



OPEN SPACE INSTITUTE

VIA ELECTRONIC MAIL

New York State Department of Environmental Conservation
Division of Environmental Permits
Region 3 Headquarters
21 S. Putt Corners Rd.
New Paltz, New York 125661
ATTN: Michael V. Grosso
Mike.grosso@dec.ny.gov

May 16, 2019

RE: Comments by the Open Space Institute on the Application by 850 Route 28 LLC for Article 24 Freshwater Wetlands and Article 15 Title 5 Stream Disturbance Permits, DEC ID: 3-5130-00030/00015

Mr. Grosso:

Open Space Institute, Inc. ("OSI") protects scenic, natural, and historic landscapes to provide public enjoyment, conserve habitat, and sustain communities from Maine to Florida. Over the past 40 years in New York state alone, OSI has protected over 148,000 acres in the Adirondacks, Hudson River Valley, Shawangunks, and Catskills.

OSI would like to provide comment on the application by 850 Route 28 LLC (the "Applicant") to the New York State Department of Environmental Conservation ("DEC") for permits necessary for the construction of a 240,000 square foot steel and concrete manufacturing facility (the "Project") adjacent to both the Catskill Park's Bluestone Wild Forest (the "Wild Forest") and property recently acquired by OSI for addition to the Wild Forest.

The following comment is made regarding two permits being sought by Applicant. Pursuant to the Environmental Conservation Law, an Article 24 Freshwater Wetlands Permit ("Wetlands Permit") is required for any physical disturbance within 100 feet of a state-designated Freshwater Wetland. Construction of an access road to the Project site from Route 28 will disturb almost 500 square feet adjacent to Freshwater Wetland KW-3, Class 2; a Wetlands permit is therefore required. Completion of the Project will also necessitate an Article 15 Title 5 Stream Disturbance permit ("Stream Disturbance Permit") for impacts to, by Applicant's estimate, 1,000 square feet of the banks of Tributary #6 of Praymaher Brook.

As detailed below, OSI believes the Negative Declaration adopted by the Town of Kingston Planning Board (the "Town") on March 18, 2019 under the New York State Environmental Quality Review Act ("SEQR"), fails to account for numerous adverse impacts to protected resources; this insufficient analysis prevents OSI from commenting with appropriate depth and accuracy on potential water

contamination, noise, and other impacts that the Project may cause. OSI therefore requests that DEC urge the Town to rescind the Negative Declaration and provide subsequent opportunities for public participation in the DEC permitting process. For the reasons described below, DEC cannot rely on the inadequate Negative Declaration as sufficient basis for determining whether to issue the permits requested for the Project.

Relationship of Project to the Onteora Lake Addition Property and the Bluestone Wild Forest

On February 11, 2019, OSI purchased a 208-acre property (the “Onteora Lake Addition” property) immediately adjacent to the Project, consisting of forested slopes and wetlands and the northern portion of a high-quality body of water known as Pickerel Pond. The Onteora Lake Addition property is identified on the Town of Kingston tax maps as parcels 38.4-2-2, 38.4-2-3, 38.4-1-30, 38.4-2-1.100, 38.4-2-10, 38.4-2-11, and 38.4-3-27, as shown on the attached map. This acquisition joins the two major sections of the Bluestone Wild Forest and will be integrated into the Catskill Park upon conveyance to New York State, which is anticipated to occur by the end of 2019. The Bluestone Wild Forest Land Protection Initiative in the New York State Open Space plan rates The Onteora Lake Addition property as the single most important infill holding in this area of the Catskill Park.

The Onteora Lake Addition property lies between the Jockey Hill and Onteora Lake sections of the Wild Forest. This area provides important recreational opportunities: The Jockey Hill section to the east contains loop trails popular with hikers and mountain bikers, and the Onteora Lake section to the west contains multi-use trails, as well as a 16-acre lake used as a year-round fishery and a summer swimming hole. Seven designated campsites are located along the west side of Onteora Lake and hunting for deer and turkey is permitted within the Wild Forest. OSI and Woodstock Land Conservancy (“WLC”) have identified the existing woods roads and trails on The Onteora Lake Addition property as an opportunity to create a new recreational trail system that would connect with the official trails within the Bluestone Wild Forest, and have commissioned Tahawus Trails LLC to develop a recreational trail plan for The Onteora Lake Addition property. This trail plan was presented by representatives from OSI, WLC, and DEC at a public information meeting on May 7, 2019 in the City of Kingston to over 75 members of the public, to an enthusiastic response.

OSI is sensitive to the importance of economic development in this region. Nevertheless, DEC has a responsibility to ensure new facilities are not permitted to adversely impact the Catskills Park, itself a major economic driver for tourism and outdoor recreation and a natural treasure for all New Yorkers.

Insufficient SEQR Analysis

As noted in a letter from DEC to Applicant dated August 28, 2018, DEC designated the Town of Kingston Planning Board as Lead Agency for the SEQR process. The Project is a Type 1 Action under

SEQR, as it will physically alter an area in excess of ten acres.¹ Despite the scale of the Project, which impacts over 35 acres, and the presumption towards significance under SEQR, the Town issued a Negative Declaration in March.

Based on a review of the Negative Declaration and the materials submitted by Applicant, OSI does not have confidence that the Town appropriately considered the potential adverse impacts to existing protected land in the Wild Forest. Such impacts will be even more acute when the Onteora Lake Addition property is acquired by New York State for addition to the Wild Forest. Given that DEC must rely upon the Negative Declaration to determine whether permits should be issued for the Project, and given that the Negative Declaration contains serious inadequacies, OSI requests that DEC not issue permits until the Town has rescinded the Negative Declaration and has undertaken the level of SEQR review required by law.

