Memorandum

Joint City of Bloomington-Monroe County Deer Task Force
Tuesday, 7 December 2010, 5:30 PM
McCloskey Room (#135)
City Hall, 401 N. Morton St.

Present:
Task Force Members: Dave Rollo, Keith Clay, Stefano Fiorini, Bob Foyut, Judy Granbois, Iris Kiesling, Laurie Ringquist, Susannah Smith and Thomas Moore
Guests: Steve Cotter (Natural Resources Manager, City of Bloomington, Parks & Recreation) and Angie Shelton (Post-doctoral Fellow, IU Research and Teaching Preserve)
Staff: Stacy Jane Rhoads (Council Office), Elliot Englert (Intern) and Dan Sherman (Council Office)

I. Welcome & Introductions

Rollo welcomed all to the fourth meeting of the Joint City of Bloomington-Monroe County Deer Task Force. All present introduced themselves.

II. Minutes for Approval – 21 October 2010 (distributed 10 November)

The Task Force approved the minutes from the second meeting. Kiesling abstained. The 10 November 2010 minutes were distributed for approval at the next meeting.

III. Deer Browsing at Griffy Lake Nature Preserve

Drs. Keith Clay and Angie Shelton of the IU Research and Teaching Preserve presented results of their research with deer exclosures at the Griffy Lake Nature Preserve. Their PowerPoint presentation is posted on the Task Force webpage: http://bloomington.in.gov/deertaskforce .

- Clay prefaced the presentation by pointing out that most of the Task Force's discussion up to this point has dealt with human-deer conflicts. However, an overabundance of deer at Griffy Lake is having serious ecosystem implications. While the issue of social carrying capacity in neighborhoods is important, just as significant is the potentially irreversible impact an overabundance of deer is having on the natural environment of Griffy.

- Clay reviewed the history of deer in Indiana, discussing their near-elimination in the early part of the century, their re-introduction in the 1930s, their rebound and subsequent (over)abundance in many parts of the country. Much of the overabundance can be attributed to the elimination of non-human predators such as

the wolf and the elimination of ungulates that competed with deer for resources.

- The loss of top predators evinces a "trickle down" effect throughout the food chain and ecosystem. Otherwise known as "trophic cascade," the concept directs that faunal truncations associated with top predator removal can result in new, alternative ecosystem states that are difficult to restore due to positive feedback loops. When it comes to deer, the loss of predators and competitors has led to an overabundance of deer and the subsequent re-shaping of forests.

- Clay pointed out that deer overabundance has the potential to really reconfigure an ecosystem. For example:

  - Reduced presence of native flora such as hemlock, yellow birch, pines, lilies, orchids, spring ephemerals and smaller plants
  - Reduced ground cover of herbaceous species
  - Reduced regeneration of wood species in the understory
  - Reduced species richness
  - Increased presence of non-native exotics and invasive species
  - Reduced species evenness and diversity
  - Reduced seedlings and saplings

  Instead, many forested areas, like Griffy, tend to be dominated by plants deer don't eat:

  - pawpaw
  - spicebush
  - white snakeroot
  - mayapple
  - jack-in-the-pulpit
  - many invasives, such as Japanese siltgrass and garlic mustard

  Overbrowsing does not just affect plants; overbrowsing:

  - Significantly reduces ground and shrub-nesting songbird habitat and decreases the survival rates of birds such as the woodthrush and Acadian flycatcher, both species that appear to be declining in the Midwest.
  - Reduces habitat for other mammals, reptiles and amphibians
  - Reduces food sources for other herbivores
  - Increases soil compaction
  - Contributes to soil erosion
  - Reduces leaf litter depth

- Clay pointed out that Aldo Leopold problematized an overabundance of deer back in 1947. (Leopold and Spencer. 1947. *A survey of over-populated deer ranges in the United States*. Journal of Wildlife Management 11:162-183.) Specifically, Leopold argued that predator loss set the stage for deer overabundance, followed by degradation of habitat and eventual reduction in carrying capacity. Drawing on reports of deer overpopulation from 100 deer ranges in different parts of the US, Leopold concluded that deer overabundance led to overbrowsing and ecosystem damage, such as reduced biodiversity, habitat loss and accelerated soil erosion. Leopold maintained that the only way to manage a herd, is to reduce the number of deer.

