

For some, this is pure nature observation. For others, this is hunting. For anyone so inclined, this is enjoyment of our natural heritage. With deer commonly seen as we drive by the mix of farms and forests in the Northeast, as well as in suburbs where they frequently make their home, it's easy to forget what highly-tuned wild animals they are; skittish prey with senses so amazing they are like walking radar. In rural places, it only takes the slightest motion, sound, or odor to send deer bounding, white tails flashing warnings high in the air. This is not as true in settings where deer have become acclimated to living in close proximity to humans, but it remains the norm over most of their range and poses a challenge to those of us who wish to get close.

The reward for patience, quietness, and an investment in camouflage clothes, scent-eliminating sprays, tree stands, and blinds – can be a close encounter with a magnificent animal, a memory that will last for years, and perhaps some venison in the freezer. Spend enough time in the Finger Lakes woods, and you may be lucky to encounter a grouse, turkey, fox, coyote, bobcat, mink, or even a black bear; but for hunters, it is the deer that keep you coming back out again and again.

Regardless of how you feel about hunting, we can probably all agree that deer are magnificent animals and an apt symbol of the beauty and complexity of nature. Who doesn't enjoy the site of a deer grazing in a field,

Mark McCarroll

bounding over a stone wall, or nurturing fawns on the edge of a meadow? For many people, deer are the one animal in our part of the world that makes us feel closest to nature.

The idyllic image of deer, however, is not the complete image of deer. As deer populations have rebounded over decades, from near elimination in the northeast by the early 1900's to record numbers today, their impacts on the landscape and our communities have caused problems and controversy. While deer may seem to disappear completely when hunters search for them in mid-December, population estimates show that on average their numbers are far greater than a generation ago. Deer densities, however, are not even across the landscape – in the mountainous, deep woods of the Adirondacks and Catskills deer are much scarcer than in suburbs where there may be 50-100 or more per square mile. Studies and complaints point to acute negative impacts where densities are highest.

Suburban areas are hotbeds of deer management controversy and hard decisions, as deer are involved in numerous car collisions, gobble landscaping, host ticks that carry Lyme disease, and even intimidate people on their own properties. In more rural areas, botanists and foresters repeatedly point to the loss of native wildflowers and tree seedlings to deer herbivory, while the ubiquitous non-native plants seem almost untouched by deer. Browsing of native tree saplings by deer is now one of the most serious threats to the future stability of northern hardwood forests, referred to by foresters and ecologists as "regeneration failure". Young waist-high saplings of oak, maple, hemlock and other trees are easy targets, especially in winter when a sapling poking just above the snow represents one of the few meals to be had by a hungry deer. Loss of mast-producing trees such as oaks and hickories, and other plant species, can in turn have cascading negative effects on a whole host of other wildlife in the forest.

So deer, like other subjects of controversy, can be glorified or vilified depending on the setting or who you talk to. It's always worth remembering that our environment has been hugely modified and influenced by human activities, and flora and fauna react in ways that attempt to maximize their own survival and reproduction. Wildlife management often boils down to people management; requiring compromises and difficult decisions based on the needs and desires of many stakeholders.

How each of us views the presence of deer on our own property or in our surroundings will always be colored by our own personal perspectives. For me, I struggle with being someone who cherishes the sight of deer, and a hunter who doesn't want to spend hours in the woods without harvesting a deer; but also a natural areas manager concerned about negative impacts that deer can have on the overall health of ecosystems. Solutions also depend on personal philosophies and specific circumstances. Hunting is the most practical means of controlling deer in rural areas, but may not be possible nor acceptable in suburbs. And while I find great joy in cutting firewood and have a passion for hunting, there are others in the community who would never cut a tree or harm an animal in any way. Other means of reducing deer or protecting plants may be more effective at a local scale, and perhaps more acceptable to people opposed to hunting, but can be very expensive.

Chris Olney, Director of Stewardship

As always, it's good to occasionally remind ourselves to keep an open mind to facts, respect personal differences of opinion, and look for common ground when possible – because in the end, relationships between people, and between people and nature, are all about finding balance. ❖

(Deer Facts cont'd)

velvet is rubbed off. The number of points, and the length and thickness of antlers are a general indication of age, but cannot be relied upon for positive aging (age is typically determined by teeth wear). About 1 in 10,000 females have antlers.

Sexual maturation of females depends on population density as well as availability of food. Females can mature in their first year, although this is unusual and would occur only at very low population levels. Most females mature at 1 ½ years old. Females enter estrus, also called the rut, in the autumn (typically late October or early November), triggered mainly by the declining photoperiod. Males also are generally sexually mature at 1 ½ years old. They compete for the opportunity to breed with females, sparring with other bucks to determine a dominance hierarchy.

