

Final Report

(Threatened & Endangered Species Survey)

**1994 Habitat and Shoreline Survey
Plattsburgh Air Force Base
Old Base and Shoreline Area**

Prepared for:
The New York Natural Heritage Program

Prepared by:
Michael Corey, Consulting Botanist

June 26, 1995

1994 Habitat and Shoreline Survey Plattsburgh Air Force Base, Plattsburgh, NY

I. Introduction

Field surveys of the shoreline and "Old Base" areas at Plattsburgh Air Force Base (PAFB) were conducted between May and October of 1994. The purpose of these field surveys was to inventory and map rare plant and animal species and rare or exemplary natural ecological communities listed by the New York Natural Heritage Program. Field visits combined work within the Old Base area (lying east of U.S. Route 9 within the City of Plattsburgh boundaries) with surveys of the "New Base" area, which includes the larger portion of the PAFB Property (west of U.S. Route 9).

Portions of five days were spent in the field during the survey period at the Old Base. Field equipment included blank notebooks, plant field guides, compass, binoculars, rough maps, photocopies of aerial photographs, and plastic bags for collecting specimens for later identification when not readily identifiable in the field. All plant and animal species encountered at the two sites within the survey area were recorded during the visits.

Existing base maps (topographic and large-scale) were used in order to facilitate note-taking and the locating of both approximate vegetative covertype boundaries and plant and animal species of particular interest.

Attempts were made to contact Base security police prior to each visit to the Old Base area in order to make Base personnel aware of the on-going inventory and especially of the presence of a consulting biologist. Movement within PAFB was made possible after issuance of a Base-wide contractor pass before the field season commenced.

Steve Young of the New York Natural Heritage Program provided a copy of the August 1992 edition of the New York State Rare Plant Status List. The phenological data incorporated into the overall list was especially helpful because of the need to survey for rare plants at as optimal a time as possible for documentation. Consulting biologists kept Heritage staff informed of the progress of the survey. Status reports and a variety of field forms were periodically submitted to the Heritage staff. Included with the field forms were copies of appropriate 7.5 minute USGS topographic maps for each site as well as hand-drawn maps that detailed covertype boundaries, reconnaissance point locations and the locations of rare plant and animal species.

II. Environmental Characteristics

The Old Base component of PAFB is sandwiched between the "New Base" (west of U.S. Route 9) and Lake Champlain to the east. It lies within the boundaries of the City of Plattsburgh, at the city's southeast corner. Located in Clinton County, the Base as a whole covers about 3,450 acres (Clough 1986); the Old Base occupies only about 150 of these acres. Plattsburgh Air Force Base lies within the Lake Champlain Valley ecozone (Will et al. 1979) of New York State. Old Base elevations range from approximately 100 to 150 feet above sea level.

Northern hardwoods dominate the moderately steep slope facing Lake Champlain; characteristic species include *Populus balsamifera*, *P. tremuloides*, *Betula papyrifera*, *Quercus rubra*, *Cornus rugosa*, *Acer spicatum*, and *Rubus odoratus*. Small areas of successional northern hardwoods lie immediately west of the D & H tracks; here representative species include *Acer negundo*, *Populus tremuloides*, *Rhamnus cathartica*, and *Prunus virginiana*. Most of the Old Base is vegetated with mowed lawns and shade trees. The railroad right-of-way is characterized by periodically mowed vegetation including exotics such as *Verbascum thaspus*, *Rumex obtusifolius*, and *Euphorbia cyparissias*. *Equisetum arvense* is especially abundant along the tracks.

C. Principal Natural Area Sites and Federal and State Rare Species.

1. Principal Natural Area Sites.

Only two natural area sites were noted; both were surveyed for significant ecological communities. None of the communities were in sufficiently good condition to be considered significant. The sites include:

- 1) Officers Club Woods, a small patch of successional northern hardwoods with a narrow stretch of mixed successional trees, shrubs and old field along the railroad tracks.
- 2) Plattsburgh Lakeshore, the narrow region of a mostly heavily wooded slope and stony beach (cobble shore) that stretches along the Lake Champlain shoreline from northern to southern boundaries.

2. Federally Listed or Proposed Endangered or Threatened Species and Federal Candidates.

No federally listed or proposed endangered or threatened species were found on the property.

3. State Listed Endangered, Threatened, or Special Concern Species.

One state listed endangered, threatened or special concern plant species was found and identified on the property. The plant, *Equisetum palustre* L., occurred in eight discrete patches at the base of the wooded slope along the shore of Lake Champlain, especially along the northern part of the site. The species is ranked S1 (rare) in the August 1992 New York State Rare Plant Status List, developed by the New York Natural Heritage Program (See Appendix A for rank explanations).

III. Summary of Findings

A. Identified Exceptional Biological Natural Areas by Location

Only two sites containing assemblages of natural vegetation were identified and surveyed on the Old Base property. The Officers Club Woods site contains successional northern hardwoods and shrubland communities similar to other like communities on the Base. The Plattsburgh Lakeshore site

C. Base Maps of Exceptional Biological Natural Areas and of State Listed Endangered, Threatened or Special Concern Species.

No exceptional biological natural areas were identified on the Old Base; rather, the wooded slope (east of the D & H tracks) and its adjacent cobble shoreline could be considered a special interest areas. This one area is combined with the State-listed rare species *Equisetum palustre* population locations and is shown on Maps #1 and #2.

Map 1a: Blocks 5K,5J,5I

Plattsburgh Lakeshore
scale: 1 inch = 400 feet



Equisetum palustre,
Marsh horsetail



Cobble shore and late
successional northern
hardwoods

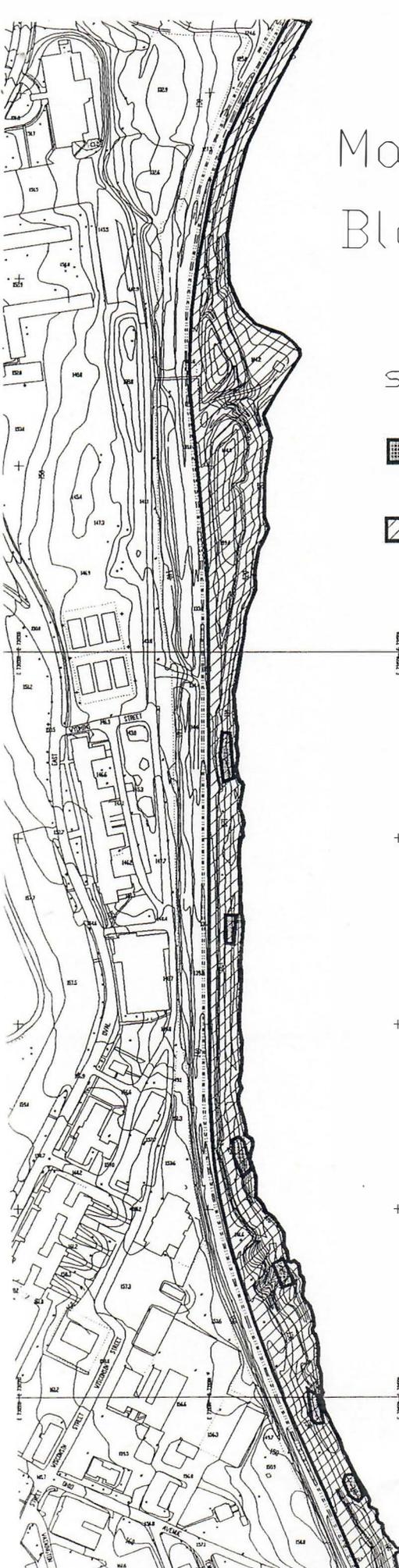


LAKE
CHAMPLAIN
LAKE
CHAMPLAIN
LAKE

Map 1b: Blocks 5M, 5L, 5K

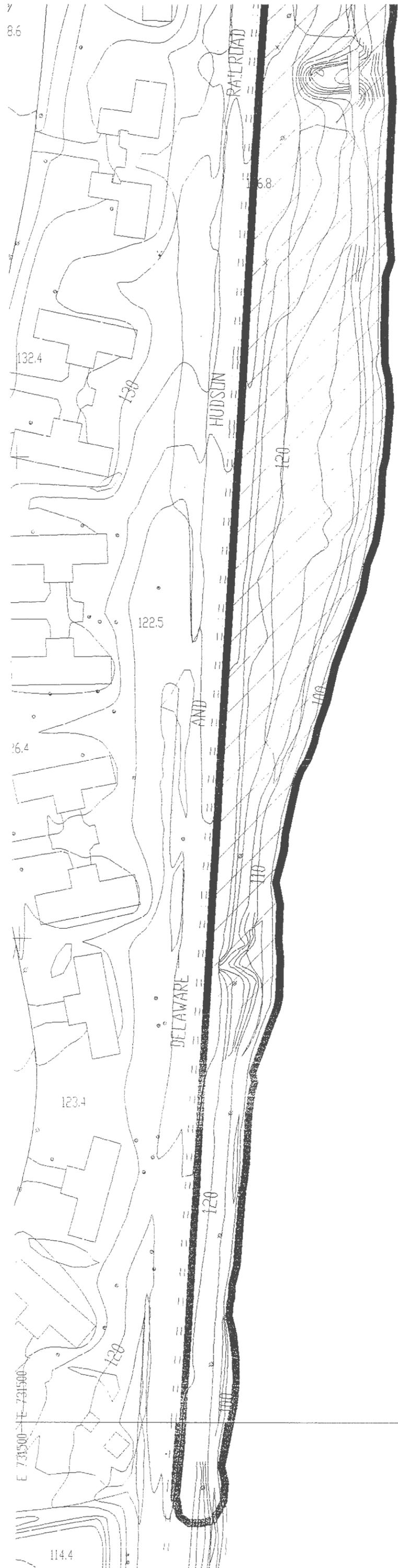
Plattsburgh Lakeshore
scale: 1 inch = 400 feet

-  Equisetum palustre,
Marsh horsetail
-  Cobble shore and late
successional northern
hardwoods