- Clay pointed out that optimal deer densities are complex and are dependent upon characteristics of the environment and social carrying capacity.

- Shelton pointed out that aerial photographs are very helpful in discerning ideal deer habitat. The public and private lands just north and east of the City provide prime habitat. Low-density residential areas in Bloomington are also attractive habitats. .

- Shelton has been conducting research at the IU Research and Teaching Preserve using deer exclosures since 2005. New exclosures were added in 2009 and 2010. Exclosures are fencing units that keep deer out, but allow other plant eaters in. The results of these studies have shown that the vegetative diversity at Griffy is declining as a consequence of deer overbrowsing, resulting in an unnaturally open understory.

- Shelton pointed to pictures taken over time to demonstrate the difference in plant richness and density inside and outside the exclosures. Inside the exclosure, plant communities include:
  -- more small woody plants
  -- a higher percentage of herbaceous species
  -- lower cover of unpalatable species
  -- little difference in species diversity
  -- taller plants. (Scientists have identified three indicator species – jack-in-the-pulpit; sweet cicely and white baneberry -- the height of which can be used as a measure of deer browsing.) All of these species were found to be taller inside the Griffy exclosures.
  -- Over five years, flowering plants have almost twice as many flowers per plant. This is an indicator of reproductive viability as plants obviously need female flowers

to propagate.

-- These observations are consistent with research from scientists examining browsing in the Brown County State Park (See, *See,* Parker, et al., *The Influence of White-Tailed Deer on the Biodiversity of Indiana State Parks*).

- Specifically, Shelton found that after five years, fully 204 wood plants were found inside the exclosures while only 28 woody plants were found outside the exclosures.

- In the Griffy upland plat, Sheldon observes at 3-fold increase in species diversity

- Clay commented that the ecosystem at Griffy has been degraded and an overabundance of deer is partly to blame for the degradation.

- Rollo indicated that within an undetermined amount of time that this damage to plant species may become irreversible depending on the durability of the species.

- Clay pointed out that, given the level of browsing at Griffy, deer may be moving out of Griffy into surrounding neighborhoods looking for food. This may be part of the reason for an increasing number of deer in Bloomington neighborhoods.

- Kiesling added that deer browsing in people's gardens can have a significant effect on people who are relying on this food as their main source. Clay responded that it is more practical to exclude deer from someone's plantings than it is from an entire natural environment, like Griffy.

- Steve Cotter is the City's Natural Resources Manager and oversees the management of the City's portion of Griffy. Cotter informed the group that the City and its partners commissioned the *Griffy Lake Nature Preserve Master Plan* in 2008. The *Plan* pointed out that an ever-increasing deer population was stripping the forest understory of native plants and providing the opportunity for invasive species to become established. The *Plan* calls for further study "to determine whether there is an overabundance of deer and how plant communities respond when the pressure of presumed overabundance of deer is removed." Griffy Woods is a jurisdictional patchwork: the majority is owned by City of Bloomington Parks and Recreation, IU owns a portion, including the IU Research and Teaching Preserve and yet another segment is under the jurisdiction of Monroe County.

- Rhoads pointed out that the Bloomington Municipal Code prohibits hunting and the use of firearms at Griffy. However, the Code also provides that the City's Board of Park Commissions may grant permission to engage in "select activities" for authorized management purposes (BMC §11.08.040). Clay added that IU similarly will not allow hunting or discharge of firearms on any of its Griffy property.

- Rhoads inquired if the Parks Board had ever discussed deer at Griffy. Cotter responded, that they are aware of the issue (via the Master Plan and presentations by ERAC), but have never specifically discussed managing deer at Griffy.