OSI recognizes that comments raised regarding SEQR would ideally have been voiced at an earlier stage in the permitting process. Unfortunately, earlier comment on the Negative Declaration was precluded by lack of notice: OSI, as a landowner adjoining the Project, was entitled to receive notice of public hearings held in March by the Town Planning Board regarding the special use permit requested by Applicant, and at which the Negative Declaration was adopted. No notice from Applicant has yet been received.

OSI's specific concerns regarding the Negative Declaration and accompanying Application materials are as follows:

Traffic Impacts

According to the analysis submitted by Applicant's consultant, Creighton Manning Engineering, the proposed plant will receive an estimated 22 truckloads in steel and concrete deliveries per day. Outbound loads finished product will generate another 20 truck trips per day. When employee transportation is accounted for, approximately 121 new vehicles will enter and exit the property on an already busy stretch of Route 28 during peak traffic hours in the morning and evening. During construction, 12,500 truckloads are estimated to remove 162,000 cubic yards of material over seven to eight months, involving up to 80 loads of material per day and ten trucks per hour.

These are significant impacts meriting further review and mitigation. Applicant's consultant also limits its traffic analysis to the effects on Route 28—Applicant has not yet produced information regarding the potential impacts of traffic pollution and noise on the adjacent OSI property and Wild Forest.

¹ "[T]he fact that an action or project has been listed as a Type I action carries with it the presumption that it is likely to have a significant adverse impact on the environment and may require an EIS." (6 CRR-NY 617.4)

Aesthetic Impacts

The Negative Declaration analyzed the aesthetic impacts of the Project primarily from the nearby residential subdivision; as a result, no visual mitigation other than maintenance of the existing trees along the property line has been proposed. Proper analysis under SEQR would require analysis of the visual impacts of a 250,000 square foot warehouse and supporting infrastructure on neighboring land used extensively for public recreation, in this case is the Onteora Lake Addition property and the Bluestone Wild Forest. Further analysis should include, at minimum, proposed mitigation for aesthetic impacts to future recreational trails.

Water Contamination Impacts

The northern portion of Pickerel Pond is located on the Onteora Lake Addition property, the middle portion is located within the Bluestone Wild Forest, and the southern portion is located on Applicant's property, adjacent to the proposed Project. OSI is concerned that the stormwater pollution prevention plan ("SWPPP") provided by Applicant fails to fully address potential stormwater and other water contamination to the Wild Forest and the Onteora Lake Addition property.

Medenbach & Eggers, engineering consultant for Applicant, stated in a February 5, 2019 letter to DEC that the Applicant plans to treat all stormwater in what seem to be disused quarry ponds, "prior to discharging to the existing ponds on site." The consultant does not state whether the size of the quarry ponds on the Project site are adequate for the amount of likely sediment-filled stormwater generated from the 35-acre area being disturbed by the Project. OSI is concerned that stormwater containing pollutants and sediment could overflow these ponds during heavy rain events, as the consultant notes the ponds are prone to do, and enter adjoining water bodies. This could contaminate Pickerel Pond, an otherwise pristine fishing pond open to public access.

It also appears that Project requires the installation of a three-foot diameter culvert underneath a gravel road, thereby linking two previously separate ponds—one of which directly abuts Pickerel Pond—which could exacerbate the potential for overflow or leaching of pollutants from the Project into Pickerel Pond, thus impairing public recreational opportunities.

Finally, OSI also requests that Applicant be required to examine the potential for direct drainage from the Project site into Pickerel Pond. The Negative Declaration states that stormwater will be discharged into existing ponds on site or over the property line of "neighboring properties." Any stormwater discharged onto neighboring properties would end up in the Wild Forest or on the Onteora Lake Addition property and could have adverse water quality impacts. These should be analyzed and mitigated.

Noise Impacts

Construction of the Project will be phased over five years and will potentially include significant amounts of blasting, rock crushing, and other noisy activities. Applicant commissioned H2H Associates

to conduct a noise study to identify and evaluate potential impacts from the Project. The consultant surveyed the area surrounding the Project and identified “single family residences to the south of the Site” as the only potentially sensitive noise receptors. In its analysis of receptors to the east—the direction of the Wild Forest and the Onteora Lake Addition property—H2H only examined residential receptors approximately 2,000 feet from the sound source, stating that “[a]t a distance of 2,000 feet, using natural sound attenuation and the noise levels produced by the on-site equipment, increases in sound levels are considered to be negligible.”

The noise study did not place receptors on the Onteora Lake Addition property, where recreational trails are planned to be constructed just east of the Project boundary. This study fails to note the sound impacts that visitors to these trails will experience. According to the study, a rock crusher causes sounds of up to 96 decibels at a distance of 100 feet, a distance well within range of the proposed recreational trails on the Onteora Lake Addition property. Ninety-six decibels far exceeds the existing ambient conditions noted by H2H, which range from 37.2 decibels to 39.7 decibels, and as H2H states in Section 1.4 of its noise study:

[A]n increase in ambient noise of 10 dB (decibels) is perceived by the majority of people to be a doubling of the loudness of sound [...] noise source in a non-industrial setting[] should not raise the total future ambient noise level above a maximum of 65dB. This maximum would be considered the upper-end limit because 65 dB is the limit for undisturbed speech at a distance of approximately three feet.

The analysis above should make it clear that the Town did not appropriately consider the noise impacts the Project will have on the Onteora Lake Addition property or the Wild Forest when issuing the Negative Declaration being relied upon by DEC.

Open Space and Recreation Impacts

The analysis of potential impacts to open space and recreation provided in the Negative Declaration reads entirely as follows: “The proposed plan creates no new residential uses and therefore no new demands for recreation and no harmful impacts on the same. No further consideration is needed.”

It is evident this analysis falls short of the hard look at potential adverse impacts required by SEQR, keeping in mind the extensive existing and proposed recreational activities in the Wild Forest that will surround the Project on all sides after the sale of the Onteora Lake Addition property to New York State.