LAKE

CHAMPLAIN



Map 2a:
Blocks 5J,5I

Plattsburgh Lakeshore
scale: 1 inch = 100 feet

 Cobble shore and late successional northern hardwoods

LAKE

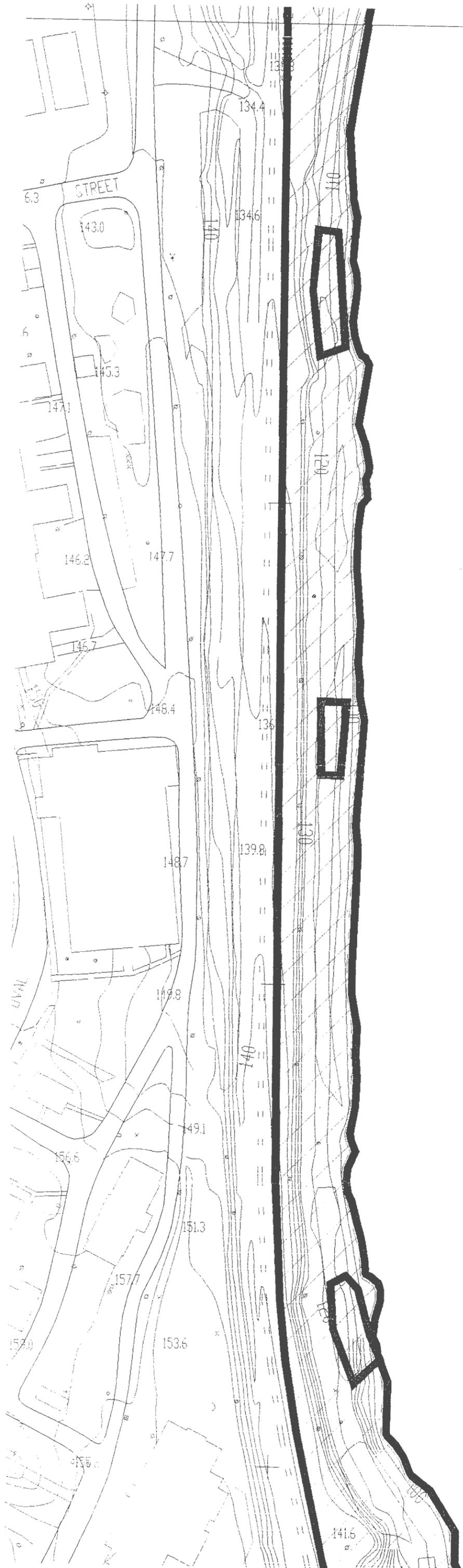
CHAMPLAIN

+

+

E 732000—E 732000

E 731500—E



Map 2d:
Blocks 5L,5M

Plattsburgh Lakeshore
scale: 1 inch = 100 feet

-  Equisetum palustre,
Marsh horsetail
-  Cobble shore and late
successional northern
hardwoods

LAK

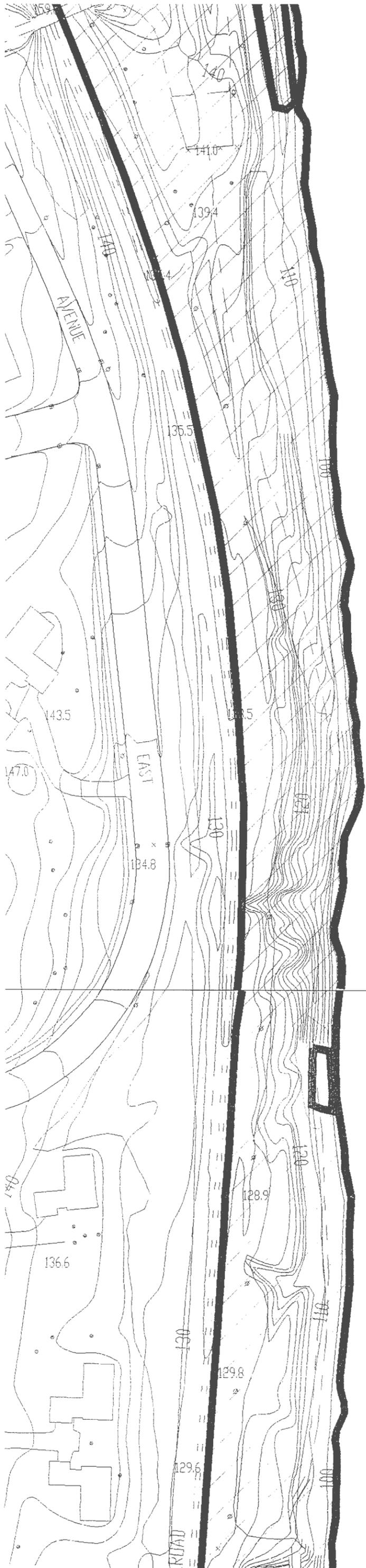
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Map 2c
Blocks 5K, 5L

Plattsburgh Lakeshore
scale: 1 inch = 100 feet

-  Equisetum palustre,
Marsh horsetail
-  Cobble shore and late
successional northern
hardwoods





CHAMPLAIN

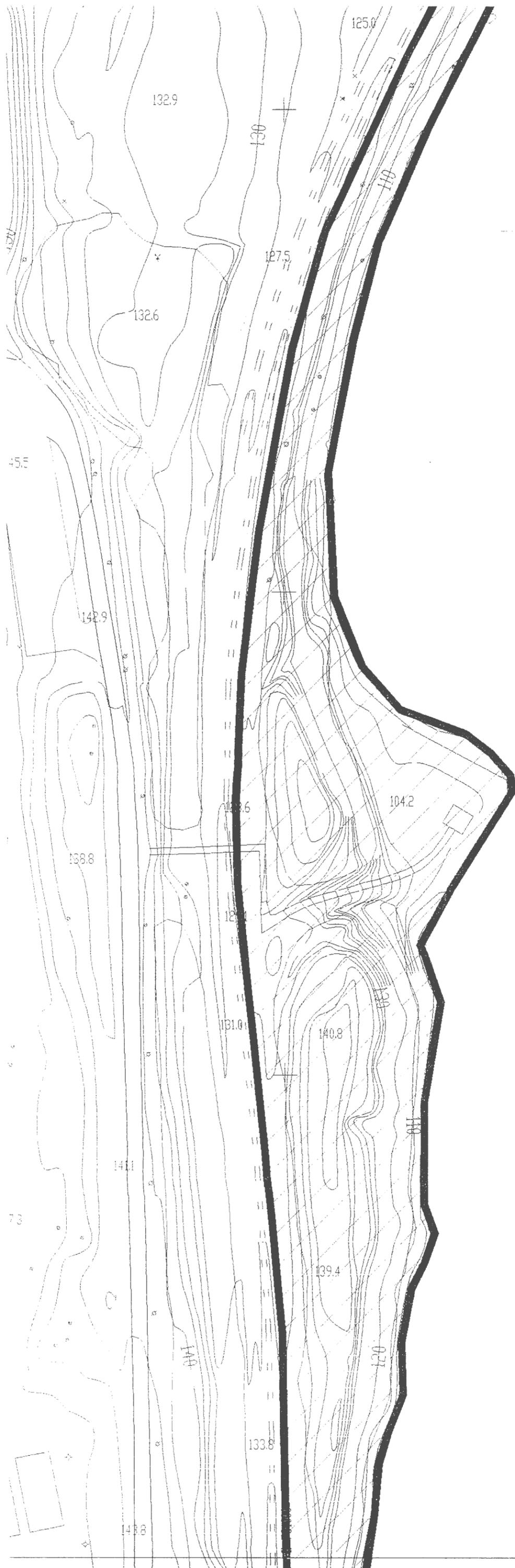
Map 2b:
Blocks 5K,5J

Plattsburgh Lakeshore
scale: 1 inch = 100 feet

-  Equisetum palustre,
Marsh horsetail
-  Cobble shore and late
successional northern
hardwoods

E 732000—E 732000

E 732500—E 732500



Map 2e:
Block 5M

Plattsburgh Lakeshore
scale: 1 inch = 100 feet

 Cobble shore and late
successional northern
hardwoods

Map 2f:
Block 5M

Plattsburgh Lakeshore
scale: 1 inch = 100 feet

 Cobble shore and late
successional northern
hardwoods



IV. Recommendation for Management of Each Federally Listed or Proposed Endangered or Threatened Species and Each State Listed Endangered, Threatened, or Special Concern Species Found on the Installation.

Equisetum palustre, a state-listed rare species, grows along the base of a moderately steep slope facing Lake Champlain. This habitat appears to be quite unusual for this species. According to Fernald (1950), however, marsh horsetail is found in a wide range of habitats, including marshes, wet woods, meadows, and wet shores, often in calcareous soil. This latter character seems to exist at this site and may be the factor that allows the plants to thrive despite the difficult environmental conditions. Eight populations of plants lie along the rocky, cobbled shoreline in an area stretching about a mile from south of a shoreline picnic area to south of the Base Marina. Clayey, springy, erodible soils immediately landward of the plant populations are subject to slumping due in part to groundwater seepage from above and to natural Lake Champlain wave forces from the lake side. These natural means of change may result in the most significant potential impacts on the plant populations and make management of plants difficult.

One way to manage the species may simply be to prohibit or discourage use of the shoreline in these areas by hikers, fishermen, etc. However, according to Clough (1986), the shoreline at or just north of the northernmost population of plants is recommended as a fishing access area along Lake Champlain (in the vicinity of the exiting shoreline picnic area). The recommendation includes a suggestion that parking be provided at some point. If the fishing access area could be set off from the *Equisetum palustre* populations, there should not be a conflict.

The shoreline area, especially along the southern reaches of the site, provides habitat for scattered *Lythrum salicaria* individuals. This exotic species has the potential to increase in numbers and could have a negative impact on the *Equisetum palustre* populations. Few enough *L. salicaria* plants are present to allow for a program to pull the plants before they begin to dominate the site.

V. Occurrence Records for Each Location of Each Surveyed Species.

One species was surveyed:

1. Name: *Equisetum palustre* L.
2. Ranks: Global: G5 State: S1
3. Survey Dates: July 29, 1994; October 1, 1994
4. Surveyor: Michael Corey
5. Location: Clinton County, Plattsburgh quadrangle. Plattsburgh AFB, Plattsburgh Lakeshore. From U.S. 9 go through the Vermont street gate of the base. Continue on to Tennessee St. and head south to Oklahoma Ave. Follow this road over the D & H railroad tracks, then park at the base marina. For south group, walk about 100 yards south along lake shoreline to one stand of plants which stretches about 100 feet along the shore. From this population, travel another 300 yards further south to a smaller patch about 40 feet along the shoreline. An abandoned, eroded walking trail is located parallel to the shore just up slope from both plant populations. For north group walk north from marina along shore. Plants start 300 feet north of marina and end about 1000 feet south of picnic area. In six spots along shore north of marina.
6. Site Description: At base of slope along Lake Champlain shoreline. The eight populations of plants grew out of a mix of saturated sand and clay soils among cobbles and broken stone. Light exposure varied from exposed to partial shade at an elevation of about 100 feet above sea level. The area occupied by the 8 populations adds up to about 1/2 acre along the shore. Lacustrine sands and clays provide the substrate for the plants.
7. Biological Data: Each population contained between approximately 500 and 1,000 individual plants. Because of plant densities, extent of below-surface rhizome development and presence of many immature stems, it was difficult to make an accurate count. All plants appeared healthy and robust; many of the adult plants carried spore-producing stobili.
8. Additional Information Sources: Plants in the field were tentatively identified using Peterson's Field Guide to Ferns. Definitive identifications were made later using Grays Manual of Botany and the New Britton and Brown Illustrated Flora.
9. Management and Protection Status and Comments: The plants are located on Base property and should be protected as fully as possible. The potential problem that could have the most significant impact on the plants comes from damage due to soil slumping and lake storm forces. Management of these problems would be difficult, but perhaps not impossible. Shoring up the areas of slope that are most unstable and that are adjacent to the plant populations may provide temporary protection.

