SITE VISIT FOR SOLAR FARM

BURLINGTON, CONNECTICUT

Prepared for:

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Introduction: R.R. Hiltbrand Engineers & Surveyors, on behalf of their client, submitted an environmental assessment carried out by Davison Environmental to the State of Connecticut Department of Energy and Environmental Protection (CT-DEEP). After review by the state's environmental review biologists, the CT-DEEP requested additional surveys and reporting steps before any construction activities begin on site.

I was contacted by Rob Hiltbrand of R.R. Hiltbrand Engineers & Surveyors, to assess the parcel's conservation value for state-listed invertebrates. CT-DEEP's Dawn MacKay's letter on 12 January, 2020, identified five state-listed invertebrates (CT-DEEP 2015) that might be present on site:

- Ground beetle (*Agonum darlingtoni*)
- Ground beetle (*Agonum mutatum*)
- Pitcher plant moth (*Exyra fax*)
- Crimson-ringed whiteface (*Leucorrhinia glacialis*)
- Eastern pearlshell (*Margaritifera margaritifera*)

Initial Site Visit: The site was walked by Rob Hiltbrand and Tanner Matson on 08 February, 2020. We walked the entire parcel, spending most of our time in lowland swamp habitats searching for evidence of sphagnum peat bog. The site visit lasted approximately 60 minutes.

Most of the visit was spent examining vegetation and remnant plants. Special attention was placed on finding evidence of hostplants or specialized habitats of the five state-listed invertebrate species. Specifically, evidence of fen or acidic peat bog communities.

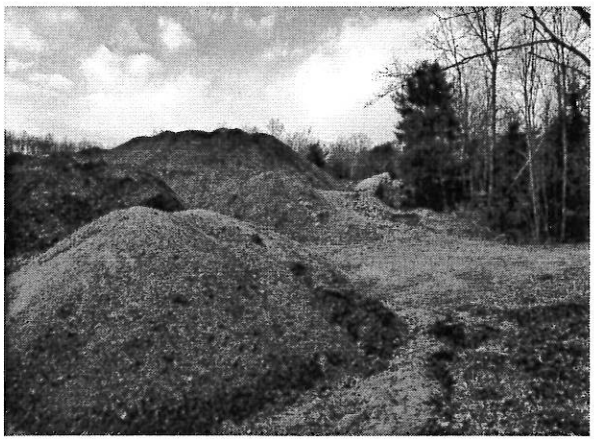

Fig. 1 Left: Historic Burlington gravel, southwest end of property. **Fig. 2** Right: Wildcat Brook running through seepage swamp, east end of property.

Evaluation:

The sandy soils on the property, perhaps of biological interest in times past, are no longer tenable for arenophilic invertebrates. The udorthent dry gravel has been mined for over 50 years, has been continuously disturbed, and large amounts of the sand have been relocated there from winter ice control from previous years (Fig.1).

The east end of the property is seepage swamp with Wildcat Brook (Fig. 2) running through it. This area is unremarkable, dominated by *Acer rubrum*, and home to other mesic plant species, e.g., *Vaccinium corymbosum*, *Pinus strobus*, etc. There is nothing unusual or noteworthy about this habitat.

The proposed solar farm will be constructed at the northern end of the property. The area is currently dry glacial till upland forest reminiscent of typical New England woodland habitats. The forest is young, and earmarks of past mining can be seen across the surface as evidenced by small exploratory berms. To the south and east, the upland forest descends into seepage swamp, the slope between is composed mostly of Hinckley loamy sand.

All plant species listed in the DEEP preliminary assessment and all invertebrates except for the mollusk, Eastern pearlshell (*Margaritifera margaritifera*), are associated with fen or sphagnum peat bog habitat. The Crimson-ringed whiteface (*Leucorrhinia glacialis*) occurs in boreal vegetated ponds, lakes, and marshes—there only three extant populations on CT—the other two, are located far to the west in Litchfield County. The wetlands on site are wholly unsuitable. Dr. William Krinsky was contacted about the two listed ground beetle species and confirmed these taxa are bog habitat specialists.

Two local invertebrate zoologists and Connecticut natural historians, Dr. David Wagner and Michael Thomas, were consulted further about sphagnum peat bogs in the area. The two produced the state's Odonate checklist and have published together on the state's fauna (Wagner and Thomas 1999). Michael Thomas grew up in Burlington, less than two miles from the project site, and is quite familiar with the area. He has extensive knowledge of where local peat bog habitat exists. As far as we can tell, the nearest bog area that would have triggered NDDB species of concern sits nearly two miles away at what was historically called Major Curtiss Swamp, or more contemporarily, the Lamson Corner Bog.

Dr. Wagner and Mike Thomas believe that the carabid beetles and dragonfly records are all anchored to the Lamson Corner Bog. To the best of their knowledge, there are no other suitable wetlands in the areas based on their experience. Dr. Wagner also spent 45 minutes on GoogleEarth in late February, reviewing aerial imagery for the lands surrounding the project site—and concluded that the Lamson Bog site was the only wetland in the region likely to harbor colonies of the state-listed dragonflies.

Perhaps the most ecologically specialized of the state-listed species is Pitcher Plant Moth (*Exyra fax*), the pitcher plant moth (Wagner et al. 2011). This species feeds on pitcher plants and is known from just a few high-quality sphagnum bogs sites. There was no habitat on site that was suitable for this bog-dweller.

Wildcat Brook does not appear to be suitable for the Eastern pearlshell, as it is not suitable habitat for its larval host. Glochidium of this species attach themselves to the gills of salmonids—in Connecticut, most typically freshwater trout. It is of no coincidence that the Farmington River, a short distance away from the site and known for its trout populations, has healthy populations of the Eastern pearlshell. Wildcat Brook will not, as the trout and subsequently the mussel, need seasonally consistent cold water, more rapid flow, and persistence of stream flow through summer drought. During the site visit, this rather large mussel was not observed.

Summary: Given the nonexistence of sphagnum peat bog habitat, and the unremarkable nature of the existing ecosystems, this site does not appear to warrant mitigation. Other factors that also weigh in on the conservation importance of the parcel: the site bears the earmarks of substantial human activity and mining, and the solar farm is set to be built upon the dry upland forest habitat, and as planned, will not affect the hydrology of the swamp and streams below.

References:

CT-DEEP. 2015. Revised. Connecticut's Endangered, Threatened, and Special Concern Species. The Connecticut Endangered Species Act. Chapter 495. General Statutes of Connecticut. Public Act 89-224.

Wagner, D. L. and M. C. Thomas. 1999. The odonate fauna of Connecticut. Bull. Amer. Odonatology. 5:59-85.

Wagner, D. L., D. F. Schweitzer, J. B. Sullivan, and R. C. Reardon. 2011. *Owlet Caterpillars of Eastern North America*. Princeton University Press. Princeton, New Jersey. 576 pp.