Females give birth to 1–3 spotted fawns in mid to late spring (typically May or June). For the first four weeks, fawns mostly lie still and hide in vegetation while mothers forage. They are weaned after 8–10 weeks. Fawns lose their spots during the first summer and will weigh from 44 to 77 lb by the first winter. Males will leave their mothers after a year, and females leave after two.

White-tailed deer possess many glands that allow them to produce scents. Four major glands are the pre-orbital, forehead, tarsal, and metatarsal glands.

Scrapes and rubs are a way that white-tailed deer communicate. Bucks do most of the marking, and does visit the locations. To make a rub, a buck uses its antlers to strip bark off small diameter trees, marking territory and polishing antlers. Bucks make scrapes to mark areas they regularly pass through, often in patterns known as scrape lines. Scrapes are areas where a buck uses its front hooves to expose bare earth. They often rub-urinate in scrapes, which are often found under twigs that have been marked with scent from the forehead glands. ❖

Buck rub, left, and scrape, right. Chris Olney

Conservation Landowner Profile: Dr. Bernd Blossey

Bernd Blossey is an Associate Professor at Cornell University, in the Dept. of Natural Resources. Dr. Blossey has conducted research on the ecological impacts of non-native plant invasions, as well as biological control of non-native plants; currently his research interests are focused on the intersecting impacts of non-native plants, non-native earthworms, and deer herbivory. Dr. Blossey and his wife, Victoria Nuzzo, are conservation-oriented landowners with a several-hundred-acre rural property in the Town of Richford, Tioga Co., and Bernd is an avid deer hunter.

How long have you been studying ecology in the Finger Lakes region? What are the primary questions and problems that you research? What sorts of trends have you observed?

I have been researching Finger Lakes ecology since 1992, with the primary goal of conservation. Initially I studied effects of plant invasions and effects of their biological control on native biota (largely plants, insects, amphibians). We later switched to larger scale comparisons of impacts of multiple plants and plant diversity on native and introduced biota (insects and amphibians), mostly in wetlands. Since about 2000 we have looked more and more at forest ecosystems; particularly the individual and cumulative influence that earthworms, introduced plants, and deer have on native species.

It's difficult to gauge trends without good data. The arrival and expansion of water chestnut and hydrilla is one regional trend, as is the very obvious decline of purple loosestrife from very, very abundant to a minor component. Deer abundance peaked in 2000 in many places; now populations are lower, but exceeding the ecological carrying capacity everywhere. Once-expansive trillium areas are shrinking. Protected areas without hunting are the worst off places in the region.

In regard specifically to your research involving deer herbivory, where do you think deer rank in terms of the threat they pose to natural communities, in relation to other threats such as competition from non-native plants, collecting, or climate change? What have you learned about any synergistic effects between these and other threats to natural communities?

Deer are the #1 threat to plant communities. They will greatly simplify communities by initially eliminating the most browse-sensitive species and then browse down the preference scale until none or very, very little is left. Competition from non-native plants in the Finger Lakes region is not a threat at the present time, except in some limited circumstances. If I had to put it in percentages, I'd say that 89-90% of the threat to native species and plant communities comes from deer herbivory. There will be no conservation or protection without deer control – I estimate that we will need to reduce deer populations by at least 90% until recovery may occur. The threat extends from plants to all kinds of other species, including invertebrates, amphibians, and birds.

I have no way of gauging threats such as collecting or climate change, but I can say that by creating landscapes inhospitable to native plants deer will prevent or inhibit the migration of plants that would be a needed response to climate change.

I need to add non-native earthworms to the story. While they may initially threaten plants by eliminating the duff/humus layer, most species we have studied can recolonize and thrive (if protected from deer). But earthworms are a disaster for every invertebrate and vertebrate trying to make a living in the leaf litter layer. They devastate the forest food web and are ecological disasters to the fauna. Furthermore, they facilitate and drive plant invasions. For example, Japanese stiltgrass and garlic mustard do NOT occur in the absence of earthworms.

Your own property, with extensive forest and large fields, is abundant with wildlife – from turkey, deer, and bear to bluebirds, woodpeckers, and hawks. Please describe the most memorable wildlife sightings that you have enjoyed at your property.

My favorite sightings have been a bear dancing on our dock overlooking the pond; a bobcat strolling over the meadow; migrating geese in the spring; bobolinks singing in May and June; a short eared owl and northern harrier patrolling the meadow; migrating shore birds and breeding spotted sandpipers; killdeer babies every spring around the house; bald eagles during migration; grey and red foxes, and coyotes pouncing on rodents; and the abundance of wildflowers.

Please tell us specifically about the deer that you see on your property. In your opinion, is the population in your area too small, too large, or about right? Is there a good ratio of does to bucks, and young to old? Do you think the deer herd has had, or is having, any negative effects on your forest?