Impermissible Segmentation

In the materials submitted by Applicant, the hours of operation for the Project during construction are proposed to be from 6AM to 7PM. OSI has also been informed that the Applicant is seeking changes to Town code so that it may operate the proposed facility 24 hours a day, seven days a week, once constructed. Impacts related to round-the-clock work were not considered by the Town in the Negative

Declaration. Segmenting the proposed changes to Town law from analysis of the overall Project would be impermissible under SEQR.

Conclusion

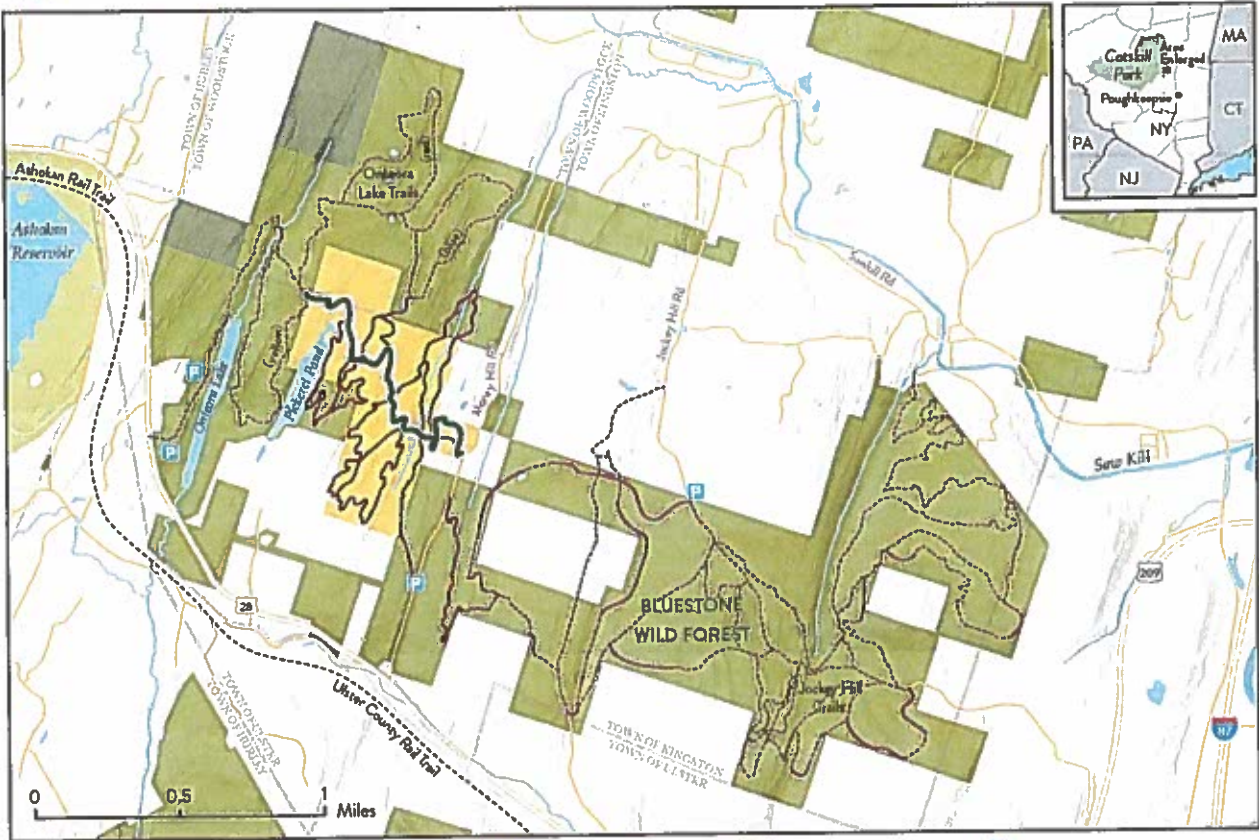
Irreparable harm to public resources could occur if DEC issues permits in reliance on the incomplete analysis in Negative Declaration. OSI requests that the Negative Declaration be rescinded and further environmental review under SEQR conducted prior to the issuance of any DEC permit. OSI also urges DEC to provide additional opportunity for comment so that other members of the public may request a careful re-examination of the noise, water, public recreation, and other impacts to the Wild Forest that were not properly assessed prior to the Town's adoption of the Negative Declaration.

Regards,


Christopher J. (Kim) Elliman
President & CEO

Attachments:

Map of Wild Forest and Proposed Onteora Lake Addition Property Trail Improvement Plan
Environmental Analysis Prepared by OSI Consultant Hudsonia Ltd.



- Proposed Main 'Turnpike' Trail
- Existing Trail
- OSI Recent Acquisition
- Town of Woodstock Land
- Existing Parking
- Proposed Single Track Trail
- Road
- DEC Land
- DEP Land



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Preliminary Biodiversity Assessment of the Proposed 850 Route 28 Industrial Facility, Town of Kingston, Ulster County, New York

by Erik Kiviat PhD

Hudsonia

Report to the Open Space Institute

New York, New York

16 May 2019

At the request of the Open Space Institute, I performed a preliminary biodiversity assessment of the 110 acre 850 Route 28 site where it is proposed to develop a large manufacturing facility for steel-and-concrete beams. Hudsonia does not advocate for or against land use projects; rather, we review environmental documents, make observations and measurements in the field, analyze plans and potential impacts on biology and ecology, and make recommendations for avoiding and reducing negative environmental impacts. Hudsonia methods of biodiversity assessment follow those presented in Kiviat and Stevens (2001) and updates. The very short time frame available for review and comment on the proposed project has substantially limited my ability to analyze this large industrial development project.

The 850 Route 28 site (“industrial site”) is just northeast of Route 28 at the southern end of Pickerel Pond and southeast of Onteora Lake in the Town of Kingston, Ulster County, New York. On the morning of 16 May 2019, I spent approximately three hours skirting portions of the periphery of the site, walking on lands of New York State (Bluestone Wild Forest) and the Open Space Institute. The weather was partly sunny, near-calm, with mild temperatures and no precipitation.

