

Attachment 4

A Snapshot Assessment of the Vegetation of the Town of Ogden Dunes, Indiana

With observations and interpretations and effects of deer foraging

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Summary

In a natural state, that is one in which detrimental human impacts would have been minimized, typical plant communities that would have inhabited the lands occupied by the Town of Ogden Dunes, Indiana would most likely have been graminoid foredunes, black oak savanna, jack pine barrens, white pine/boreal forest, prairie, panne, white oak-hickory forest, shrub swamp, wooded swamp, and the interminglings amongst these. The extant plant communities retain some native elements but are essentially defined, delineated, and maintained according to their proximities to residences, and by the foraging of white-tailed deer. Invasive species are occasionally dominant in the canopies, uniformly dominant in the mid-stories, and occasionally dominant on the floors of every non-residential tract encompassed by the Town, including parcels owned by the Town, owned by the homeowners' association, and owned by Parks and Recreation. The dominance by invasive species, and the decline of native elements, is largely caused by, perpetuated by, and vectored by a population of deer that migrates with daily, seasonal, and annual regularity through the town. The deer population is in excess of the carrying capacity of the habitat due to supplementation by agricultural crops and residues, feed provided by residents of Ogden Dunes, and the absence of predation.

Methods and Hypotheses

The goal of this investigation was to determine whether deer were influencing the vegetation in the undeveloped portions of the Town of Ogden Dunes. The objective questions were as follows:

- 1) Are there any remnant natural areas?
- 2) What are the chronic indicators of the deer population?
- 3) What are the acute indicators of the deer population?
- 4) What are the patterns to deer migration through the Town?
- 5) What are the factors contributing to the demographics of the deer population?

On November 12 and 13, the vegetation throughout the town was examined. The first six hours were spent in Suerenity Park. A color map (donated by Crown Engineering, Inc.) of the Town denoting various ownerships was used for planning and orientation. An attempt was made to make observations on all undeveloped parcels, and from every road in the Town. Additional observations were also made on lands adjacent to the town.

Natural Areas

Despite the presence of populations of characteristic species in the Town such as white pine, jack pine, black oak, sedges, and prairie grasses, there are no complex associations that can realistically be described as “natural areas.” All of the wild plant communities located in the interior of the Town are wooded. Invasive species are dominant in all areas, and several species such as burning bush, honeysuckle, and bittersweet occur throughout the Town. Signs of wildland fire were seen at Hillcrest Park and Bittersweet Forest, but, with the exceptions of Pollywog Pond and Long Lake Marsh, there is no evidence of additional natural-areas-management. At the time of the study, frost had killed most herbaceous vegetation. Woody species had either lost their leaves or were in fall color.

Structure

From observations of the structure of the woodland communities, it is apparent that deer have been overpopulated in the Town for an extended period. The conspicuous absence of native understory vegetation, such as flowering dogwood, serviceberry, hornbeam, gooseberry, and recruits of canopy species, suggests that the deer had eliminated them at early stages of establishment. Patches of dewberry, raspberry, blackberry, blueberry, cherry, and sassafras are present. Oak seedlings were seen occasionally, but none of them were found to be surviving beyond the height of the leaf litter. Three isolated individuals of common juniper were found surviving.

The floor is essentially devoid of native vegetation. Several shallow digs in appropriate and promising habitats produced no evidence of a thriving native herbaceous community. Populations of verbena and columbine occur sporadically, as do ramets of Pennsylvania sedge, two species of broad-leaved sedge, false solomon’s seal, bracken, two species of aster, black snakeroot, two species of goldenrod, partridgeberry, panic grass, and sweet cicely.

All of these communities are being replaced by invasive species. Invasive species intrinsically compete with native species, however, this process is enhanced and accelerated by the foraging of deer. Preferential feeding upon natives, combined with dispersion of invasives by the deer, promotes increasingly unfavorable potential for re-establishment by the native communities.

Feeding

Deer were observed on several occasions during the study. No other browsers and grazers were seen. On Saturday, a doe with four fawns was encountered at Nelson Rec. Park (Map Listing 7). These deer were in healthy condition and appeared to be well fed. All other sightings were of small bucks.

Evidence of recent feeding by the deer was observed on nearly all of the herbaceous and twiggy vegetation. The preferred items were burning bush seedlings, aster leaves, goldenrod leaves, and bush honeysuckle leaves. It was expected that acorns would have been a primary forage item, but there was little evidence of digging and raking behavior in the leaf litter: suggesting that it was a poor mast year. Nearly all of the flowers of the goldenrods and asters had been eaten, with only the driest of seed heads remaining. A browse line is evident on most populations of bush honeysuckle as the reachable green leaves have been eaten. Adult burning bush also exhibits a browse line, but the green twigs of seedling and sapling populations are clearly their preferred item.

