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Preliminary Biodiversity Assessment of Area II, an Undeveloped Parcel of Overpeck County Park, Teaneck, Bergen County, New Jersey

Report to Bergen County Audubon Society

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At the request of the Bergen County Audubon Society, Hudsonia conducted a preliminary biodiversity assessment of Area II, an undeveloped parcel of Overpeck County Park (Bergen County, New Jersey) that is proposed for development of a theme park and large parking area. The aim of this habitat-based assessment was to identify biological resources relevant to conservation and planning. On 24 May 2017, I spent approximately three hours on the site midday. I also reviewed a map of the proposed development, as well as a bedrock geology map, and satellite imagery from Google Earth.

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Site

The site, designated Area II by Bergen County, is an undeveloped parcel bordered by Degraw Avenue (north and east), East Maple Street and Parkview Drive (west), and the I-80 – I-95 ramps (south and east) (BCDP no date). The abandoned Old Fort Lee Road crosses two-thirds of the site from west to east, ending at Teaneck Creek which runs approximately north to south across the site. The site covers approximately 75 acres at elevations of approximately 1-2 meters except for an occasional higher dirt pile. Teaneck Creek is tributary to Overpeck Creek and is to some extent tide-influenced and accessible to estuarine organisms; the creek was channelized long ago. There are some old ditches draining into Teaneck Creek. Large areas of the site are wetland – probably more than 50%. The Old Fort Lee Road retains deteriorating pavement and is slightly elevated on old fill. Portions of the site, extent unknown, contain garbage fill that is largely covered by soil. Construction and demolition debris is scattered around the site and there are some old white goods (home appliances); there has been some recent dumping along the Old Fort Lee Road. The remains of concrete structures, possibly an old sewage treatment plant, are on the east bank of Teaneck Creek just south of Degraw Avenue.

North of Area II, across Degraw Avenue, is the Teaneck Creek Conservancy preserve, connected to Area II beneath a bridge over Teaneck Creek. East, south, and southwest of Area II are smaller undeveloped areas of Overpeck County Park, as well as habitat fragments within highway ramps, and greenspace parcels of unknown ownership. Teaneck Creek flows through a bridge or culvert beneath I-80 – I-95, connecting Area II to habitats close to Overpeck Creek. There are also two small parks with athletic fields north of the Teaneck Creek Conservancy parcel, and a golf course to the east, both separated by developed areas from Area II. Large undeveloped areas also exist on the eastern side of Overpeck Creek. Although highways and other barriers separate parcels, there is a large aggregate area of greenspace. Flying animals (birds, bats, many insects) would potentially be able to move among parcels, and many terrestrial and aquatic animals could move along Teaneck Creek beneath the highways, although the highways and developed areas would be barriers to some species.

Area II is underlain by sandstone, in the southeastern corner mudstone, and probably siltstone and shale; the bedrock belongs to the Passaic Formation (Drake et al. 1996). I did not see any bedrock outcropping on the site, and very little loose rock (which may have been imported).

Vegetation

The wetlands on the site were mostly dominated by common reed (*Phragmites australis*) with areas of shallow open water. Reed stands varied from dense, highly dominant reed to sparse reed mixed with smaller plants. Swamp rose mallow (*Hibiscus moscheutos*) was scattered along Teaneck Creek, and purple loosestrife (*Lythrum salicaria*) was uncommon. Skunk-cabbage (*Symplocarpus foetidus*) was locally common. Arrow arum (*Peltandra virginica*) was common in one small area; this species may be rare in the Meadowlands.

Non-wetland areas were wooded, or with shrub and herb-dominated vegetation. Three native trees dominated the woodlands: eastern cottonwood, box-elder, and black cherry. Silver maple, also native, was fairly common. Other trees, nonnative and native, occurred less commonly, including tree-of-heaven, black locust, and willow. The cottonwoods ranged up to 100+ cm (40+ inches) dbh (diameter), with many in the ca. 50-60 cm range. Other trees were mostly smaller but there were many stems in the approximately 30-60 cm range. There was a small butternut tree (*Juglans cinerea*) on the north edge of Old Fort Lee Road; butternut may be rare in northeastern New Jersey.

Shrubs included silky dogwood (*Cornus amomum*), gray dogwood (*Cornus racemosa*), common elderberry (*Sambucus canadensis*), smooth sumac (*Rhus glabra*), and autumn-olive (*Elaeagnus umbellata*). There were two mock-orange (*Philadelphus*) stems that had either been planted or escaped from plantings.

Knotweed (*Fallopia japonica* = *Polygonum cuspidatum*) was common in mostly small patches.

The herb layer, both beneath the tree canopy and in meadow openings of variable extent, was often dominated by mugwort (*Artemisia vulgaris*) and garlic-mustard (*Alliaria petiolata*), both nonnative. Goldenrod (*Solidago*) and a large herb that was probably white snakeroot (*Ageratina altissima*), both native, were common. There was also a wide diversity of other nonnative and native herbs. Mosses and lichens were uncommon and sparse in coverage with the exception of the old concrete at the putative sewage treatment plant.

Other Flora

In addition to butternut, a few plants stood out as interesting. There was a small tangle of dodder (*Cuscuta*) parasitizing mugwort on an old trail just south of Degraw Avenue east of Teaneck Creek. Given the non-wetland habitat and the mugwort host, this is likely five-angled field dodder (*Cuscuta pentagona*) which is rare in the Meadowlands and could be regionally-rare in Bergen County. It will probably flower in August and can be collected and identified then.

A patch of the native Indian-hemp (*Apocynum cannabinum*) east of Teaneck Creek was not rare but will be important for flower-visiting insects. There may be other such patches on the site.