VI. Appendices.

Appendix A. Explanation of Heritage and State Protected Ranks.

Each element has a global and state rank determined by the NY Natural Heritage Program. These ranks carry no legal weight.

Heritage State Rank:

- S1 = Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
- S2 = Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
- S3 = Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
- S4 = Apparently secure in New York State.
- S5 = Demonstrably secure in New York State.

New York State protected native plants protection ranks

The following categories are defined in regulation 6NYCRR part 193.3 and apply to NYS Conservation Law section 9-1503.

- E = Endangered: listed species are those with:
 - 1. 5 or fewer extant sites, or
 - 2. fewer than 1000 individuals, or
 - 3. restricted to fewer than 4 USGS 7.5 minute topographical maps, or
 - 4. species listed as endangered by US Department of Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

- T = Threatened: listed species are those with:
 - 1. 6 to fewer than 20 extant sites, or
 - 2. 1000 to fewer than 3000 individuals, or
 - 3. restricted to not less than 4 or more than 7 USGS 7.5 minute topographical maps, or
 - 4. listed as threatened by US Department of Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

- R = Rare: listed species have:
 - 1. 20 to 35 extant sites, or
 - 2. 3000 to 5000 individuals statewide.

New York State animal protection status

Categories of Endangered and Threatened species are defined in NYS Environmental Conservation Law section 11-0535. Endangered, Threatened, and Special Concern species are listed in regulation 6NYCRR 182.5.

- E = Endangered; any species which meet one of the following criteria:
1. native species in imminent danger of extirpation or extinction in New York, or
 2. species listed as endangered by the US Department of the Interior, as enumerated in the Code of Federal Regulations 500 CFR 17.11.
- T = Threatened: any species which meet one of the following criteria:
1. native species likely to become endangered within the foreseeable future in New York,
 2. species listed as threatened by the US Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.
- SC = Special Concern: those species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York.
- P = Protected Wildlife (defined in Environmental Conservation Law 11-0103): wild game, protected wild birds, and endangered species of wildlife.
- U = Unprotected (defined in Environmental Conservation Law 11-0103): the species may be taken at any time without limit; however, a license may be required.
- G = Game (defined in Environmental Conservation Law section 11-0103): big or small game species; may normally have an open season for at least part of the year, and are protected at other times.

Appendix B. Field Notes and Surveyed Species Population Inventory Reports.

WRITTEN DESCRIPTION OF THE SURVEY SITE: DESCRIBE the survey site. Try to convey a mental image of the survey site's features including vegetation, significant species, aquatic features, notable landforms, natural disturbances, scenic qualities.

This site is very narrow, lying along the west side of the Delaware and Hudson tracks. The southernmost part of the site lies within the railroad ROW. The northernmost portion is fairly substantial (about 400' x 500' in size) and is characterized by successional woody species common to the area: *Populus tremuloides*, *Rhamnus cathartica*, and *Acer negundo*. The narrow region south and along the VV track is a mix of successional trees, shrubs and old field vegetation. Topography is nearly level, and the site is well drained. The site is generally unremarkable. Birds seen include yellow warbler, pileated woodpecker, hairy woodpecker, crow, chipping sparrow, cowbird, and kingbird.

EVIDENCE OF DISTURBANCE: DESCRIBE any unnatural on-site disturbances (e.g. livestock grazing, structures, past logging, mining, plantation/orchards, ATVs, dumping, exotic flora, etc.).

The officer's club building and mowed lawn lies at the north end of the site. The D + H railroad ROW with accompanying cutting and/or chemical herbiciding forms the eastern edge. Fencing, commercial buildings and residences lies to the west.

SURROUNDING LAND USE: DESCRIBE physical structures and land use practices in the surrounding area (e.g., residential and commercial buildings; agricultural, recreational, residential and commercial uses):

As indicated above, commercial buildings and residences with appropriate fencing form the western margin; a RR track ROW lies along the east edge. A foot bridge leading to a small Base lakeside park crosses the site and tracks in the northern area. The road to the Base Marina and beach forms the southern border.

THREATS AND MANAGEMENT NEEDS: DISCUSS on-site and off-site threats to the survey site and management implications; if applicable, discuss why sought species/communities may no longer exist here.

The site is not likely to yield any elements or interesting plant or animal communities with or without management.

DIRECTIONS TO THE SURVEY SITE and ELEMENT OCCURRENCES: Provide: 1) detailed directions to the survey site. Refer to nearby topographic landmarks, roads and villages to concisely describe the survey site's location; 2) additional directions to describe the location(s) of specific elements within the surveysite, especially if these occurrences would be difficult for someone unfamiliar with this survey site to relocate using only the attached topo map.

To get to this site, pass through the old Base gate off U.S. Route 9. Find the north road by heading north on US Oval West to Club Road. Park in the Officers Club parking lot.

TOPOGRAPHIC BASE MAP (mandatory): Attach (staple) a photocopy of that portion of the USGS 7 1/2 minute topo map(s) showing the survey site and include the following:

1. Indicate precisely the LOCATION of each element occurrence and/or boundaries using solid lines.
2. Identify each element occurrence with the Base Map Code(s) used in the ELEMENT INDEX from page 1.
3. If knowledge permits, draw the PRIMARY and SECONDARY ecological site boundaries:

The PRIMARY ecological site boundary  includes all known element occurrences and lands deemed necessary for the continued viability of the element occurrences.

The SECONDARY ecological site boundary, or "buffer",  includes all lands intended to mitigate future unforeseen negative impacts to the element occurrences.

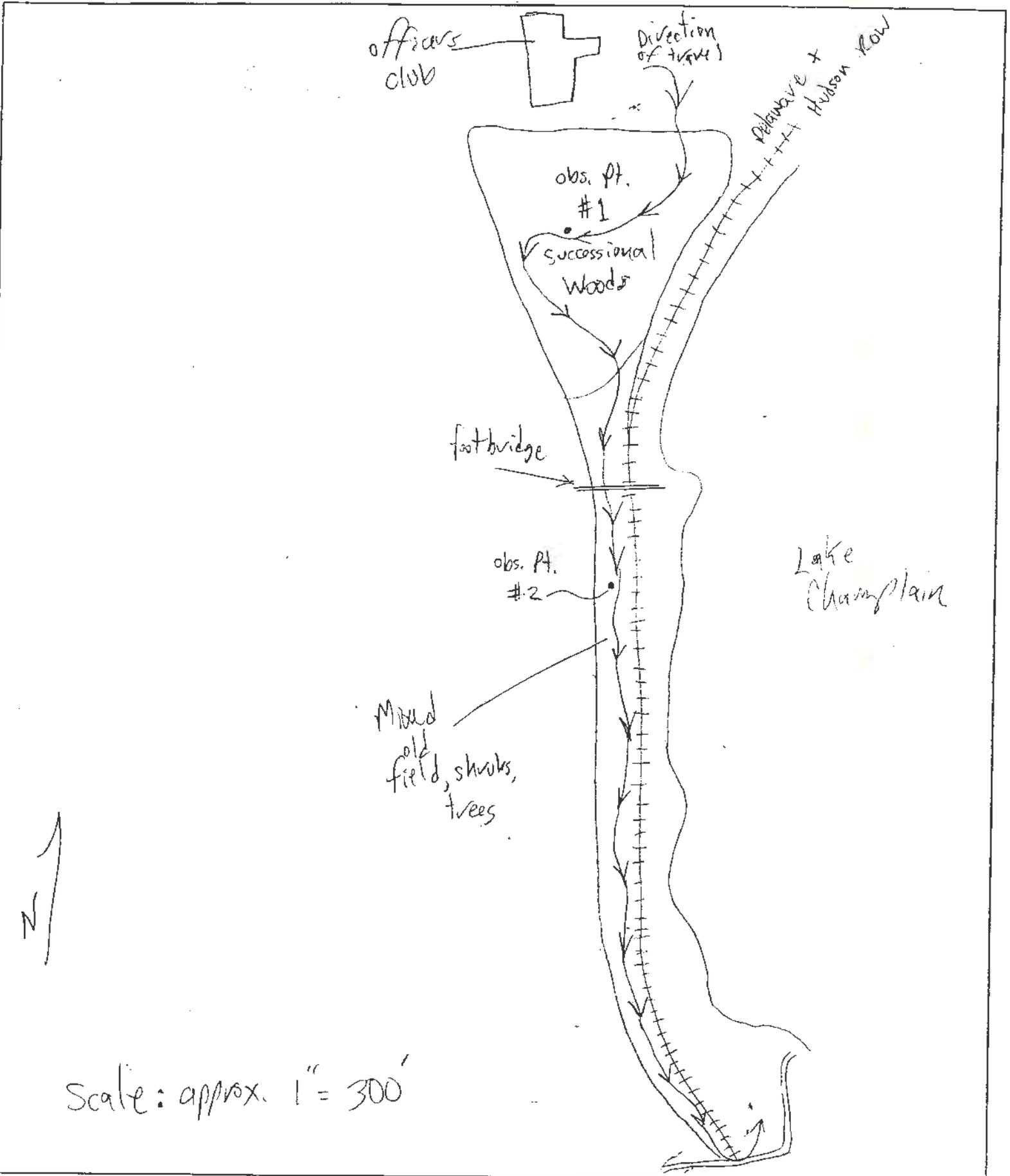
If primary and secondary boundaries coincide, draw the boundaries as 

4. If primary and/or secondary boundaries are drawn, provide justification for the location of these lines.

TRACT OWNERSHIP: (tract ownership, name, address, phone number)

U.S. Air Force

HABITAT MAP: Sketch the fine details of the habitat showing: 1) the route taken, 2) any element occurrences listed in the Element Index, 3) Landmarks 4) evidence of disturbance, and 5) any other important features. Include scale and indicate north.