There was evidence of foraging that occurred immediately prior to this study. There were fruits left on bush honeysuckle and burning bush, but they were out of reach. The fruit of bittersweet was essentially untouched. No other fruit remains; poke, autumn olive, staghorn sumac, and grapes had all been eaten. Virtually no other fruit in ornamental landscapes, such as crabapple and hawthorn, was observed within the town.

The deer are spending time among mature burning bush in order to find fallen fruit. From the status and distribution of the burning bush population, it is probable that burning bush seeds are passed intact. There are many areas in which there are leaves within reach on bush honeysuckle. The areas where this food is preferred are in the infested lowlands thickets where the deer hide and bed.

Migration

The majority of feeding was noted along trails and in bedding areas. No single area, in or around the town, provides enough forage to sustain a resident population. The deer are always on the move, and always eating along the way. Their trails are perennially used, and are travelled by many smaller groups. Their other forage areas include the residential feeding stations, ornamental landscapes, the managed natural areas on perimeter of the Town, and agriculture fields to the south.

Two main "highways" lead through the town. The north trail extends from Suerenity Park(14), to Nelson Reck Park(7), to Cedar Trail Green and Sleepy Hollow (12 & 13), along Beach Lane, through Sunset Park(11), to Pine Trail Annex(10), through Tamarack Park(4), and to Diana's Park(9).

The south trail is much less defined, and connects to the adjacent natural areas on the east through Hillcrest Park(42). On the west side of Hillcrest Road at the sand track units, it splits into a northern trail and a western trail. The northern trail wanders along the hillside of Ski Jump Hill(31), through Ski Hill Circle Park(22) and Woodland Park(16), to Diana's Park(9). The west trail broadly traverses the Sandtrack Birms(35 & 37) and Sandtrack Walking Trail(36). The trail becomes difficult to follow at Diana Road. There is a tremendous amount of feeding damage on ornamental species such as yew and arborvitae in the Valerie and Christmar neighborhood, but there was no overt indication of a main trail. They may be actually travelling on the roads.

Interpretations and Conclusion

In addition to the feeding stations observed in the Town, there is evidence of deer control measures as well. Exclusion fences were seen in several locations. It is also very likely that some of the residents are using repellents, as identical species on adjacent parcels exhibited dramatic differences in damage. The deer will trot away from people, but do not have a profound fear. There were no signs of any predators or scavengers.

From the observations gathered on this weekend, it is apparent that the population of deer that occupies the 1-mile radius around Ogden Dunes is greatly overpopulated. The deer are having a detrimental effect on the native vegetation. The deer are vectoring invasive species. It is likely that this swollen population is also having a detrimental effect on the natural areas and agriculture of surrounding lands.

Plant List

White oak	Tulip tree	Yew
Black oak	Panicum	Sarsaparilla
<i>Burning bush</i>	Gooseberry	<i>Unidentified viburnum</i>
<i>Privet</i>	Greenbrier	<i>Siberian elm</i>
<i>Bush honeysuckle</i>	Plantain Sedge	Common juniper
<i>Autumn olive</i>	Unidentified Sedge	<i>Spruce</i>
<i>Japanese barberry</i>	Pennsylvania Sedge	Nettle
<i>Bouncing bet</i>	<i>Dock</i>	Pokeweed
Staghorn sumac	Witch hazel	Dewberry
<i>Crown vetch</i>	American Hornbeam	Bracken
White pine	Unidentified Grass	Verbena
Red oak	Columbine	Prickly Pear Cactus
<i>Norway maple</i>	<i>Garlic mustard</i>	<i>Celandine</i>
Sugar maple	Choke cherry	Fowl Meadow Grass
<i>Scotch pine</i>	Sweet cicely	Meadowsweet
Jack pine	False Solomon's seal	Fragrant sumac
<i>Hellebore orchid</i>	<i>Lilly of the valley</i>	<i>Japanese honeysuckle</i>
Rough Goldenrod	Sassafras	Euphorbia
Unidentified goldenrod	<i>Mulberry</i>	<i>Cypress spurge</i>
Aster 1	Cherry	Tussock Sedge
Aster 2	Linden	Wooly rush
Black Snakeroot	<i>Wintercreeper</i>	Unidentified vine
Blueberry	<i>Motherwort</i>	<i>Black nightshade</i>
<i>Vinca</i>	<i>Dame's rocket</i>	Coral bells
Serviceberry	Raspberry	Lettuce
Bedstraw	Blackberry	Blue-eyed grass
<i>Oriental Bittersweet</i>	<i>Lilac</i>	Woodland knotweed
Grape	Willow	<i>Oregon Grape</i>
<i>Tree of heaven</i>	<i>Black mustard</i>	
Box elder	Partridgeberry	