The submergent aquatic plant waterweed (*Elodea canadensis*) was growing in the old sewage(?) tank mentioned above. Although this is a common species in general, all submergent plants are rare in the Meadowlands.

Wildlife

The midday time of my reconnaissance was not ideal for observing wildlife (this was not intended to be a zoological survey) and only common birds were found. However, Bergen County Audubon Society has observed birds and other wildlife on the site many times and I mention a few of their noteworthy finds here. There is an active red-tailed hawk nest on the site. Evidence of wood thrush, brown thrasher, and eastern towhee breeding on site has been found, not all in 2017 although I expect them to be breeding this year on the basis of habitat (all three are listed as Species of Greatest Conservation Need [SGCN] in New Jersey). Orchard oriole has bred in Overpeck County Park south of the site, and could breed on the site in some years. There is potential for other species of conservation concern.

I saw a number of bullfrogs on the site. Although a common species in the state, the bullfrog is rare in the Meadowlands and to my knowledge occurs only in the Overpeck Creek system. I also saw several painted turtles and a snapping turtle in Teaneck Creek. Eastern box turtle (SGCN) has been seen on the Teaneck Creek Conservancy site and is likely to occur on Area II; box turtles could cross beneath Degraw Avenue via the Teaneck Creek bridge.

Area II has potential foraging habitat for several bat species, and potential habitat for the Atlantic Coast leopard frog which is of conservation concern in northern New Jersey.

Discussion

Proposed development of the site would apparently require significant filling of wetlands. This would destroy habitat for biodiversity and non-habitat ecosystem services, and would probably require wetland mitigation elsewhere which is unlikely to fully replace the habitat functions and other ecosystem services provided by the existing wetlands. The proposed development would also further fragment the connected and quasi-connected greenspaces that exist in the Overpeck Creek area, which would be deleterious to wildlife and regional urban biodiversity. The proposed theme park (Field Station: Dinosaurs), presumably including the parking area, would occupy 75 acres (essentially the entire Area II), and dredge spoil is proposed to be used to cap local areas of old garbage landfill (South 2016). I have seen no mention of the source of the dredged material nor its physical and chemical characteristics. South (2016) also mentioned the proposed 500 car parking lot yet quoted project engineers as saying that the existing vegetation will largely remain, which is apparently not correct. A sketch map of the proposed development is at http://media.nj.com/entertainment_impact/photo/field-station-dinosaurs-17jpg-6a8289ca77418374.jpg

The combination of mature native woodland (i.e., woodland with medium to large native trees), shrubland and meadow, and common reed marsh, of the extent of Area II, has great potential for uncommon and rare wildlife in urban northeastern New Jersey. The habitats present very likely support other SGCN birds in addition to wood thrush, brown thrasher, and eastern towhee. The meadows present potential habitat for many butterfly species.

Common reed marshes are often reviled because in northern New Jersey they are dominated by a nonnative species that is favored by alteration of soil and water. However, reed marshes provide important non-habitat ecosystem services, especially in urban areas, and also provide habitat and food for a number of native animals and plants (Kiviat 2005, 2007, 2013). I expect the reed marshes on the

site to support breeding and nonbreeding Virginia rail, provide food and habitat for the muskrat, insect and seed food for several species of songbirds, and shelter for many other animals, mosses, and other organisms. Moreover, these wetlands absorb and store stormwater while improving its quality, sequester carbon, and protect soil against rising sea level.

The woodland and shrubland onsite are spontaneous and are sustaining themselves without human assistance; they are likely to do so indefinitely if not converted to other land uses. Managers are spending a great deal of money and energy to create shrubland on New Jersey state lands (Kiviat 2016) and urban woodland in, e.g., Liberty State Park (Frank Gallagher, personal communication). Creation of woodland or swamp forest for mitigation for the Meadowlands Flood Protection Project is being proposed (NJ DEP and consultants, unpublished documents). It would make sense ecologically and economically to protect the woodland and shrubland that already exists at the site instead of, or in addition to, creating such habitats elsewhere where they may not thrive. Preservation of existing habitat on Area II potentially could serve as mitigation for various projects in the region.

Prior to any further planning by Bergen County or other entities, I recommend thorough biological studies of the site, including surveys of breeding and nonbreeding birds, mammals, reptiles, amphibians, fishes, butterflies, odonates (dragonflies and damselflies), and vascular plants. These surveys should be performed by biologists experienced with the biota of the northeastern New Jersey region, and at the correct seasons and times of day for the various groups of organisms. I expect such surveys to discover many species of conservation concern at a regional or statewide level, and to confirm the importance of the study site to biodiversity. Moreover, a careful delineation of wetland boundaries on the site is needed, and this delineation should be performed by, or checked by, an independent expert to confirm its accuracy prior to any planning for the site.

Area II currently supports a native tree canopy and a mixture of native and nonnative shrubs and herbs of both wetland and non-wetland habitats. These plant communities are sustaining themselves and almost certainly will continue to do so in the coming decades. Potential attempts to control nonnative plants and establish native plants would be costly and at high risk of eventual failure without intensive perpetual maintenance. Although I don't recommend manipulating plant communities on this site for the sake of attempting to restore all-native communities, where it is necessary to remediate garbage landfill (with or without facilities development), there will be an opportunity to plant native plants. Common milkweed (*Asclepias syriaca*), Indian-hemp, swamp rose mallow, hackberry (*Celtis occidentalis*), common elderberry, silky dogwood, black walnut, and red maple (*Acer rubrum*) are good candidates that should be able to tolerate local conditions and sustain themselves. Many native plants that do not currently occur onsite are probably not good candidates for planting, including cattails (*Typha*), cordgrasses (*Spartina*), and Atlantic white cedar (*Chamaecyparis thyoides*).

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