

ECOLOGICAL ASSESSMENT REPORT

SUN8 PDC LLC
2150 Dryden Road Solar Array Project
Town of Dryden, Tompkins County, New York

Prepared For:
SUN8 PDC LLC c/o
Distributed Sun, LLC
601 13th St NW
Suite 450 South
Washington, D.C. 20005

Prepared By: Tetra Tech, Inc.
301 Ellicott St.
Buffalo, NY 14203

Date: March 2017

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1.0 INTRODUCTION

SUN8 PDC LLC (“SUN8”) plans to develop a solar array on an approximately 80 acre portion of the parcel located at 2150 Dryden Road, Dryden, Tompkins County, New York (“Project”). Tetra Tech, Inc. (“Tetra Tech”) was retained by SUN8 to perform a basic ecological assessment of the Project area as part of the Special Use Permit process. The proposed solar array site (“Site”) is located directly north of Dryden Road, northwest of the intersection of Dryden Road with George Road (coordinates: 42.494, -76.338). Virgil Creek, a New York State trout stream, tributary to Fall Creek, runs through the northeastern portion of the Site.

2.0 METHODOLOGY

2.1 DESKTOP PREPARATION

Prior to Tetra Tech’s site visit, LaBella Associates, D.P.C (“LaBella”) consulted with the New York Natural Heritage Program (“NYNHP”) and the U.S. Fish and Wildlife Service (“USFWS”) to screen for potential occurrences of Rare, Threatened, or Endangered Species or Natural Communities at or near the Site. In addition, Tetra Tech investigated USFWS National Wetland Inventory (“NWI”) mapping, New York State Department of Environmental Conservation (“NYSDEC”) Freshwater Wetlands Program wetland mapping, NYSDEC water quality mapping, the United States Department of Agriculture (“USDA”) Natural Resources Conservation Service (“NRCS”) Tompkins County, New York Soil Survey (USDA 1965), a 2015 aerial photograph downloaded from ESRI ArcGIS Online, and United States Geological Survey (“USGS”) topographic mapping to screen for signs of wetlands, streams, or other sensitive habitats prior to visiting the Site.

2.2 ECOLOGICAL ASSESSMENT FIELD SURVEY

Tetra Tech visited the Site on March 28, 2017. A qualified biologist walked the perimeter of the property and then observed the remaining inner portions of the property. Where possible, the Site interior was viewed from property edges. If weather conditions, topography, or vegetation prevented Site interior from being visible, the biologist assessed the interior by taking a meandering path through all vegetative communities. Detailed notes regarding the presence and extents of natural communities, vegetative cover characteristics, site hydrology, soils, and various other habitat factors were recorded. Additionally, a detailed log of plant species observed in each natural community was recorded. Representative photos were taken of each of the natural communities identified on the Site,

and a sketch of the approximate boundaries of the identified communities was made during the field visit.

3.0 RESULTS

3.1 DESKTOP RESOURCES

The Soils Survey of Tompkins County (1965), New York shows fourteen (14) soil map units within the Site (Table 1). The majority of the Site is divided between Langford (LaB), Rhinebeck (RkA, RkB, RnC3), Erie channery (EbB), and Genesee (Gn) series soils, with a smaller amounts of eight other soil series. The Site soils range in drainage class from well drained to poorly drained.

Table 1. Soil Map Units within the 2150 Dryden Road Site

Map Unit Symbol	Map Unit Name
ArB	Arkport fine sandy loam, 2 to 6 percent slopes
BoE	Bath and Valois soils, 25 to 35 percent slopes
EbB	Erie channery silt loam, 3 to 8 percent slopes
Gn	Genesee silt loam
Ha	Halsey silt loam
Hc	Halsey mucky silt loam
HdC	Howard gravelly loam, 5 to 15 percent simple slopes
HdD	Howard gravelly loam, 15 to 25 percent slopes
LaB	Langford channery silt loam, 2 to 8 percent slopes
PhB	Phelps gravelly silt loam, 3 to 8 percent slopes
RkA	Rhinebeck silt loam, 0 to 2 percent slopes
RkB	Rhinebeck silt loam, 2 to 6 percent slopes
RnC3	Rhinebeck silty clay loam, 6 to 12 percent slopes, eroded
Ws	Wayland soils complex, 0 to 3 percent slopes, frequently flooded

No USFWS mapped NWI features or NYSDEC Freshwater Wetlands Program wetlands were located within the Site boundary. Virgil Creek, a perennial stream, runs through the northeastern section of the Site. NYSDEC has classified Virgil Creek as a Class C (T) (i.e., trout water) stream.