Site History

The U.S. Geological Survey Kingston West 1964, photorevised 1980, 7.5 minute topographic map sheet shows most or all of the proposed development site as having been altered between the two map editions. The photorevised map also shows that Pickerel Pond was altered between map editions. Although I do not know the exact history of the site, inference from obvious features of the site and regional history indicates that the site was extensively quarried for “bluestone” (sandstone) before and after 1964. Much of what I could see of the site, and portions of adjoining lands, had quarry pits, mine faces (“high walls”), piles of rock rubble ranging in particle size from gravel and smaller to boulders, and exposed bedrock both flat and ledgy. There were wetlands, ponds, and intermittent pools of variable size and appearance. I noted many dumps containing scrap metal, domestic refuse, tires, and other materials.

The industrial history of the site *does not mean the site lacks habitat value for wildlife and plants*. Abandoned quarries in the Northeast often support rare and uncommon species. Among those Hudsonia has found are slender knotweed (*Polygonum tenue*), variegated horsetail (*Equisetum variegatum*), peregrine falcon, common raven, and a ladies’-tresses orchid (*Spiranthes*). I found the last in a ditch in an eastern quarried section of Bluestone Wild Forest. The biodiversity of the industrial site can’t be written off because of the site history, and expert, independent, biological surveys need to be conducted, at a minimum for breeding birds, herpetofauna (amphibians and reptiles), and plants (see below). Previously disturbed sites may be good sites for industrial development provided that 1. Biological surveys and assessments are conducted to allow conservation of rare fauna or flora that may be using a site; 2. The construction and operation of the project does not generate unacceptable offsite or cumulative impacts; and 3. The environmental review process is thorough and accurate. The extensive preserved lands surrounding the site heighten concern about potential impacts of the proposed industrial facility on biodiversity (including habitats, wildlife, and plants).

Wetlands and Hydrology

The application for the industrial project shows seven small wetlands, designated A through G. I do not see a description of whether these wetlands have surface water interconnections. The total wetland acreage is given as 12.3 acres in the Negative Declaration. Wetland boundaries are often under-delineated. The threshold for state regulation of freshwater wetlands is 12.4 acres. Smaller wetlands can be considered collectively if they have surface water interconnections and are no more than 165 feet apart.

I observed small wetlands, including intermittent pools, just offsite that were connected by surface water streams. The onsite wetlands could all have surface water interconnections. Those potential connections, and the wetland boundary delineation(s), should be fully checked for accuracy by an independent, expert wetland scientist. If the size and configuration of wetlands onsite (including connections to offsite wetland areas) equal 12.4 acres or more in a single connected complex, The New York State Department of Environmental Conservation should consider the wetland(s) state-jurisdictional. Wetlands of any size, if they have surface water connections to a stream system, are probably subject to federal jurisdiction. If this has not already been done, the U.S. Army Engineers should inspect the wetland boundary delineations, request corrections if necessary, and issue a letter of jurisdictional determination.

I observed a wooded wetland that straddles the northern boundary of the eastern “dogleg” of the site. There was no evidence of wetland boundary flagging. That wetland needs to be delineated and mapped.

The stormwater management plan for the industrial project apparently proposes that the two “Water Quality Ponds” (stormwater ponds and former quarry settling ponds) will overflow into the abovementioned wetlands B and D. Stormwater, even after residence in the ponds, may be polluted with silt, dust, nutrients, petroleum hydrocarbons, cement, metals, and other materials that would be deleterious to the ecology of the wetlands. Insufficient information has been provided by the applicant for me to assess the importance of the onsite wetlands for biodiversity (e.g., pool-breeding amphibians, clam shrimps, rare plants).

The U.S.G.S. map (cited above) indicates that most of the site drains westward into wetlands associated with Ontario Lake. These wetlands, at least as visible from Route 28, appear to be of high quality for biodiversity. The Ontario Lake wetlands also drain southward beneath Route 28 into another large wetland complex. The surface and subsurface hydrology of the industrial site needs to be assessed critically for potential movement of pollutants (legacy pollutants, or pollutants associated with the proposed industrial facility) into those wetlands.

The southernmost small ponds south of Pickerel Pond, as best I could see them, looked very turbid. Siltation from what appear to be site preparation activities may be affecting those ponds. Current and proposed activities on the site need evaluation for their potential to cause ecological damage to ponds and wetlands via siltation, leaks, spills, or other factors. Pollution could occur via subsurface routes (e.g., joints in the bedrock, or porous accumulations of mine tailings) or surface routes.

Siltation control on development sites typically depends on stormwater ponds and silt fences. Poor siltation control practices on construction sites are widespread (Paterson 1994; Kiviat, personal observations). Prefabricated silt fencing, the most commonly used siltation control technique, was considered subject to technical deficiency, poor installation, and inadequate maintenance (Paterson 1994), and field measurements showed that silt fencing removed little of the fine sediment from stormwater leaving construction sites (Barrett et al. 1995, 1998). The proposed stormwater management plan for the industrial project should be assessed by an independent stormwater management expert who can judge the adequacy of the size and volume of the proposed “water quality ponds” and the sufficiency of other proposed siltation control methods. Other issues that need to be addressed include the separation of oil and water from parking areas, equipment and materials storage, etc., prior to entry into stormwater ponds. The appropriate modern approach to stormwater management requires that stormwater be treated and infiltrated onsite, rather than being discharged to wetlands or streams, or otherwise allowed to leave the site.

Wildlife

Environmental documents for the industrial project assert that, since agency guidelines will be followed (e.g., tree removal during winter only), there will be no harmful effects to the federally-listed Indiana bat and northern long-eared bat. Even if the wooded areas of the site are preserved, the construction and operations noise (and night lighting) may make the site and nearby areas uninhabitable by those bat species. Published research indicates that chronic loud noise from industrial activities can make habitat unusable by certain bat species (e.g., Bunkley et al. 2015). Noise can also deter other wildlife from using otherwise suitable habitats (Francis and Barber 2013). Many bird species are sensitive to chronic noise. Because comprehensive biological surveys have not been conducted at and near the industrial site, it is impossible for me to judge the extent to which species of conservation concern might be affected by the proposed project.