Officers Club /
NE CORNER

Halseys
Corners

PLATTSBURGH

STATE UNIVERSITY

RIVER

INTERCHANGE

SUGAR

ARANAC

Gaging
Sta

UNDERWOOD

St Pierce
Cem

Trailer
Park

Trailer
Park

Mt Carmel
Cem

Notes

High
Sch

Hospital

St John's
Sch

Riverside
Cem

Brick
Sch

St John's
Sch

Fire
Sta

Library

WIRKINER
HOFF

College

St Sch

014

013

011

010

09

07

CORPORATE
BOUNDARY

Light

Light

Light

Light

Light

16

32

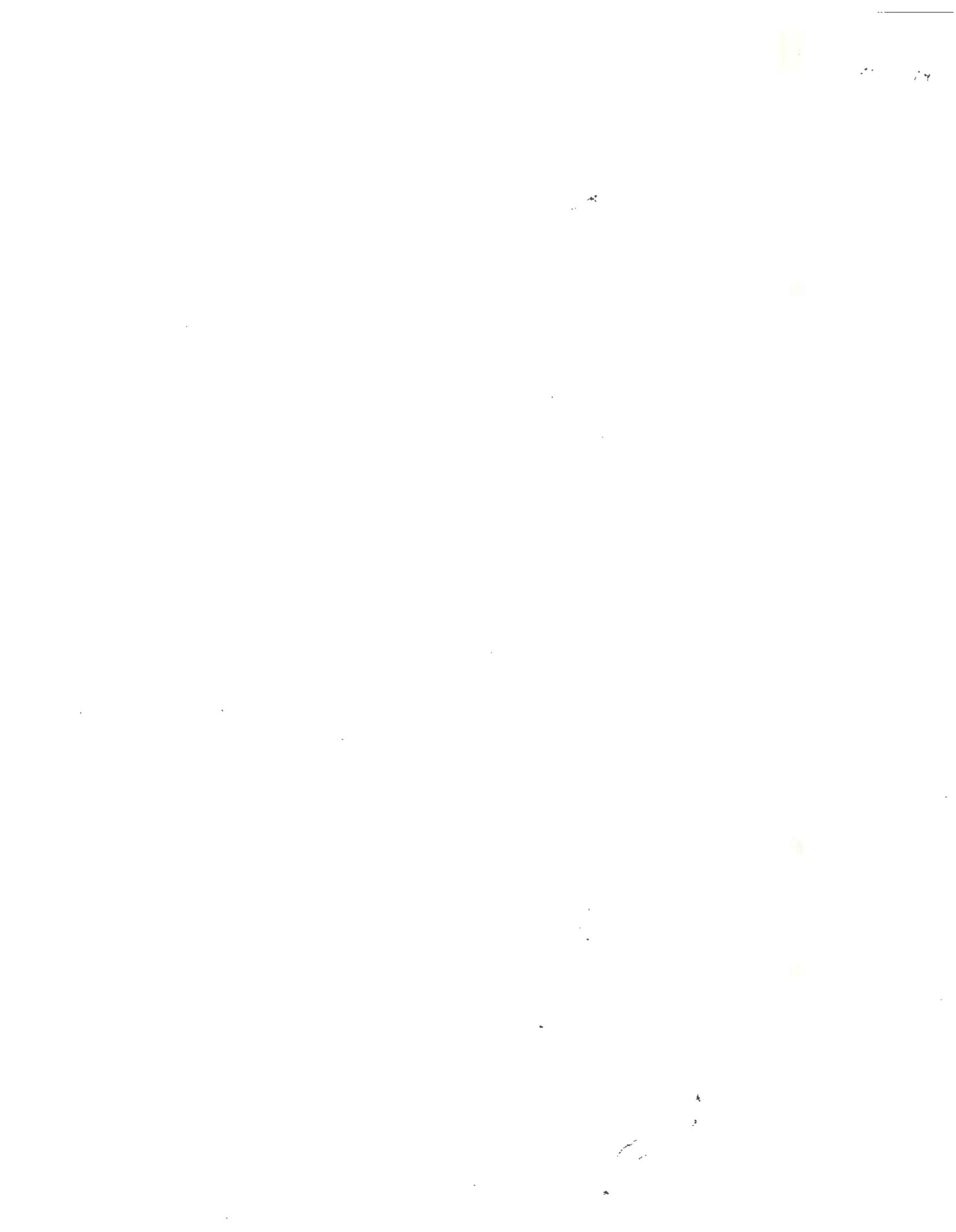
34

32

34

33





A. Identifiers

1. Site name: _____
 2. Survey site name: Officer's Club / NE Corner
 3. Quad name(s): Plattsburgh 4. Quad code(s): 4407364
 5. County name(s): Clinton 6. County code(s): _____
 7. Town (LOCAL JURIS): Plattsburgh, City of
 8. Directions: From US Route 9 head east through gates to "old" base. Follow loop road to the north, continuing to the officer's club building at the extreme northeast corner of the Base. Parking is available.
 9. Source code: F-940303 10. Survey date: 1994.05.25 11. State: NY
 12. Surveyors: Michael Covey

B. Topography

13. Transect A

14. Reconnaissance diagram: Scale: _____

C. Vegetation / Habitat

15. Observation point 1 <u>A</u>	Observation point 2 <u>A</u>	Observation point 3 _____
16. Community name: <u>Successional hardwoods</u>	Community name: <u>Successional shrubs</u>	Community name: _____
17. Additional data: form 2 _____ form 3 _____	Additional data: form 2 _____ form 3 _____	Additional data: form 2 _____ form 3 _____
18. General description (physiognomy, char./dom. spp. of tree, shrub, herb, bryophyte layers) This nearly level community is composed mostly of successional species common to the Base, especially near the lake shore. Trees - 80% cover Betula papyrifera Acer negundo Populus tremuloides Shrubs - 80% Rubus americanus Rhamnus cathartica Herbs - 40% Solidago Equisetum arvense sp. sp.	General description: This point was located adjacent to the ROW of the Delaware + Hudson railroad. Part of it had been cut, either by Base personnel or by the railroad. Trees - 10% cover Acer negundo Shrubs - 90% Rubus idaeus Toxicodendron radicans Rubus odoratus Rubus virginiana Herbs - 20% Equisetum arvense Euphorbia cyparissia	General description: _____

Reconnaissance Diagram: Scale:

Observation Point 4__	Observation Point 5__	Observation Point 6__	Observation Point 7__
Community name: _____ _____	Community name: _____ _____	Community name: _____ _____	Community name: _____ _____
Additional data: form 2__ form 3__			
General Description:	General Description:	General Description:	General Description:

OPTIONAL PLANT LIST
NY Natural Heritage Program

5-25-94

Instructions: Use the Site Survey Summary to complete the top section of this form.

SURVEY SITE: Officer's Club / NE Corner
 QUADCODE: 4407364 (centrum quadcode)
 QUADNAME: Plattsburgh (centrum quadname)
 CHECK ONE: Plant list for the survey site or
 Plant list for a community within this survey site: _____ (community type)

SPECIES LIST: List species observed at this survey site and mark appropriate column(s). For unfamiliar species indicate, for example, "Carex sp." or "grass sp."

SPECIES NAME	TREES		SHRUBS/VINES		HERBS		COLLECTION NUMBER	PHOTO TAKEN? y/n
	dominant	other	dominant	other	dominant	other		
<i>Rhamnus cathartica</i>				✓				
<i>Populus tremuloides</i>		✓						
<i>Acer platanoides</i>		✓						
<i>A. negundo</i>	✓							
<i>Rubus idaeus</i>				✓				
<i>Prunus virginiana</i>				✓				
<i>Populus deltoides</i>		✓						
<i>Ribes rubrum</i>				✓				
<i>Fraxinus pennsylvanica</i>		✓						
<i>Betula papyrifera</i>		✓						
<i>Cornus alternifolia</i>				✓				
<i>Malus pumila</i>		✓						
<i>Lonicera</i> sp. shrub				✓				
<i>Rubus odoratus</i>				✓				
<i>Viburnum recognitum</i>				✓				
<i>Prunus serotina</i>		✓						
<i>Fraxinus americana</i>		✓						
<i>Salix</i> spp.				✓				
<i>Spiraea latifolia</i>				✓				
<i>Populus balsamifera</i>		✓						
<i>P. alba</i>		✓						
<i>Betula populifolia</i>		✓						
<i>Ulmus procera</i>		✓						
<i>Rhus typhina</i>				✓				
<i>Rosa rugosa</i>				✓				
<i>Ulmus americana</i>		✓						
<i>Vitis</i> sp.				✓				

WRITTEN DESCRIPTION OF THE SURVEY SITE: DESCRIBE the survey site. Try to convey a mental image of the survey site's features including vegetation, significant species, aquatic features, notable landforms, natural disturbances, scenic qualities.

This narrow site lies along the sharp of Lake Champlain and the PTH railroad right-of-way. A similarly narrow site (Lakeshore north) lies to the north; the Base property line forms the south edge. The dominant feature of this site is the steep wooded slope that runs its length along the east side of the track. Dominant trees include *Quercus rubra* and *Betula papyrifera*, with *Rubus odoratus*, *Cornus rugosa* and *Equisetum arvense* characterizing the understory and herb vegetation. At the bottom of this slope, groundwater seeps into the lake through gravel and cobbles along the shoreline. Natural erosion of the shore due to lake wave forces is having an impact nearly throughout the site. Vegetation is sparse among the cobbles, but *Equisetum arvense*, *Plantago anserina* and *Salix gracilis* are found here. An emergent *Equisetum palustre* occurs in two populations in a zone between the sloping base of the lake bluff and the exposed cobble shoreline. Birds spotted or heard during the site visit include song sparrows, wood pewee, blue jay and kingfisher.

EVIDENCE OF DISTURBANCE: DESCRIBE any unnatural on-site disturbances (e.g. livestock grazing, structures, past logging, mining, plantation/orchards, ATVs, dumping, exotic flora, etc.).

An abandoned hiking/nature trail that commences at the site's north end runs nearly the length of the site. Lakeshore erosion mentioned above has contributed to problems with the trail. Scattered *Lythrum salicaria* individuals are becoming established along the upper cobble beach.

SURROUNDING LAND USE: DESCRIBE physical structures and land use practices in the surrounding area (e.g., residential and commercial buildings; agricultural, recreational, residential and commercial uses):

A Base residential area and maintenance buildings lie to the west of the track. The Base Marina and beach including a very small park lie at the site's north end.

THREATS AND MANAGEMENT NEEDS: DISCUSS on-site and off-site threats to the survey site and management implications; if applicable, discuss why sought species/communities may no longer exist here.

If the walking trail remains in its abandoned state it's likely that the *Equisetum palustre* will remain mostly undisturbed due to the impacts of people. Another threat is that from erosion and slumping of clayey soils along the base of the slope, I suspect that the seepy sites among lakeshore cobbles are not typical habitat areas for this species.

DIRECTIONS TO THE SURVEY SITE and ELEMENT OCCURRENCES: Provide: 1) detailed directions to the survey site. Refer to nearby topographic landmarks, roads and villages to concisely describe the survey site's location; 2) additional directions to describe the location(s) of specific elements within the survey site, especially if these occurrences would be difficult for someone unfamiliar with this survey site to relocate using only the attached topo map.

From U.S. Route 9 (aka U.S. Avenue), enter the Old Base (to the east of Route 9) via the Old Base Gate on Vermont Street. Bear right (southeast) on Tennessee Street to Oklahoma Avenue. Head west on Oklahoma to the Base Marina - drive on the bridge over the DTH track. Park at the marina and walk south along the shore or on the old hiking trail.

TOPOGRAPHIC BASE MAP (mandatory): Attach (staple) a photocopy of that portion of the USGS 7 1/2 minute topo map(s) showing the survey site and include the following:

1. Indicate precisely the LOCATION of each element occurrence and/or boundaries using solid lines.
2. Identify each element occurrence with the Base Map Code(s) used in the ELEMENT INDEX from page 1.
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The SECONDARY ecological site boundary, or "buffer",  includes all lands intended to mitigate future unforeseen negative impacts to the element occurrences.