3.2 RARE, THREATENED, AND ENDANGERED SPECIES

In a letter dated March 1, 2017, the NYNHP indicated that there are no recent records of rare or state-listed animals or plants, or of significant natural communities, at this Site or in

the immediate vicinity. This correspondence letter is provided within Appendix B (NYNHP and USFWS Species Lists).

In a letter dated February 7, 2017, the USFWS indicated that the federally-threatened northern long-eared bat (*Myotis septentrionalis*) may occur within the boundary of the Site and/or may be affected by the proposed Project. This correspondence letter is provided within Appendix B (NYNHP and USFWS Species Lists).

It is important to note that most projects require coordination with the regional office of the NYSDEC. The regional offices often have detailed information that has not yet been placed into the NYSNHP databases. Additionally, many species are protected and regulated by both NYSDEC and USFWS, where NYSDEC may not defer to the regulatory review of USFWS.

The northern long-eared bat (“NLEB”) spends the winter hibernating in caves and underground mines of the state and individuals may travel up to 35 miles from their summer habitat for hibernation. During the summer, it uses almost any forested habitat including adjacent open areas for foraging, and spends the day roosting in natural cavities and hollow trees (PNHP 2008). This species tends to be more opportunistic when identifying roosting sites than many other bat species. Summer roost habitat, including maternity roosts, includes tree cavities and exfoliating bark/snags in mature deciduous/mixed forests and also human structures (Pennsylvania Game Commission and PAFBC 2005). The NLEB forages at night over small ponds, in forest clearings, at tree top level and along forest edges in search of night-flying insects including caddisflies, moths, beetles, flies, and leafhoppers.

As the summer habitats for NLEB have not been well-defined by scientific research, almost any forested areas will serve as foraging and roosting habitat. The species can forage over waterbodies (streams and pond features) as well as under canopy and along forest edges. Potential habitat for this species is present in forested and shrubby portions of the Site. There are no known winter habitats (hibernacula) in the vicinity of the Project area, and none were identified in the correspondence with USFWS or NYSDEC.

3.3 MIGRATORY BIRDS

In the official USFWS correspondence, no migratory birds were identified specifically, which typically indicates that because of the size of the Project and the amount of conversion to habitats used by migratory birds (most commonly shrublands and forests), there is no significant impact expected from the construction and operation of the Project. Additionally,

USFWS did not identify any bald eagle (*Haliaeetus leucocephalus*) nests or records in the vicinity, and therefore there are no issues with the Bald and Golden Eagle Protection Act.

4.0 ECOLOGICAL IMPACT ASSESSMENT

The Site is comprised of the following seven (7) ecological communities, as described by the Ecological Communities of New York State (NYNHP 2014), though the majority of the Site is cropland or successional old field. The seven (7) communities and their approximate extents identified within the Site during the field visit are provided in Appendix A, Figure 1. Representative photographs of the ecological communities are also provided in Appendix C. The communities identified in the Site during the survey are listed below:

- Cropland;
- Successional old field;
- Successional Northern Hardwoods;
- Shrub swamp;
- Shallow emergent marsh;
- Red maple-hardwood swamp; and,
- Successional shrublands.

Cropland within the site is actively cleared on a yearly basis. Due to the time of year (i.e., dormant vegetation season) and lack of vegetative debris from previous harvests, it was unclear with what croplands were planted. It is likely that the remainder of the crop last year was tilled under to prepare the field for this year's plantings.

Successional old fields are not actively managed, and are reverting to meadows dominated by forbs and grasses. Species observed onsite within the successional old field community include greater burdock (*Arctium lappa*), Canada thistle (*Cirsium arvense*), Queen Anne's lace (*Daucus carota*), common teasel (*Dipsacus fullonum*), Virginia strawberry (*Fragaria virginiana*), Narrowleaf plantain (*Plantago lanceolata*), clover (*Trifolium* spp.), and common mullein (*Verbascum thaspus*).