- Clay pointed out that deer will immigrate to areas of safety, so if pressure was put on deer in surrounding urban areas, they will migrate to Griffy and vice versa.

- Rhoads said the group should ask IDNR for clarity on the dynamics apply a management strategy to Griffy. If the Parks Board decided to manage Griffy *via* a cull, it will be important to anticipate what ultimate effect that might have on surrounding neighborhoods. Over time, would urban deer numbers decrease? Would they increase in the short term due to migration out?

- Clay said it would be useful to know the relative population of deer at Griffy.

- Shelton said she has heard accounts of as sighting of as many as 40 deer at a time. Moore relayed that he has spent time at Griffy conducting research on flying squirrels and has seen those kind of numbers.

- Clay informed the group that, historically, the black tick (aka "deer tick") population density at Griffy has been very low. In fact, researchers did not find any black-legged ticks at Griffy until last year. These ticks are currently being tested for Lyme Disease.

- Shelton said that it is instructive to compare Griffy against other regional forests where culling occurs. For example, the forest floor at Morgan-Monroe and Griffy should be similar, but they are substantially different. Morgan-Monroe allows hunting and the forest has many more small woody plants; a higher percentage of herbaceous species; lower cover of unpalatable species; taller plants and more flowers.

- Clay advised that it would be helpful to get data used in Indiana State Parks for initial consideration for a possible cull at Griffy.

- Rollo pointed out that the analysis of deer overabundance at Griffy is totally different from the issue of deer in urban and suburban areas.

- Clay commented that the number of deer in the City seems to have become more marked in the last 10 years. He wondered if deer might have reached carrying capacity at Lake Griffy and are migrating out into surrounding areas.

- Smith said she would be interested to learn more from IDNR about deer health at Griffy. What is the average weight? Average age? She would like to know more about these and other general health indicators. Granbois added that it would be instructive to know if birth patterns in Griffy deer vary in any way from the norm – are they having fewer multiples?

- Rhoads said she would follow up with IDNR re: deer health at Griffy. [*Follow-up*: Deer Biologist Chad Stewart advises the IDNR has County-specific information on deer, but nothing specific to Griffy. Health is assessed based on harvest. As there is not a harvest at Griffy, he does not have any information specific to Griffy. Stewart said that on his informal hikes at Griffy, the deer he has observed do not appear to be in ill health. However, Stewart advised that should a cull ever be held at Griffy, such cull would have research value as he would be interested to study fat stores of the deer over time.]

- Rollo commented that the number of deer at Griffy have left the ecosystem in a depauperate state. Shelton agreed. Clay relayed that the number of wildflowers in Brown County State Park has increased substantially since the Park initiated hunting in the mid 1990s.

IV. Public Opinion Survey

- The group authorized Fiorini and Rhoads to work on the draft public opinion survey for discussion at the next meeting. In the interim, Fiorni encouraged other Task Force members to submit any questions or concerns they have with the survey.

- Granbois suggested that, in the broader context of public outreach and posting the survey, etc. to the web, it would be useful to know how many external web "hits" the Deer Task Force webpage receives. [*Follow up*: City IT had problems with its analytics, but has fixed the problem and will be able to check hits from external IP address from mid-December forward.]

V. Public Comment

- Rebecca Lowe commented that she was concerned that new development is a big reason for the deer population within the City. When natural habitats are destroyed for buildings, wildlife have no choice but to move to other areas. She expressed that this is one of the problems for the increased numbers of deer in the Jackson Creek area; Renwick essentially displaced them. She urged that the City's Plan Commission should consider environmental disturbances, including wildlife displacement, when making decisions.

- Rose Thomas said that she is concerned with the large number of deer-auto accidents. Rhoads indicated that the group is investigating this issue and is working on securing City and County-level data.

VI. Adjournment

The meeting adjourned at 7:35 pm