If primary and secondary boundaries coincide, draw the boundaries as 

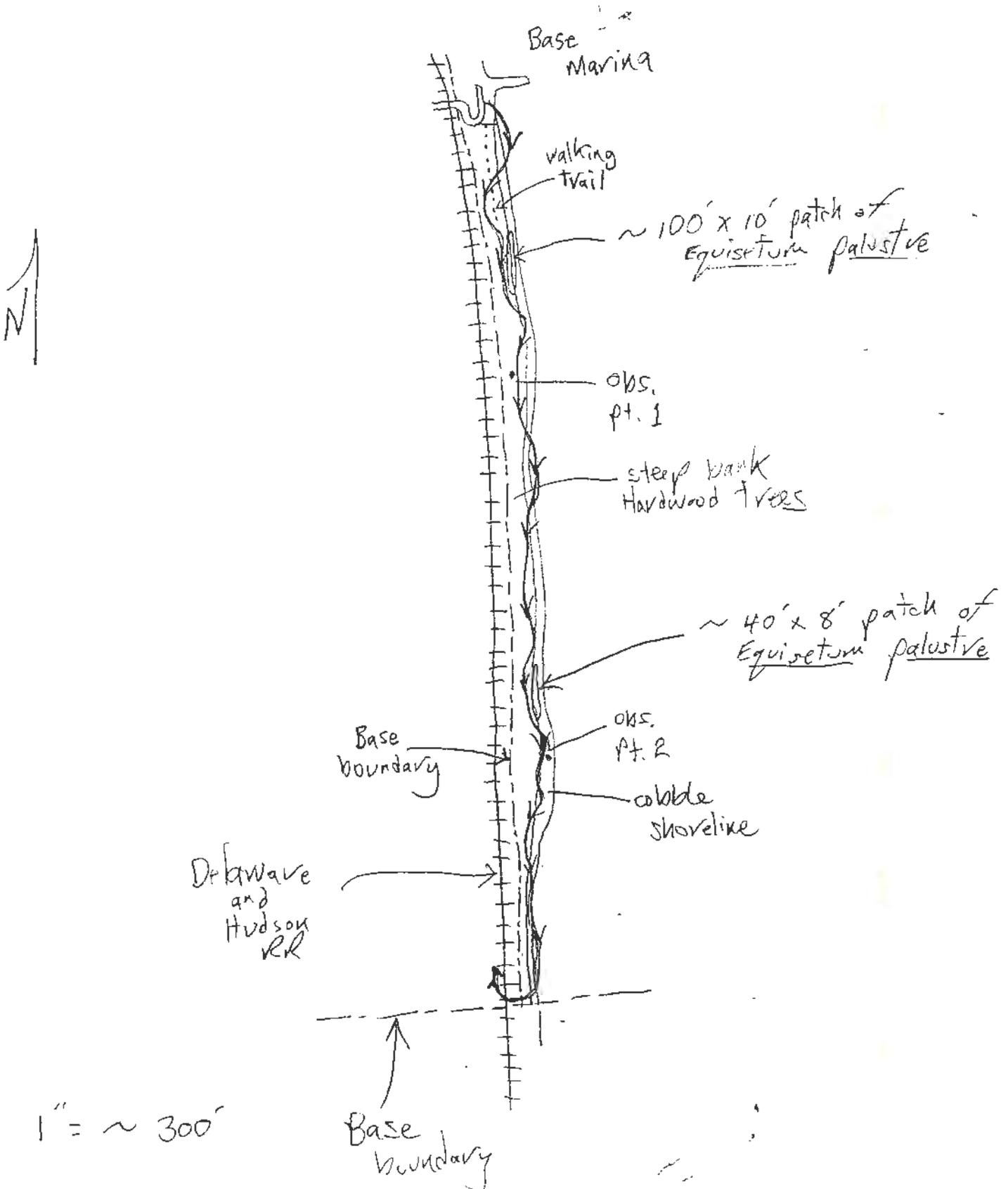
4. If primary and/or secondary boundaries are drawn, provide justification for the location of these lines.

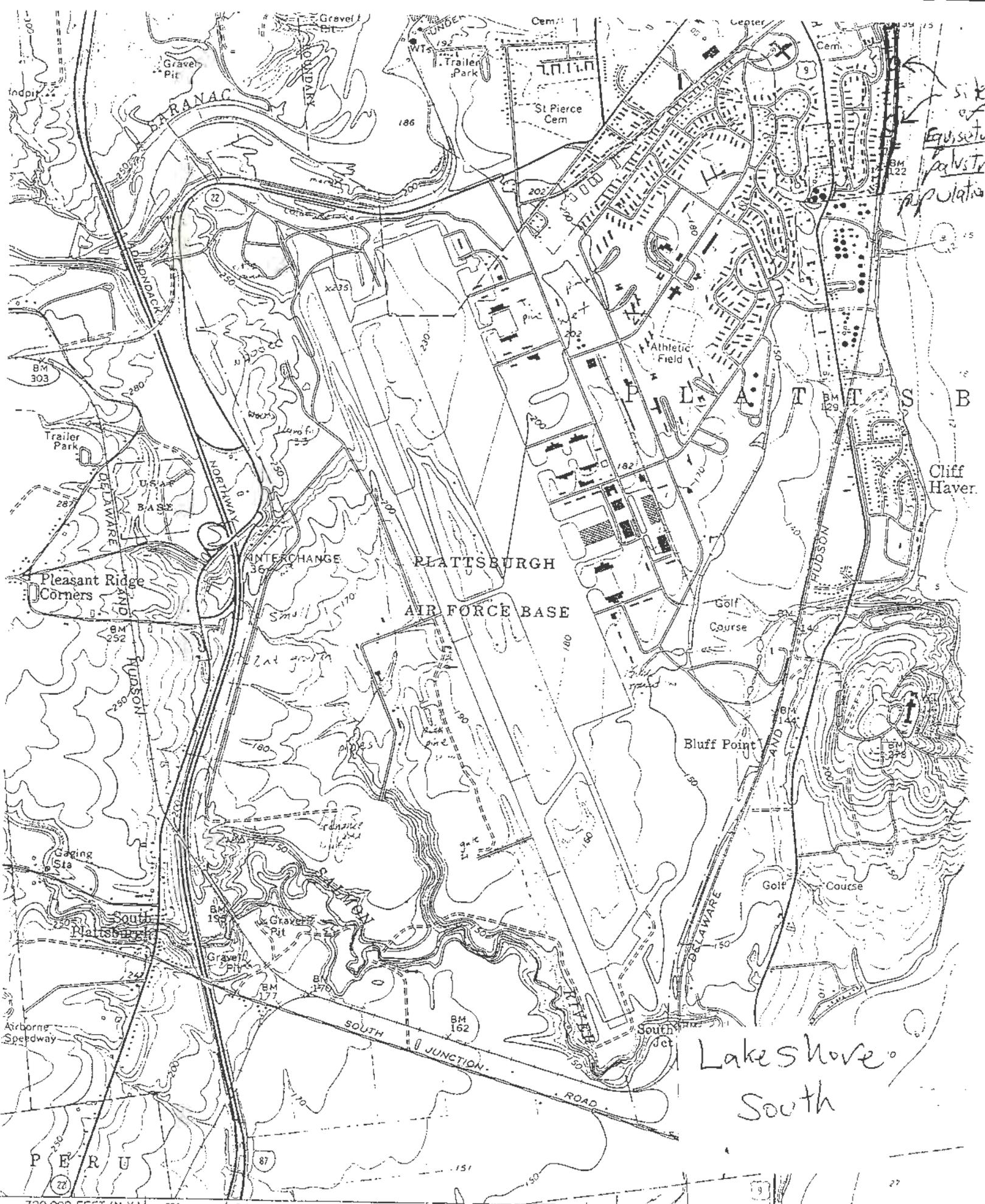
The two populations of the element found, *Equisetum variegatum*, lie along the shore of Lake Champlain in a very narrow survey site sandwiched between the shore and the DTH railroad track. Slopes are steep; the primary and buffer boundaries necessarily coincide.

OWNERSHIP: (tract ownership, name, address, phone number)

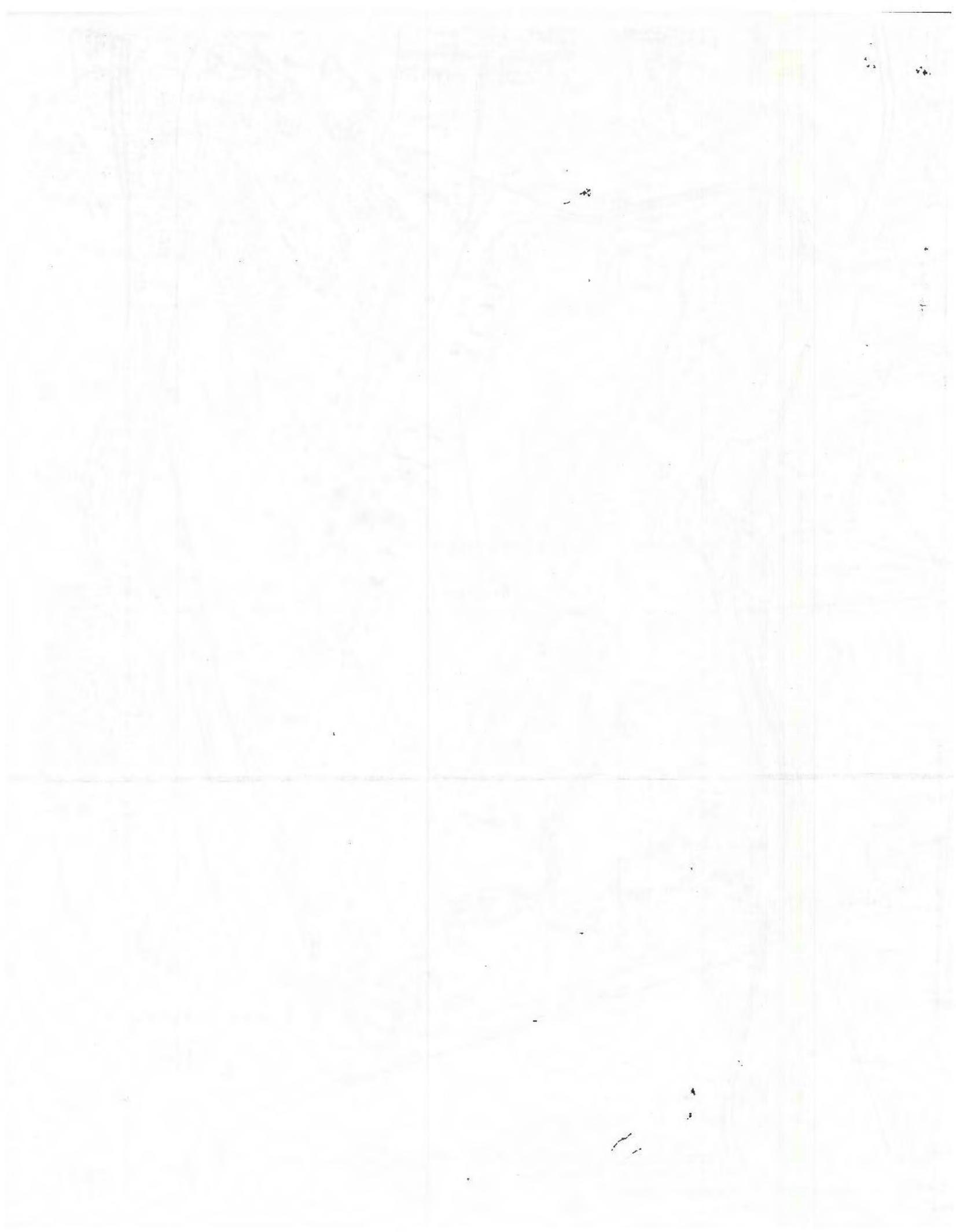
U.S. Air Force

HABITAT MAP: Sketch the fine details of the habitat showing: 1) the route taken, 2) any element occurrences listed in the Element Index, 3) landmarks 4) evidence of disturbance, and 5) any other important features. Include scale and indicate north.