A successional shrubland community was observed east of the access road running through the Site (Figure 1). Successional shrublands are shrublands that occur "on sites that have been cleared (for farming, logging, development, etc.) or otherwise disturbed". This community has at least 50% cover of shrubs (NYNHP 2014). Species observed within the successional shrubland communities within the Site include grey dogwood (*Cornus*

racemosa), honeysuckle (*Lonicera* spp.), European buckthorn (*Rhamnus cathartica*), multiflora rose (*Rosa multiflora*), and common blackberry (*Rubus allegheniensis*).

A successional northern hardwood community occurs in several locations within the site (Figure 1). Successional northern hardwood communities are located on sites that have been previously cleared or disturbed, but have succeeded to a forest community (NYNHP 2014). Species observed within the successional northern hardwood communities onsite include red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), shagbark hickory (*Carya ovata*), white pine (*Pinus strobus*), quaking aspen (*Populus tremuloides*), eastern cottonwood (*Populus deltoides*), black cherry (*Prunus serotina*), red oak (*Quercus rubra*), honeysuckle, European buckthorn, and multiflora rose.

A shrub swamp wetland is located in two locations in the southeastern portion of the Site (Figure 1). The wetland has patches of emergent vegetation, but is dominated by shrub cover. Shrub species observed within these wetland areas include red osier dogwood (*Cornus sericea*), speckled alder (*Alnus incana*), green ash (*Fraxinus pennsylvanica*) saplings, and multiflora rose.

A shallow emergent marsh wetland community was observed in two (2) locations within the Site (Figure 1). Species observed in the shallow emergent marsh community include sedges (*Carex* spp.), soft rush (*Juncus effusus*), common reed (*Phragmites australis*), reed canary grass (*Phalaris arundinacea*), moneywort (=creeping jenny) (*Lysimachia nummularia*), and narrowleaf cattail (*Typha angustifolia*).

A red maple-hardwood swamp community was observed in the northwestern portion of the Site (Figure 1). Species observed within this community include red maple (*Acer rubrum*), green ash, sedge, skunk cabbage (*Symplocarpus foetidus*), sensitive fern (*Onoclea sensibilis*), and red osier dogwood.

5.0 CONCLUSIONS

Seven (7) ecological communities were found within the Site, including: cropland, successional shrublands, successional old field, successional northern hardwood, shallow emergent marsh, red maple-hardwood swamp, and shrub swamp. If filling or disturbance of the wetland areas is planned, a wetland delineation should be performed, and Clean Water Act (CWA) Chapter 401 authorization from the USACE and CWA Chapter 404 Water Quality

Certification from the NYSDEC would likely be required. Those permit authorizations are obtained through a Joint Application for Permit process. However, if the Project components are installed entirely within uplands, construction and maintenance of the Project is unlikely to have an effect on any wetland resources in the vicinity, as long as proper erosion and sediment control devices are used according to best management practices and industry standards.

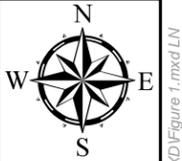
No Rare, Threatened, or Endangered species were observed during the Ecological Assessment. The USFWS indicated that the northern long eared bat could potentially be affected by the Project. As all forested habitats are potential habitat for NLEB, more coordination and/or surveys with the USFWS and NYSDEC may be required if trees will be cleared for the Project. The majority of the Project occurs in open areas (or impacts narrow hedgerows), but potential habitat for the NLEB is proposed to be cleared adjacent to Turkey Hill Road. As no winter habitats were identified in either the NYSDEC environmental resource mapper or the USFWS IPaC search, it is unlikely that any hibernacula are in the vicinity of the Project. The final USFWS 4(d) Rule for the NLEB indicates that if maternity roosts and their 150-foot buffer are avoided during June and July (i.e. pup season), and no hibernacula are identified within 0.25 mile of the Project, tree clearing poses no impact to the NLEB species. Therefore, SUN8 has committed to not clearing NLEB roosting habitat in the Project limits of disturbance from May 1 to August 31. This window encompasses the majority of the primary active season for the NLEB, including the most sensitive periods where young are born and becoming volant, and the early season where individuals may still be weak from their torpor period. The clearing moratorium is also larger than the allowable survey period for the species according to the USFWS and NYSDEC protocols (May 15 to August 15). SUN8 also is adding a small additional window to allow for environmental variance to the typical seasonality of the species and avoid any possible impacts.