Abandoned quarries with rock ledges and rock rubble (tailings) accumulations can be attractive to reptiles as a source of warmth and shelter. The industrial site needs to be assessed as potential habitat for the threatened timber rattlesnake, as well as other Species of Greatest Conservation Need (including eastern box turtle and eastern ribbon snake).

Plants and Fungi

Evidently the potential presence of rare plants has not been assessed, and I found no evidence of surveys of the flora of the site. In addition to rare vascular plants, abandoned quarries and other habitats present on the site can potentially support rare mosses, liverworts, lichens, and fungi. The site should be surveyed for vascular plants and mosses ranked S1, S2, or S3 by the New York Natural Heritage Program (each species is ranked from 1 to 5, with ranks 1-3 assigned to those species documented at relatively few localities in the state).

Recommended Surveys and Assessments

The environmental documents for the proposed industrial project do not address most of the species of conservation concern that could be using the site. In this time of decreasing populations of many wild animals and plants, it is critical for large development proposals to be planned with a firm basis in field biology and conservation science.

I recommend that the site and immediate surroundings on public-use lands (e.g., within 200+ meters) be surveyed by independent experts familiar with the regional biota. The following groups of organisms should be surveyed: vascular (seed) plants, bryophytes (mosses and liverworts), lichens, breeding-season birds, herpetofauna (amphibians and reptiles), butterflies, bees, and odonates (dragonflies and damselflies). My recommendations are based on the habitats that occur on and near the site, and current knowledge of the biota of the region.

As mentioned above, the proposed stormwater management system, and the wetland boundaries, need to be checked and assessed for completeness and sufficiency by independent experts. Dumps of any kind should be examined and tested for the presence of typical hazardous substances including pesticides, petroleum hydrocarbons, metals, and asbestos. Development plans should include remediation of any contamination, and clean-up of all refuse especially including tires (because dumped tires produce mosquito vectors of human disease).

References Cited

Barrett, M.E., Kearney, J.E., McCoy, T.G., Malina, J.F. 1995. An evaluation of the use and effectiveness of temporary sediment controls. Center for Research in Water Resources, University of Texas at Austin.

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Bunkley, J.P., McClure, C.J., Kleist, N.J., Francis, C.D. and Barber, J.R., 2015. Anthropogenic noise alters bat activity levels and echolocation calls. *Global Ecology and Conservation* 3:62-71.

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Paterson, R. G. (1994). Construction practices: the good, the bad, and the ugly. *Watershed Protection Techniques*, 1(3), 95-99.
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10 April 2019

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Recent Professional Experience

Hudsonia Ltd.: Executive Director; 1988- (excepting two years); *Ecologist*, 1981-1988; Co-founder.

Bard College: Associate Professor then *Professor of Environmental Studies*; Graduate School of Environmental Studies, 1987-2005; Research Associate, Division of Natural Sciences and Mathematics, 2002-.

Technical assistance to: Non-governmental organizations (land trusts, environmental groups, citizens' groups); landowners; renewable energy developers; other businesses; planning, law, and engineering firms; sporting associations; federal, state and local government; in New York, New Jersey, Connecticut, Massachusetts, Ohio: more than 300 reports prepared, 1975-.

Professional workshops taught or co-taught: Winter Woody Plant Identification; *Phragmites* Ecology and Management; Reptile and Amphibian Survey Methods; Reptiles and Amphibians of the Hudson River; Wetland Habitat Creation and Turtle Conservation; Conservation of Urban Biodiversity; many others.

Fellowships: Cary Summer Research Fellowship 1993, Institute of Ecosystem Studies, Millbrook, NY: Vegetation and biogeochemistry of Blanding's turtle habitats. Short-term Visitor, 1995, Smithsonian Environmental Research Laboratory, Edgewater, MD: Freshwater-tidal and nontidal wetland studies.

Peer Reviewer: *Biological Invasions*; *Chelonian Conservation and Biology*; *Ecosphere*; *Environmental Monitoring and Assessment*; *Estuaries*; *Estuarine, Coastal and Shelf Science*; *Journal of Herpetology*; *Journal of the Marine Biological Association of the United Kingdom*; *Mires & Peat*; *New York State Museum Bulletin*; *Northeastern Naturalist*; *Studies in Avian Biology*; *Urban Habitats*; *Urban Naturalist*; *Wetlands*; *Wetlands Ecology and Management*; *Wilson Bulletin*; American Museum of Natural History; Countryman Press; Hudson River Foundation; Long Island Sound License Plate Fund; Marsh Ecology Research Program (Man.); Marsh Ecology Research Program (NJ); Rutgers University Press; San Francisco Bay-Delta Research Enhancement Program; Connecticut Sea Grant; Rhode Island Sea Grant; State University of New York Press; Nature Conservancy; U.S. Fish and Wildlife Service; U.S. Geological Survey; U.S. Office of Technology Assessment.

PhD thesis committees: SUNY Environmental Science & Forestry; Nelson Mandela Metropolitan University (South Africa; external reader). *Master's thesis committees*: Bard College; SUNY Albany; SUNY New Paltz.

Volunteer (selected field biology projects): Turtle research, Jug Bay Wetlands Sanctuary, Maryland, 1990s-2000s; Ontario Breeding Bird Atlas, James Bay - Hudson Bay Lowland, Canada, 1985; Herpetofaunal surveys, Jekyll Island, GA, 1979-2013; Osprey survey and herpetofaunal survey, St. Catherine's Island, GA, 1973; Reptile and amphibian population studies, Kalbfleisch Field Research Station, Long Island, NY, 1964; Additional reptile and amphibian surveys in New York, Massachusetts, Georgia (Sea Islands), and México (Querétaro), American Museum of Natural History, 1961-1979.