720 000 FEET (N.Y.) 620 3.4 MI TO INTERCHANGE 35 INTERCHANGE 34 (N.Y. 9N) 8 MI. 622 27'30" VALCOUR 1.5 MI (KEESEVILLE) 6373 III S. SCALE 1:77,000
 ed, edited, and published by the Geological Survey
 d by USGS US&GS and U. S. Lake Survey



A. Identifiers / Location (general EOR information)

1. TNC site name: _____
 2. Survey site name: P. Lakeshore
 3. Quad name(s): Plattsburgh
 4. Quad code(s): 4407364
 5. County name(s): Clinton
 6. County code(s): _____
 7. Town (LOCAL JURIS): Plattsburgh
 8. Directions to this transect: From U.S. Route 9 (U.S. Avenue) enter the Old Base (east of Route 9) via the Old Base Gate on Vermont Street. Bear right (to the southeast) on Tennessee Street to Oklahoma Avenue. Head east on Oklahoma to the Base Marina. Park at the Marina and walk south along the shore.
 9. Sourcecode: F94C0312
 10. Survey date: 1994.07.01
 11. State: NY
 12. Surveyors: Michael Corvey

B. Topography

13. Transect: A

14. Reconnaissance diagram (draw a cross-section sketch of the observation point), and show scale:



C. Vegetation / Habitat

15. Observation point 1 <u>A</u>	15. Observation point 2 <u>A</u>	15. Observation point 3 _____
16. Community name: <u>slipping hardwood seep</u>	16. Community name: <u>Cobble Shore</u>	16. Community name: _____
17. Additional data: form 2 _____ form 3 _____	17. Additional data: form 2 _____ form 3 _____	17. Additional data: form 2 _____ form 3 _____
18. General description (physiognomy, most abundant/characteristic species in tree, shrub, herb, bryophyte layers): <u>This moderate to steep-sloped site is typical of the wooded slope all along the line between the water's edge and the D+H tracks.</u> <u>Trees - 70%</u> <u>Quercus rubra</u> <u>Betula papyrifera</u> <u>B. allegheniensis</u> <u>Herbs - 50%</u> <u>Alnus rugosa</u> <u>Acer spicatum</u> <u>Urtica dioica</u> <u>Herbs - 90%</u> <u>Urtica dioica</u> <u>Urtica dioica</u> <u>Urtica dioica</u> <u>Urtica dioica</u>	18. General description: <u>- a mostly unvegetated shoreline habitat running the length of the site. Dominated by cobbles, larger stones, sand. Gentle slope.</u> <u>Trees - 0%</u> <u>Shrubs - 20%</u> <u>Populus deltoides</u> <u>Salix gracilis</u> <u>Herbs - 10%</u> <u>Potentilla anserina</u>	18. General description: _____

14. Reconnaissance Diagram (draw a cross-section sketch of the observation point), and show scale:

15. Observation Point 4 _____	15. Observation Point 5 _____	15. Observation Point 6 _____	15. Observation Point 7 _____
16. Community name: _____	16. Community name: _____	16. Community name: _____	16. Community name: _____
17. Additional data: form 2 _____ form 3 _____	17. Additional data: form 2 _____ form 3 _____	17. Additional data: form 2 _____ form 3 _____	17. Additional data: form 2 _____ form 3 _____
18. General Description (physiognomy, most abundant/characteristic species in tree, shrub, herb, bryophyte layers):	18. General Description:	18. General Description:	18. General Description:

OPTIONAL PLANT LIST
NY Natural Heritage Program

7/1/94

Instructions: Use the Site Survey Summary to complete the top section of this form.

SURVEY SITE: Pl. Lakeshore
 QUADCODE: 4407364 (centrum quadcode)
 QUADNAME: Plattsburgh (centrum quadname)
 CHECK ONE: Plant list for the survey site or
 Plant list for a community within this survey site: _____ (community type)

SPECIES LIST: List species observed at this survey site and mark appropriate column(s). For unfamiliar species indicate, for example, "Carex sp." or "grass sp."

SPECIES NAME	TREES		SHRUBS/VINES		HERBS		COLLECTION NUMBER	PHOTO TAKEN? y/n
	dominant	other	dominant	other	dominant	other		
<i>Populus deltoides</i>		✓						
<i>Betula papyrifera</i>	✓							
<i>Rubus odoratus</i>			✓					
<i>Cornus sericea</i>				✓				
<i>Vitis labrusca</i>				✓				
<i>Ulmus americana</i>		✓						
<i>Rhamnus cathartica</i>				✓				
<i>Alnus rugosa</i>				✓				
<i>Parthenocissus quinquefolia</i>				✓				
<i>Salix nigra</i>		✓						
<i>Cornus rugosa</i>			✓					
<i>Salix fragilis</i>		✓						
<i>Lonicera sp.</i>				✓				
<i>Acer negundo</i>		✓						
<i>A. spicatum</i>				✓				
<i>Rubus idaeus</i>				✓				
<i>Fraxinus americana</i>		✓						
<i>Quercus rubra</i>	✓							
<i>Corylus cornuta</i>				✓				
<i>Salix interion</i>				✓				
<i>Rhus typhina</i>				✓				
<i>Sorbus americana</i>		✓						
<i>Populus tremuloides</i>		✓						
<i>Betula allegheniensis</i>		✓						
<i>Acer platanoides</i>		✓						
<i>Populus balsamifera</i>		✓						
<i>Ribes rubrum</i>				✓				
<i>Cornus amomum</i> ssp. <i>amomum</i>				✓				

continued on next page

OPTIONAL PLANT LIST (continued)

SPECIES NAME	TREES		SHRUBS/VINES		HERBS		COLLECTION NUMBER	PHOTO TAKEN? y/n
	dominant	other	dominant	other	dominant	other		
<i>Pinus strobus</i>		✓						
<i>Acer rubrum</i>		✓						
<i>Amelanchier arborea</i> ssp. <i>arborea</i>		✓						
<i>Acer saccharum</i>		✓						
<i>Toxicodendron radicans</i>				✓				
<i>Populus grandidentata</i>		✓						
<i>Rhamnus alnifolia</i>				✓				
<i>Betula populifolia</i>		✓						
<i>Fagus grandifolia</i>		✓						
<i>Thuja occidentalis</i>		✓						
<i>Equisetum arvense</i>					✓			
<i>Zolium perenne</i>						✓		
<i>Oenothera biennis</i>						✓		
<i>Apocynum androsaemifolium</i>						✓		
<i>Athyrium asplenoides</i>						✓		
<i>Berteroa incana</i>						✓		
<i>Lythrum salicaria</i>						✓		
<i>Oenoclea sensibilis</i>						✓		
<i>Impatiens</i> sp.						✓		
<i>Solanum dulcamara</i>						✓		
<i>Verbascum thapsus</i>						✓		
<i>Carex</i> spp.						✓		
<i>Potentilla anserina</i>						✓		
<i>Mateuccia struthiopteris</i>						✓		
<i>Equisetum palustre</i>						✓		
<i>Smilacina racemosa</i>						✓		
<i>Arisaema triphyllum</i> ssp. <i>triphyllum</i>						✓		
<i>Osmunda cinnamomea</i>						✓		
<i>Aralia nudicaulis</i>						✓		
<i>Euphorbia cyparissias</i>						✓		
<i>Typha latifolia</i>						✓		
<i>Actaea rubra</i>						✓		
<i>Aralia racemosa</i>						✓		
<i>Ranunculus acris</i>						✓		
<i>Piervilla lonicera</i>						✓		

(if additional space is needed, attach another form)

INSTRUCTIONS: Write in pencil only, complete 1 form per visit.

QUADCODE(s): 4407364	Heritage Dot# (if known):
QUADNAME(s): Plattsburgh	
SURVEY SITE: Plattsburgh Lakeshore	
TNC SITE NAME (if known):	

ELEMENT INFORMATION

Scientific name: <i>Equisetum palustre</i>	PPEQUO1050	Occ.# (if known): 006
Revisit to this EO needed? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no Why? Extent of populations known		

SURVEYOR INFORMATION

VISIT #	SURVEY DATE: 1994-07-29	TIME from: 3:00 to: 4:00	SOURCECODE: F 94003
SURVEYORS (principal surveyor first, include first & last names): Michael Corey			

TOPOGRAPHY where this element occurrence is located

Elevation: 100 ft.	Aspect:	Slope:	Light:	Position:	Moisture:
If elevation is a range:	<input checked="" type="checkbox"/> N <input type="checkbox"/> NE <input checked="" type="checkbox"/> E <input type="checkbox"/> NW <input type="checkbox"/> S <input type="checkbox"/> SE <input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> flat <input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> vertical	<input type="checkbox"/> open <input checked="" type="checkbox"/> partial <input type="checkbox"/> filtered <input type="checkbox"/> ahade	<input type="checkbox"/> crest <input type="checkbox"/> upper slope <input type="checkbox"/> lower slope <input checked="" type="checkbox"/> bottom	<input type="checkbox"/> inundated <input type="checkbox"/> saturated (wet-mesic) <input checked="" type="checkbox"/> moist (mesic) <input type="checkbox"/> dry-mesic <input type="checkbox"/> dry (xeric)
Minimum: _____ ft.					
Maximum: _____ ft.					

MANDATORY TOPOGRAPHIC MAP: Attach a photocopy of the appropriate part of the USGS topographic map showing the following:
1) The precise location of the element occurrence and 2) the element occurrence boundary (using solid lines or shading).