Still too large. We need to fence our most vulnerable plant populations and monitor their survival. Good recruitment of hemlocks, trillium, and orchids, and good growth of planted oak seedlings, is only successful within deer exclosures. We have fenced 20 acres and increase that almost yearly. I have tried to reduce deer numbers with hunting and invite many friends to help. For the last two years nuisance permits allow us to take nearly 30 deer off our property annually. Now we rarely see deer (but the ones we see are large and well nourished!). For the first time in years small oaks are growing and last year some grew 3 feet in a season. There is still not enough of a deer reduction to allow trillium populations to expand; we monitor them and they are still declining.

Many people can see and understand the negative impacts that excessive deer herbivory can have in the small, barren woodlots between houses in suburban areas, but it is harder to comprehend that deer are really abundant enough in very rural areas to cause significant damage. Are deer in large tracts of rural forest really gobbling up too many native plants and causing regeneration failure? Are deer a problem in wetlands, or only forests? How widespread is the problem?

Absolutely – exclosure studies and monitoring show deer impacts everywhere. The deer problem is statewide, except in NYC where deer have not been in a century (but where they are starting to appear). When was the last time you saw a thriving patch of native lilies? I don't think there are many places in NY

(Blossey interview cont'd)

where deer are at low enough levels to allow diverse plant communities to return. We may need to reduce numbers to much lower levels for a while (if we can) to allow regrowth. But what is desirable is in the eye of each landowner, and across the state many landowners have favored deer over any other species.

Deer herbivory does occur in wetlands too, but the impacts are not as well known as in forests. We have little data to accurately assess it. I see that deer eliminate recruitment in my ponds, and I will need to fence things like pickerel weed to get it going.

Deer exclosure fence at the Land Trust's Sweedler Preserve at Lick Brook. Chris Olney

How long have you been a hunter? What are your reasons for being a hunter, and/or your philosophy about hunting? Is hunting an important and effective tool to control deer populations and prevent excessive herbivory problems?

I have been hunting for 20 years, for multiple reasons. I started to hunt to be able to provide for myself and my family, as well as for the experience of being out in the woods and observing wild life. I think, if possible, that people who eat meat should experience the taking of a life to enjoy this food. We have all too often delegated the "dirty job" of killing animals to places far away and out of sight. Animals being raised for food often suffer throughout their life under the to goal to provide cheap meat; but a deer had a "good life" as far as we can tell, and then a few bad seconds after being hit by a bullet or an arrow. I like the skills required to prepare my own food, and I teach this to people new to the experience but who want to learn, whether they are locavores or people interested in a low carbon footprint.

Hunting alone is not an effective enough control for deer populations under the current restrictions set by management agencies and influenced by hunter attitudes. Individuals can get local reductions through nuisance permits, but I doubt that we have the true capacity to bring deer numbers to the desired levels without major changes in how we conduct ourselves and hunting. ❖

Facts About White-Tailed Deer (*Odocoileus virginianus*)

White-tailed deer are variable in size, generally following Bergmann's rule that average size is larger further from the Equator. N. American bucks usually weigh 130 to 290 lbs, but in rare cases exceed 350 lbs in the northernmost reaches of their range; does usually weigh from 88 to 200 lbs. White-tails from the Florida Keys are smaller, averaging 77 to 110 lbs, with an occasional adult female as small as 56 lbs.

Deer usually use a territory of one square mile or less; this varies by region (and can be *much* smaller in suburban areas) and by sex – buck territories tend to be larger than those for does.

A deer's eyes are located on the side of it's head, giving it 310 degrees of vision without moving the head; and a deer can also turn it's ears in any direction without moving the head.

Deer have dichromatic (two-color) vision with blue and yellow primaries. Deer poorly distinguish orange and red, which makes it convenient to use blaze orange as a safety color during hunting seasons.

Deer can sprint up to 30 miles per hour, and leap as high as 10 feet and as far as 30 feet in a single bound, and swim up to 13 miles per hour.

The average adult deer requires about 4-8 pounds of forage per day in winter, and their diet varies based on time of year and availability of food sources. During spring and summer, deer eat mostly leaves, grass, wildflowers, and new growth on woody plants. In late summer and fall, deer eat fruits, acorns, and crops. During winter and early spring, deer consume seedlings, twigs, and buds from trees, and some varieties of evergreen leaves.

Chris Olney

White-tailed deer are ruminants, which means they have a four-chambered stomach. Each chamber has a different and specific function allowing the deer to quickly eat a variety of foods, digesting it at a later time in a safe area of cover. The stomach hosts a complex set of bacteria that change as the diet changes through the seasons. If the bacteria necessary for digestion of a particular food are absent it will not be digested.

Male deer grow and shed new antlers each year. Antlers grow as highly vascular spongy tissue covered in a skin called velvet. Before the beginning of mating season, antlers calcify and become hard bone, and the

continued on page 7