Education

Ph.D. Ecology, Union Institute and University, 1991. Thesis: *Wetland human ecology*.

M.A. Biology, State University at New Paltz, NY, 1979. Thesis: *Hudson Estuary shore zone: Ecology and management*.

B.S. Natural Sciences, Bard College, 1976. Thesis: *Snapping turtle ecology in a New York tidemarsh*.

Professional courses and workshops taken: Mosses: Structure, Ecology, and Identification (5 days), White Creek Field School, 2017; Wildlife Study Design (1 day), Wildlife Society, 2002; Spiders: Identification, Biology, and Ecology (5 days), Eagle Hill Institute, 2001; Mosquito Identification and Surveillance (2 days), New York State Department of Health, 2000; Applied Multivariate Methods (5 days), Institute for Professional Education, VA, 1995; Control of Mosquitoes and Mosquito-borne Diseases in the U.S. (5 days), International Center for Public Health Research, SC, 1993; Understanding Wetland Soils (2 days), Cook College, Rutgers University, NJ, 1989; Landscape Preservation: Ecological and Social Issues (1 day), Institute of Ecosystem Studies, Millbrook, NY, 1987; Energy Analysis (1 day), University of Georgia, Athens, 1977; Freshwater Fishes of New York (5 days), American Museum of Natural History, New York, NY, 1970.

Research Interests

Nonnative weed ecology and management; Wetland ecology and management; Herpetofaunal ecology and conservation (including estuary, fen, woodland pool, and barrier island faunas); Habitat ecology, assessment, monitoring, creation, restoration; Urban and rural biodiversity, rare or little-known species; Energy development impacts on biodiversity; Human cultural adaptations to wetlands and vector-borne diseases, and human interactions with wetlands; Ethnobotany and economic botany.

Current research projects (with staff, interns, and collaborators): Urban biodiversity and its management, a case study of the New Jersey Meadowlands (includes field surveys of mammals, birds, herpetofauna, butterflies, dragonflies, clam shrimp, land snails, vascular plants, bryophytes, lichens, macrofungi); Long-term response of the threatened Blanding's turtle to created wetland and upland habitats; An old-growth forest in the Hudson Valley after 40 years; Two prickly-pear species in rocky habitats of the Hudson Valley; Human-disturbed habitats as sentinels for early detection of nonnative weeds in the Catskill Mountain region; Habitat functions of *Phragmites*, purple loosestrife, and knotweed for organisms from cryptogams to mammals; Bioenergy and other uses of abundant nonnative plants.

Additional Field Work

Arizona, California, Colorado, Connecticut, District of Columbia, Florida, Georgia, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Nebraska, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Utah, Vermont, Washington; British Columbia, Manitoba, Nova Scotia, Ontario, Québec; México; Trinidad; Czech Republic; France; Germany; Romania; England; Scotland; Hungary; Italy; Botswana.

Languages: French and Spanish (reading knowledge).

Professional Certification: Professional Wetland Scientist, Society of Wetland Scientists, 1995-

Honors

Awarded to Erik Kiviat or to Hudsonia for projects or programs he directed: Franklin and Eleanor Roosevelt Hudson Valley Vision Award 2018; John and Samuel Bard Award in Medicine and Science 2016; Environmental Consortium Great Work Award 2014; Coastal America Spirit Award, New Jersey Marine Sciences Consortium Habitat Initiative, 2006; Nominations for National Wetlands Award 2002, 2009-

2011; Certificate of Appreciation, New York State Department of Environmental Conservation, 2000; Good Land Award, Winnakee Land Trust, 1999, 2008; Project Facilitation Award, Society for Ecological Restoration, 1997; Marion Thompson Fuller Brown Conservation Award, Garden Clubs of America, 1996; Environmental Award, Museum of the Hudson Highlands, 1996; Award for Environmental Sensitivity, Mohonk Consultations on the Earth's Environment, 1995; Researcher of the Year Award, Hudson River Environmental Society, 1994; Service Award, Dutchess County Environmental Management Council, 1982.

Professional Societies

American Bryological and Lichenological Society; Association of Field Ornithologists; Association of State Wetland Managers; Hudson River Environmental Society; Natural Areas Association; Society for the Study of Amphibians and Reptiles; Society of Wetland Scientists; Southern Appalachian Botanical Society; Torrey Botanical Society; Wilson Ornithological Society.

Public Service

Citizens' Advisory Group, Rebuild by Design Meadowlands Flood Protection Project, 2016-2018; Editorial Board, *Urban Naturalist* 2014- ; Lower Hudson Partnership in Invasive Species Management, 2012- (Steering Committee 2013-2015); Invited participant, recovery workshops for bog turtle, U.S. Fish and Wildlife Service (FWS) and New York State Department of Environmental Conservation (DEC), 2011-2015; Steering Committee, Northeast Natural History Conference, 2010; Invited participant, recovery workshops for Blanding's turtle, timber rattlesnake, northern cricket frog, New England cottontail, DEC, 2009-?; Scientific Advisory Committee, Hudson River Almanac; Advisory Committee for Quadricentennial Exhibit, Albany Institute for History and Art, 2008; co-sponsor, Japanese Knotweed Managers' Workshop, 2005; co-convenor, Hackensack Meadowlands Symposium, 2003; Greene County (NY) Habitat Management Advisory Committee, 2003-2006; Advisory Committee for Hudson River Estuary Exhibit, Liberty Science Center, 2002-2007; Scientific Advisory Committee, New York - New Jersey Trail Conference, 2002-2008; Co-sponsor, *Phragmites* Forum, 2002; Convenor of workshop *Purple Loosestrife and Wildlife in North America*, Northeast Fish and Wildlife Conference, 2001; Conservation and Recovery of the Bog Turtle (invited participant), FWS, 1998; Jug Bay Wetlands Sanctuary (MD) Advisory Committee, 1998-2013; Scientific Advisory Committee, Friends of the Great Swamp, 1998-; New York State Department of Environmental Conservation Hudson River Biodiversity Committee, DEC, 1997-; Scientific Advisory Committee, Hudson River Habitat Restoration Program, U.S. Army Corps of Engineers, 1994-95; Editorial Board, *Water Ways: New York's Waterfront News*, 1990-92; Hudson River National Estuarine Research Reserve Advisory Committee, 1983-84, Hudson River Fisheries Advisory Committee, 1979-83, Hudson River Valley Study Advisory Committee, 1978, DEC; Wildlife Society New York Chapter, Committee on Exotic Plants, 1981-87; Advisory Board of the Trevor Zoo, 1981-94; Dutchess County Environmental Management Council Significant Areas Committee, 1980-82; Storm King School Environmental Institute Advisory Board, 1983-85; Convenor of Hudson River Marsh Workshop, Hudson River Environmental Society, 1976; Hudson River Sloop Clearwater Board of Directors 1975-76.