Is the full extent of element occurrence known? yes no If no, explain:
Are the precise locations of individuals mapped on attached topo? yes no If no, explain:

IDENTIFICATION

Photograph/slide taken? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	If yes, has a copy been submitted to NY Natural Heritage Program? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Specimen collected? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Collection # and repository: _____
Identification problems? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Explain: _____

BIOLOGY AND ECOLOGY of this element occurrence:

PHENOLOGY:	# RAMETS:	# GENETS:	AREA of the occurrence: 8 = 57.1004	VIGOR:
<input checked="" type="checkbox"/> in leaf	(# of indiv.)	(# of groups)	41 # of square yards if < 1/4 acre	<input type="checkbox"/> very feeble
<input type="checkbox"/> in bud	1-10	2	1/4 - 1/2 acre	<input type="checkbox"/> feeble
<input type="checkbox"/> in flower	11-50		1/2 - 1 acre	<input type="checkbox"/> normal
<input type="checkbox"/> immature fruit	51-100		1 - 2 acres	<input checked="" type="checkbox"/> vigorous
<input checked="" type="checkbox"/> mature fruit	101-1,000			<input type="checkbox"/> very vigorous
<input checked="" type="checkbox"/> seed dispersing	1001-10,000		If > 2 acres, indicate total estimated acreage: _____ acres	
<input type="checkbox"/> dormant	10,000 +			
	total estim.#			

STAGE OF LIFE CYCLE SUCCESS	good	fair	poor	none	?	Comments and/or optional sketch of important plant characteristics:
reproduction		<input checked="" type="checkbox"/>				
dispersal					<input checked="" type="checkbox"/>	
establishment					<input checked="" type="checkbox"/>	
maintenance		<input checked="" type="checkbox"/>				

Reproduction: sexual asexual both Evidence of disease, predation etc: None

List any animal pollinators seen on the EO: _____

Do other members of this genus co-occur at this survey site? yes no If yes, complete below:

Hybridization? yes no List species: *Equisetum arvense*

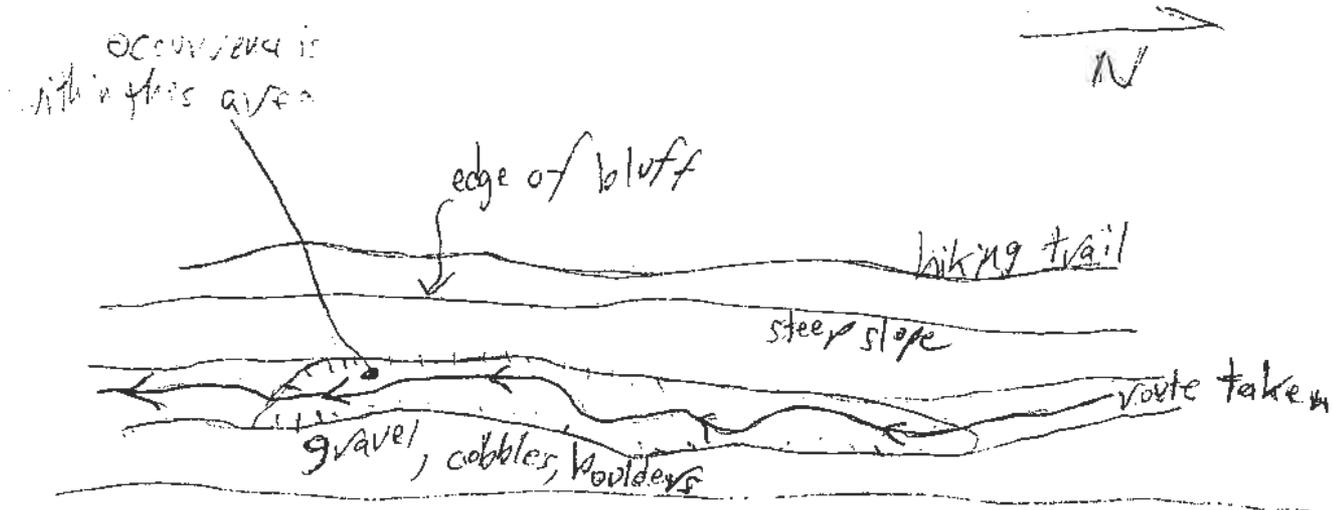
HABITAT OF ELEMENT OCCURRENCE

DIRECTIONS: Provide detailed directions to this element occurrence rather than the surveysite. Refer to nearby landmarks, roads and villages. Include distances, compass directions (North, South etc.)

From U.S. 9 within the City of Plattsburgh, pass through the Old Base gate (Vermont Street). Continue on to Tennessee Street, head south to Oklahoma Ave. Follow this road over the N+H tracks, then park at the Base Marina. From beach, walk about 100 yards south along lake shoreline to one stand of plants, which stretches about 100 feet along the shore. From this population, travel another 300 yards further south to a smaller patch about 40 feet along the shoreline. An abandoned, eroding walking trail is located parallel to the shore just upslope from both plant populations.

HABITAT SKETCH (mandatory unless already shown in detail on the Site Survey Summary.) Sketch the fine details of an overhead view of this element occurrence showing: landmarks, other important features, route taken, the element occurrence, disturbances & threats, scale, indicate north.

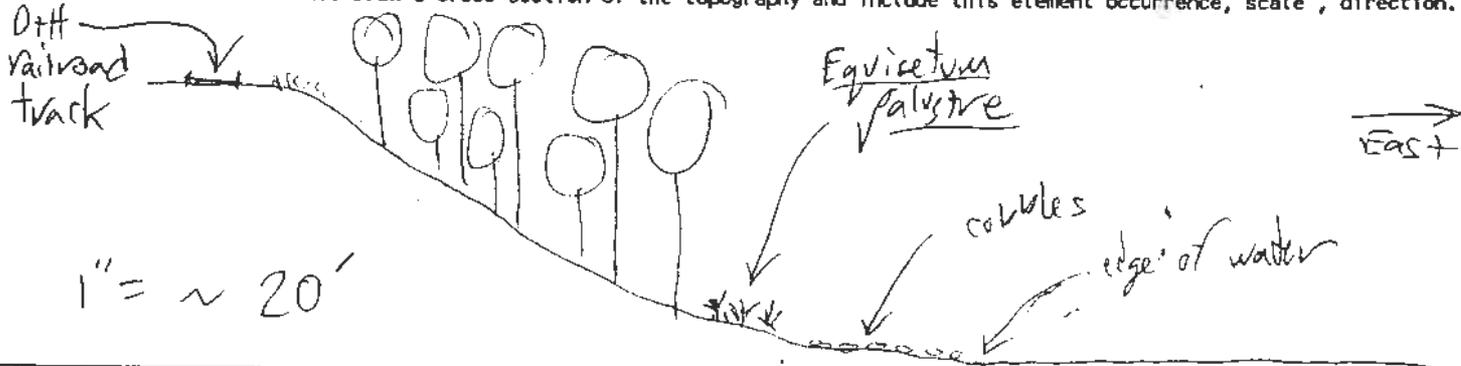
___ Check if habitat sketch is already shown in detail on the "Site Survey Summary" form.



Note: smaller population is similar in configuration but not as long - located 300 yards away.

Scale: 1" = 30'
Lake Champlain

CROSS-SECTION OF TOPOGRAPHY: Draw a cross-section of the topography and include this element occurrence, scale, direction.



HABITAT DESCRIPTION: Describe the specific habitat or microhabitat where this element occurs. Convey a mental image of the habitat and its features including: landforms, aquatic features, vegetation, scenic qualities, slope, aspect, soils, associated plant and animal species, natural disturbances and scenic qualities.

As indicated under directions, there are two genets separated by about 300 yards. Each population is similar in habitat, but not in size. The plants grow along the base of a fairly steep bank, with the leading edge of the plants about 10 feet west of water's edge. The plants are growing out of a mix of cobbles, gravel and sandy, saturated mud along a gentle slope. The bank above (to the west) is unstable, clayey, and subject to erosion - groundwater seeps through the clay, passing through the rooted plant area. Associated vegetation includes *Equisetum arvense*, *Populus deltoides*, *Potentilla anserina*, *Salix interior*, *Acer rubrum* and *Vitis labrusca*. Associated plant species are scattered, the *Equisetum palustre* is moderately dense. Trees located to the west on the slope provide partial shade, leaning out over the lake shoreline. West of the element populations an abandoned hiking trail showing signs of erosion and lack of maintenance. *Lythrum salicaria* individuals are scattered about. Except for the trail and associated stone and brickbat shoring up of the trail, the site has natural shoreline characteristics.

Additional habitat in the immediate area? yes no Explain: similar clay soils with seepage along shore

Associated ecological/plant community: Cobble Shore Wet Meadow

Ecological Community Survey forms completed? yes no If yes: Reconnaissance form Releve form

MANAGEMENT and PROTECTION of this element occurrence

DISTURBANCE TO THIS EO: Describe on-site disturbances (grazing, logging, mining, plantations, ATVs, dumping, exotics).

- Presence of crumbling hiking trail along the bluff base.
- Scattered Purple loosestrife plants

THREATS TO THIS EO: Describe on-site and off-site threats (e.g. planned mall, pollution, changes in hydrology, ATV's, exotics).

- Because of instability of the clay soils west of the plants along the bluff face, the plants could be affected by slumping of the soils.

MANAGEMENT NEEDS FOR THIS EO: Describe management needed (e.g. burn periodically, open the canopy, ensure water quality, control exotics, keep out the ATV's) to ensure continued survival of the EO at this survey site.

Although the *Lythrum salicaria* individuals are far and far between, they are present and a program to kill the plants should be implemented.

PROTECTION NEEDS FOR THIS EO: (Describe legal protection needed to ensure continued survival of the EO at this survey site.)

- site presently owned by Federal govt. - should remain in public ownership

AREAS of survey site in need of protection: (e.g. the entire marsh, the slope and crest of slope, the fen and upland, etc.)

- the steep bluff slope (which serves as a buffer) and the associated shoreline

RESEARCH AND INFORMATION NEEDS FOR THIS EO: (e.g. taxonomic study, demographic study, study effects of browsing)

- keep tabs on *Strobili* development and general plant health.

ELEMENT OCCURRENCE RANK SUMMARY:

The EO Rank Summary is an evaluation of this occurrence compared to the element throughout its range. Please complete the Summary regardless of your range-wide familiarity with this element.

Important: are you familiar with this element throughout its entire global range? yes no unsure. If no or unsure, list those geographic areas of the range with which you do have familiarity (e.g. eastern Long Island, western NY, Catskills, Vermont): _____

Please circle the appropriate rank or rank combinations: A = excellent; B = good; C = marginal; D = poor; ? = unknown.

EO QUALITY (How representative is this occurrence? Consider the size of the occurrence and evidence of successful reproduction.)

A B C D ? Reasons: Not familiar with other populations.

EO CONDITION (Is the habitat supporting the EO pristine/degraded & is there potential for habitat to recover from disturbance?)

A B C D ? Reasons: The site is not pristine, but not particularly degraded either. The populations should be large enough to withstand trampling. Instability of bluff soils could be a problem.

EO VIABILITY (What are the long-term prospects for continued existence of this occurrence at the indicated level of quality?)

A B C D ? Reasons: Chances are good that the two populations can maintain themselves.