By implementing the tree clearing moratorium from May 1 to August 31, as well as additional coordination with USFWS and NYSDEC, construction of the Project is unlikely to have any significant impact on the NLEB in the Project area.

6.0 LITERATURE CITED

- Edinger, G.J. 2014. Ecological Communities of New York State, Second Edition. New York Natural Heritage Program, NYS Department of Environmental Conservation, Albany, NY.
- ESRI. 2017. ArcGIS Online World Imagery.
- New York Natural Heritage Program. Northern Long Eared Bat Conservation Guide. New York Natural Heritage Program, NYS Department of Environmental Conservation, Albany, NY.
- Pennsylvania Game Commission and Pennsylvania Fish and Boat Commission. 2005. Wildlife Action Plan. PGC and PAFBC, Harrisburg, PA.
- Pennsylvania Natural Heritage Program. 2008. Northern Myotis (*Myotis septentrionalis*) fact sheet. Pennsylvania Natural Heritage Program, Harrisburg, PA.
- USDA Natural Resources Conservation Service (NRCS). 1965. Soil Survey of Tompkins County, New York. USDA Soil Conservation Service in cooperation with Cornell University Agricultural Experiment Station, Washington, D.C. USDA.
- USDA, NRCS. 2017. The PLANTS Database (<http://plants.usda.gov>, 30 March 2017). National Plant Data Team, Greensboro, NC 27401-4901 USA.

APPENDIX A: FIGURE



**Figure 1. Ecological Assessment. 2150 Dryden Road Project
Town of Dryden, Tompkins County, NY.**

Prepared For:

SUN8 PDC, LLC

Prepared By:



Date:

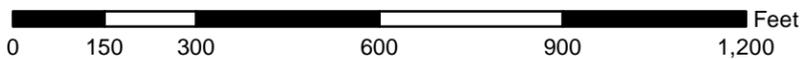
03/2017

Sheet:

1 of 1

Legend

- | | | |
|-----------------------|--------------------------|--------------------------------|
| Proposed Solar Arrays | Red Maple Hardwood Swamp | Successional Northern Hardwood |
| Stream | Shallow Emergent Marsh | Successional Old Field |
| Cropland | Shrub Swamp | Successional shrubland |



Scale = 1:3,600

1 inch = 300 feet

Source:

Orthoimagery basemap from ArcGIS Online Services, available at: <http://services.arcgisonline.com/arcgis/services>. Aquatic Resources, Tetra Tech; 2014-2015.

APPENDIX B: NYNHP & USFWS SPECIES LISTS



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 LUKER ROAD
CORTLAND, NY 13045
PHONE: (607)753-9334 FAX: (607)753-9699
URL: www.fws.gov/northeast/nyfo/es/section7.htm

Consultation Code: 05E1NY00-2017-SLI-1103

February 07, 2017

Event Code: 05E1NY00-2017-E-02844

Project Name: sun8 2150 Dryden Road Solar Array Project, Dryden, NY

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: <http://www.fws.gov/northeast/nyfo/es/section7.htm>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (

http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Services wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: sun8 2150 Dryden Road Solar Array Project, Dryden, NY

Official Species List

Provided by:

New York Ecological Services Field Office

3817 LUKER ROAD

CORTLAND, NY 13045

(607) 753-9334

<http://www.fws.gov/northeast/nyfo/es/section7.htm>

Consultation Code: 05E1NY00-2017-SLI-1103

Event Code: 05E1NY00-2017-E-02844

Project Type: POWER GENERATION

Project Name: sun8 2150 Dryden Road Solar Array Project, Dryden, NY

Project Description: Total project area is approximately 65-Acres. Project involves installment of solar panel arrays, electric lines, access roads, temporary S&EC control measures, and tree removal.