Presentations at Scientific Conferences More than 80 beginning in 1974.

Technical Publications (* Peer reviewed)

(Papers in preparation with various collaborators on Blanding's turtle habitat restoration, human uses of an urban-fringe wetland complex, Atlantic Coast leopard frog response to Hurricane Sandy, first records of the potentially invasive plant *Cyperus difformis* in New York, bryophytes and loosestrifes, organisms associated with knotweed.)

- Caponera, V. & E. Kiviat. In press. Painted turtle ecology in a freshwater tidal marsh: Concluding survey. Final Reports of the Polgar Fellowship Program, Hudson River Foundation.
- Kiviat, E., L. Stickle & E. Heffernan. Submitted; in revision. Re-survey of flora and vegetation after four decades in a circumneutral bog lake, New York. *Castanea*. *
- Palmeri, J. & E. Kiviat. Submitted. Allelopathic effects of knotweed (*Polygonum cuspidatum*) rhizome on the mosses *Atrichum angustatum* and *Thuidium delicatulum*. *Journal of Bryology*.*
- Kiviat, E. & K. MacDonald. Under contract. Conservation of urban biodiversity: A case study of the New Jersey Meadowlands. Lexington Books, Lanham, Maryland. *
- Kiviat, E., L.A. Meyerson, T.J. Mozdzer, W.J. Allen, G. Bhattarai, et al. In press. Evidence does not support the targeting of cryptic invaders at the subspecies level using classical biological control. *Biological Invasions*. *
- Kiviat, E. Resubmitted, in review. Organisms using *Phragmites australis* are diverse and similar on three continents. *Journal of Natural History*. *
- Schmidt, R.E., E. Kiviat, N. Trigoboff & J. Vanek. 2018. New records of clam shrimp (Laevicaudata, Spinicaudata) from New York. *Northeastern Naturalist* 25(2):N7-N10. *
- Bacon, R.J. & E. Kiviat. 2018. Ecology of painted turtles in a freshwater tidal marsh, Tivoli North Bay, New York. Pages II-1 to II-29 in S.H. Fernald, D.J. Yozzo and H. Andreyko (eds.), Final Reports of the Tibor T. Polgar Fellowship Program, 2015. Hudson River Foundation.
- Schlesinger, M., et al. 2018. Follow-up ecological studies for cryptic species discoveries: Decrypting the leopard frogs of the eastern U.S. *PLOS ONE* 13(11):e0205805. <https://doi.org/10.1371/journal.pone.0205805> *
- Travis, K.B., E. Kiviat, J. Tesauro, et al. 2018. Grazing for bog turtle (*Glyptemys muhlenbergii*) habitat management: Case study of a New York fen. *Herpetological Conservation and Biology* 13(3):726–742. *
- Travis, K.B., I. Haeckel, G. Stevens, J. Tesauro & E. Kiviat. 2018. Bog turtle dispersal corridors and conservation in New York, U.S.A. *Herpetological Conservation and Biology* 13(1):257–272. *
- Les, J.C. & E. Kiviat. 2017. The conservation status of goldenclub (*Orontium aquaticum*) in the freshwater tidal wetlands of the Hudson River. 41 p. in S.H. Fernald, D.J. Yozzo and H. Andreyko (eds.), Final Reports of the Tibor T. Polgar Fellowship Program, 2014. Hudson River Foundation.
- Straycr, D.L., E. Kiviat, S.E.G. Findlay & N. Slowik. 2016. Vegetation of ripped revetments along the freshwater tidal Hudson River, New York. *Aquatic Sciences* 78:605-614. *
- Bhattarai, G.P., W.J. Allen, J.T. Cronin, E. Kiviat & L.A. Meyerson. 2016. Response to Blossey and Casagrande: Ecological and evolutionary processes make host specificity at the subspecies level exceedingly unlikely. *Biological Invasions* 18(9): 2757-2758. *
- Cronin, J.T., E. Kiviat, L.A. Meyerson, G.P. Bhattarai & W.J. Allen. 2016. Biological control of invasive *Phragmites australis* will be detrimental to native *P. australis*. *Biological Invasions* 18(9):2749–2752. *
- Kiviat, E. 2014. Adaptation of human cultures to wetland environments. P. 404-415 in P. Gâștescu, W. Marszelewski & P. Bretcan. 2nd International Conference "Water Resources and Wetlands" Conference Proceedings 11-13 September, 2014 Tulcea (Romania). Romanian Limnogeographical Association. *
- Vaičekonytė, R., E. Kiviat, F. Nsenga & A. Ostfeld. 2014. An exploration of common reed (*Phragmites australis*) bioenergy potential in North America. *Mires & Peat* 13(Article 12):1-9. <http://www.mires-and-peat.net/> *
- Kiviat, E. 2013. Risks to biodiversity from hydraulic fracturing for natural gas in the Marcellus and Utica shales. *The Year in Ecology and Conservation Biology 2012*, *Annals of the New York Academy of Sciences* 1286:1-14. (Invited paper.) *