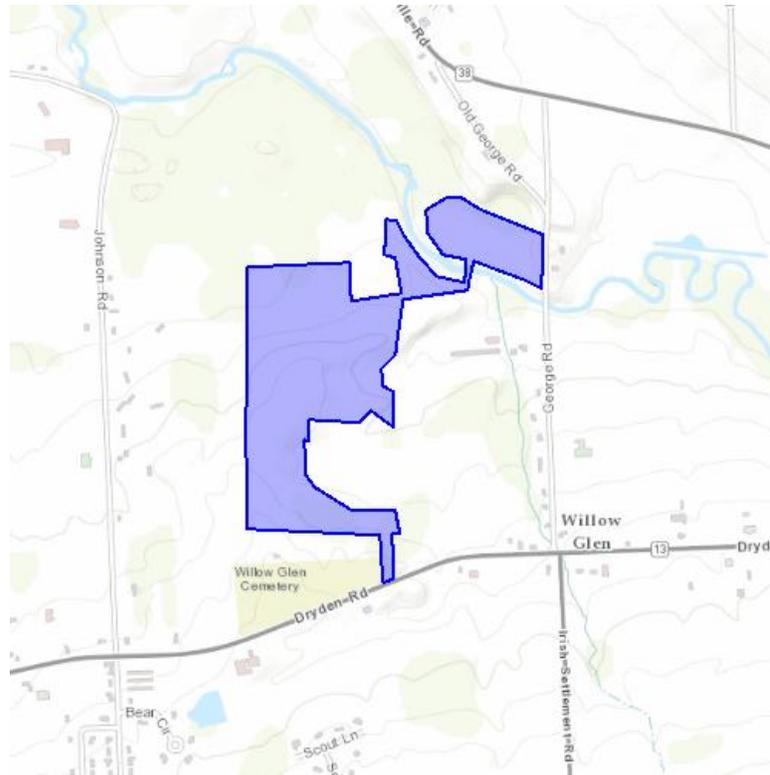
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: sun8 2150 Dryden Road Solar Array Project, Dryden, NY

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Tompkins, NY



United States Department of Interior
Fish and Wildlife Service

Project name: sun8 2150 Dryden Road Solar Array Project, Dryden, NY

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat (<i>Myotis septentrionalis</i>) Population: Wherever found	Threatened		



United States Department of Interior
Fish and Wildlife Service

Project name: sun8 2150 Dryden Road Solar Array Project, Dryden, NY

Critical habitats that lie within your project area

There are no critical habitats within your project area.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

March 1, 2017

Ira Poplar-Jeffers
LaBella Associates, D.P.C.
300 State Street
Rochester, NY 14614

Re: sun8 2150 Dryden Road Solar Array Project
County: Tompkins Town/City: Dryden

Dear Mr. Poplar-Jeffers:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

We have no records of rare or state-listed animals or plants, or significant natural communities at the project site or in its immediate vicinity.

The absence of data does not necessarily mean that rare or state-listed species, significant natural communities, or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information that indicates their presence. For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other resources may be required to fully assess impacts on biological resources.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities, and other significant habitats maintained in the Natural Heritage database. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 7 Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,



Nicholas Conrad
Information Resources Coordinator
New York Natural Heritage Program

APPENDIX C: PHOTOLOG

Ecological Assessment Photolog

Company: Distributed Sun, LLC.
Project: 2150 Dryden Road Project
Photographer: L. Norment
Date: 03/28/2017



Photo No.: 1
Direction: W
Comments: Successional old field
Date: 03/28/2017



Photo No.: 2
Direction: E
Comments: Cropland
Date: 03/28/2017



Photo No.: 3
Direction: W
Comments: Successional shrubland
Date: 03/28/2017



Photo No.: 4
Direction: N
Comments: Successional Northern Hardwood
Date: 03/28/2017

Ecological Assessment Photolog

Company: Distributed Sun, LLC.
Project: 2150 Dryden Road Project
Photographer: L. Norment
Date: 03/28/2017



Photo No.: 5
Direction: S
Comments: Shallow Emergent Marsh
Date: 03/28/2017



Photo No.: 6
Direction: E
Comments: Shrub Swamp
Date: 03/28/2017



Photo No.: 7
Direction: E
Comments: Red Maple Hardwood Swamp 1
Date: 03/28/2017



Photo No.: 8
Direction: S
Comments: Red Maple Hardwood Swamp 2
Date: 03/28/2017