- Kiviat, E. 2013. Ecosystem services of *Phragmites* in North America with emphasis on habitat functions. *AoB Plants* 2013, doi: 10.1093/aobpla/plt008. 29 p. (Invited paper.) *
- Kiviat, E. & E. Johnson. 2013. Biodiversity assessment handbook for New York City. American Museum of Natural History Center for Biodiversity and Conservation, and Hudsonia. <http://www.amnh.org/our-research/center-for-biodiversity-conservation/publications/for-policy-makers/biodiversity-assessment-handbook-for-new-york-city>
- Gillen, J. & E. Kiviat. 2012. Hydraulic fracturing threats to species with restricted ranges in the eastern United States. *Environmental Practice* 14(4):320-331. *
- Kiviat, E. 2011. Frog call surveys in an urban wetland complex, the Hackensack Meadowlands, New Jersey, 2006. *Urban Habitats* 6 (unpaginated). urbanhabitats.org *
- Dowling, Z., T. Hartwig, E. Kiviat & F. Keesing. 2010. Experimental management of nesting habitat for the Blanding's turtle (*Emys blandingii*). *Ecological Restoration*. 28(2):154-159. *
- Kiviat, E. 2010. *Phragmites* management sourcebook for the tidal Hudson River and the northeastern states. Hudsonia Ltd., Annandale NY 12504 USA. 74 p. www.hudsonia.org
- Kiviat, E., G. Mihocko, G. Stevens, P.M. Groffman & D. Van Hoewyk. 2010. Vegetation, soils, and land use in fens of eastern New York and adjacent Connecticut. *Rhodora* 112(952):335-354. *
- Kiviat, E. 2009. Human uses of tidal freshwater wetlands on the USA East Coast. P. 21-30 in A. Barendregt, D. Whigham & A. Baldwin, eds. *Tidal Freshwater Wetlands*. Backhuys Publishers, Leiden, The Netherlands. (Invited chapter.) *
- Kiviat, E. 2009. Invasive plants in tidal freshwater wetlands - North American East Coast. P. 106-114 in A. Barendregt, D. Whigham & A. Baldwin, eds. *Tidal Freshwater Wetlands*. Backhuys Publishers, Leiden, The Netherlands. (Invited chapter.) *
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- Schmidt, R.E. & E. Kiviat. 2007 (2008). State records and habitat of clam shrimp, *Caenestheriella gynecia* (Crustacea: Conchostraca), in New York and New Jersey. *Canadian Field-Naturalist* 121:128-132. *
- Hartwig, T. & E. Kiviat. 2007. Microhabitat use by Blanding's turtle in constructed and reference wetlands. *Journal of Wildlife Management* 71(2):576-582. *
- Kiviat, E., S.E.G. Findlay & W.C. Nieder. 2006. Tidal wetlands. P. 279-295 in J.S. Levinton & J.R. Waldman, eds. *The Hudson River Estuary*. Cambridge University Press, New York, NY. (Invited chapter.)
- Kiviat, E., guest editor. 2004. The Hackensack Meadowlands: History, ecology, and restoration of a degraded urban wetland. *Urban Habitats* 2(1):unpaginated. www.urbanhabitats.org *
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- Kiviat, E., G. Stevens, K.L. Munger, L.T. Heady, S. Hoeger, P.J. Petokas & R. Brauman. 2004. Blanding's turtle response to wetland and upland habitat construction. P. 93-99 in C. Swarth, W. Roosenberg & E. Kiviat, eds. *Conservation and Ecology of Turtles of the Mid-Atlantic Region; A Symposium*. Bibliomania!, Salt Lake City, Utah. *

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- Kiviat, E. 1997. Blanding's turtle habitat requirements and implications for conservation in Dutchess County, New York. P. 377-382 in J. Van Abbema, ed. *Proceedings: Conservation, Restoration, and Management of Tortoises and Turtles - an International Conference*. New York Turtle and Tortoise Society and Wildlife Conservation Society Turtle Recovery Program. *
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- Rozycki, C. & E. Kiviat. 1996. A low density, tidal marsh, painted turtle population. P. V-1 to V-35 in E.A. Blair & J.R. Waldman, eds. Final Reports of the Tibor T. Polgar Fellowship Program 1995. Hudson River Foundation and New York State Department of Environmental Conservation - Hudson River National Estuarine Research Reserve.
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- Kiviat, E. 1982. Black-capped chickadees eating giant ragweed seeds. *Kingbird* 32(1):25-26.
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Popular Publications (selected)

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- Kiviat, E. 2018. Some notes on responsible investing. *News from Hudsonia* 32(1):6-7.
- Kiviat, E. 2017. Ecological restoration revisited: Some problems and improvements. *News from Hudsonia* 31(2):1-5, 8-9.
- Kiviat, E. 2017. Are rare biota, habitats, and flood protection compatible? Creation science for the 21st Century. *News from Hudsonia* 31(1):4-5.
- Kiviat, E. 2016. Shrubland for northeastern biodiversity: A critique of the young forest initiative. *News from Hudsonia* 30(2):1-3, 6.
- Kiviat, E. 2016. Long distance impacts of cheap gas. *News from Hudsonia* 30(1):1-1-3, 10.
- Kiviat, E. 2016. Two urban gems under threat. *News from Hudsonia* 30(1):4-5, 9.
- Kiviat, E. No date. Conservation of urban biodiversity. *Hudsonia*. Large format tri-fold color brochure.
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- Kiviat, E., G. Stevens & P. Harwood. 2014. Irreplaceable archives: The scientific legacy of herbaria. *News from Hudsonia* 27(2):4-5.
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