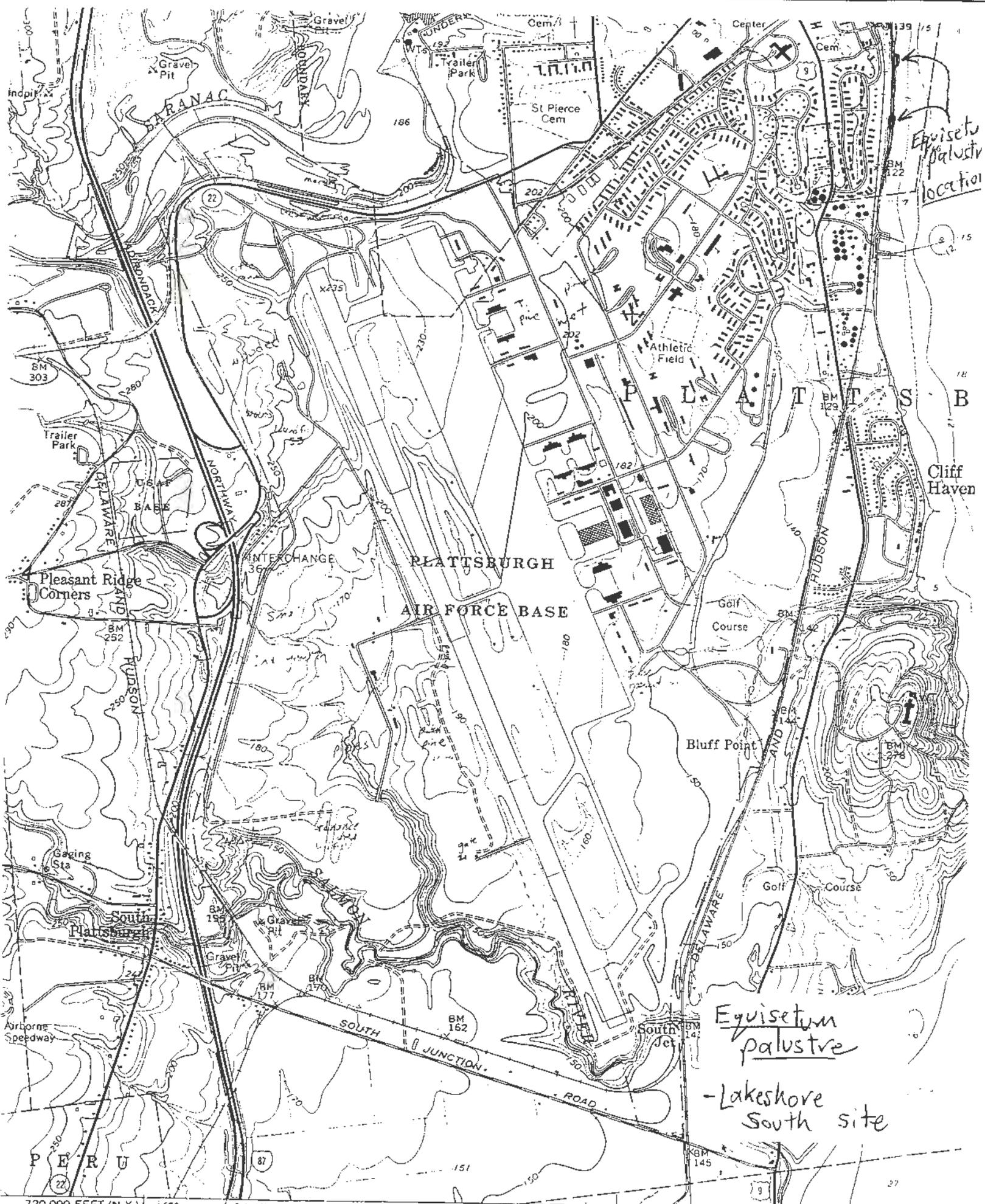
EO DEFENSIBILITY (Can this occurrence be protected from extrinsic human factors?)

A B C D ? Reasons: Yes. The plants are located on protected public property - U.S. Air Force land. Efforts could be made to protect the plants via fencing, for instance, if needed.

EO RANK (Summarize all of the factors listed above)

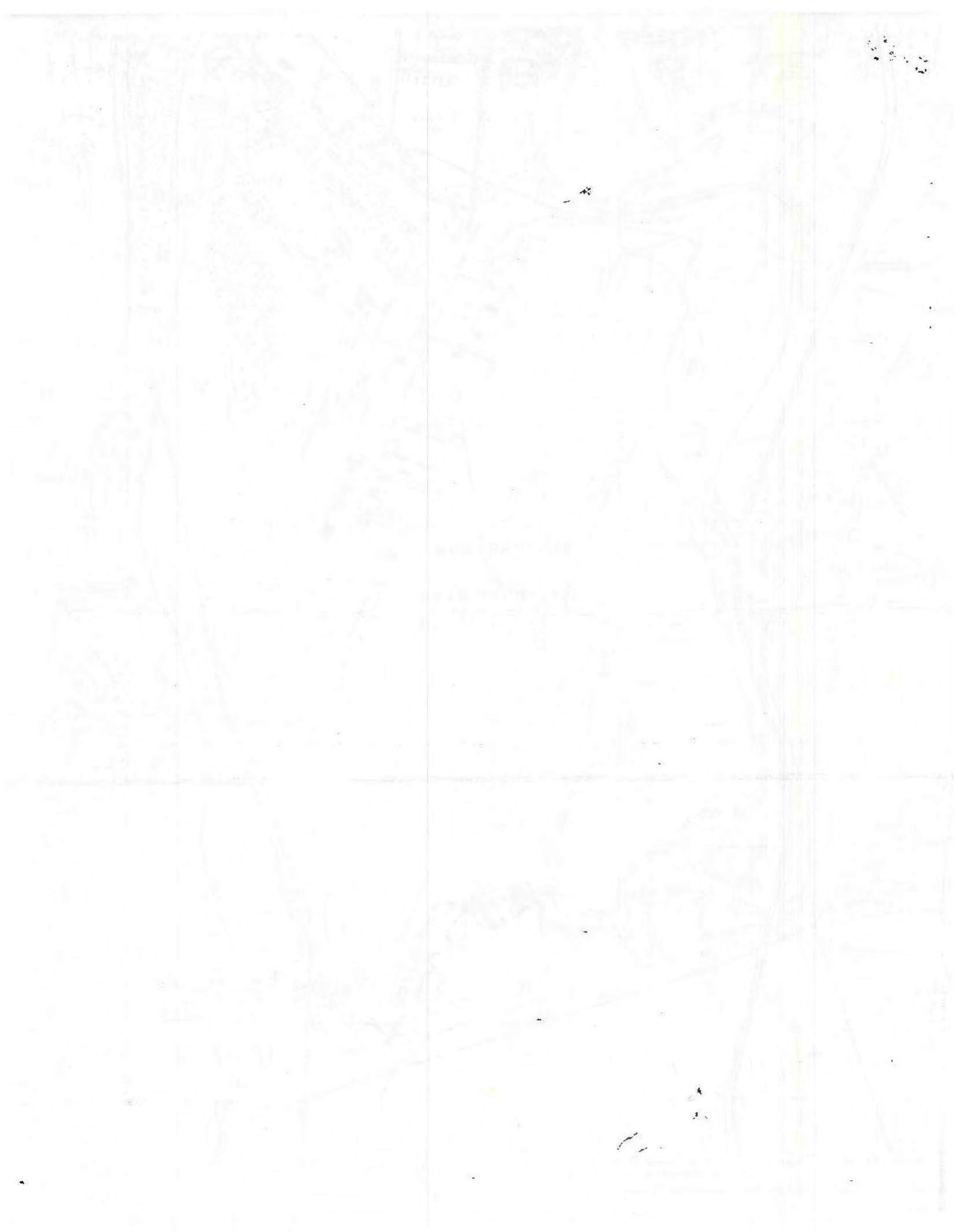
A B C D ? Reasons: The site is located along a shoreline which is undergoing erosion from Lake Champlain - a natural phenomenon. Both populations are healthy and are producing spores. Some evidence of purple loosestrife, but overall a good site.

MISCELLANEOUS COMMENTS



Equisetum palustre location

Equisetum palustre
- Lakeshore South site



WRITTEN DESCRIPTION OF THE SURVEY SITE: DESCRIBE the survey site. Try to convey a mental image of the survey site's features, including vegetation, significant species, aquatic features, notable landforms, natural disturbances, scenic qualities.

This particularly narrow lake shore site lies at the NE corner of the Base. It's bordered fully on the west by the Delaware and Hudson RR tracks, on the north by the Base boundary, on the east by Lake Champlain and on the south by the access road (end of Oklahoma Ave.) to the Base marina and beach. Most of the site is comprised of steep, clayey slopes and narrow, rocky beaches. Mostly of the site heavily wooded, and is dominated by *Populus balsamifera*, *Quercus rubra* and *Populus tremuloides*. A good diversity of woody and herbaceous plants is present, in contrast to the officers club site on the west side of the tracks. Erosion and stumping of the steep bank is evident, owing to the heavy clay soils and the often high waters of Lake Champlain. The site is immediately adjacent to the lake; its wooded character gives it distinctive scenic qualities. Birds noted include: mallard, great-crowned flycatcher, yellow warbler, song sparrow, brown thrasher, loon, killdeer, and hairy woodpecker.

EVIDENCE OF DISTURBANCE: DESCRIBE any unnatural on-site disturbances (e.g. livestock grazing, structures, past logging, mining, plantation/orchards, ATV's, dumping, exotic flora, etc.).

The site remains in good shape despite the presence of the marina at the south end and the railroad ROW and its open character. Exotic flora is there, but it's common only along the top of the bank, near the ROW.

SURROUNDING LAND USE: DESCRIBE physical structures and land use practices in the surrounding area (e.g., residential and commercial buildings; agricultural, recreational, residential and commercial uses):

The base marina/beach lies to the south of the site, forming its border. The railroad track and ROW lie to the west.

THREATS AND MANAGEMENT NEEDS: DISCUSS on-site and off-site threats to the survey site and management implications; if applicable, discuss why sought species/communities may no longer exist here.

Natural erosion processes continue to eat away at the shoreline, which is slowly becoming narrower. Management of the site would be difficult due to this narrowing effect; the bank is very steep, and shore protection would be extremely expensive in order to be effective.

DIRECTIONS TO THE SURVEY SITE and ELEMENT OCCURRENCES: Provide: 1) detailed directions to the survey site. Refer to nearby topographic landmarks, roads and villages to concisely describe the survey site's location; 2) additional directions to describe the location(s) of specific elements within the surveysite, especially if these occurrences would be difficult for someone unfamiliar with this survey site to relocate using only the attached topo map.

From U.S. Route 9 (United States Avenue), enter the old Base at the Gate and take the first right (US oval west). Take Ohio Ave to Oklahoma Avenue. Head east on this road. Cross the railroad track and park in the Marina parking area.

TOPOGRAPHIC BASE MAP (mandatory): Attach (staple) a photocopy of that portion of the USGS 7 1/2 minute topo map(s) showing the survey site and include the following:

1. Indicate precisely the LOCATION of each element occurrence and/or boundaries using solid lines.
2. Identify each element occurrence with the Base Map Code(s) used in the ELEMENT INDEX from page 1.
3. If knowledge permits, draw the PRIMARY and SECONDARY ecological site boundaries:

The PRIMARY ecological site boundary  includes all known element occurrences and lands deemed necessary for the continued viability of the element occurrences.

The SECONDARY ecological site boundary, or "buffer",  includes all lands intended to mitigate future unforeseen negative impacts to the element occurrences.

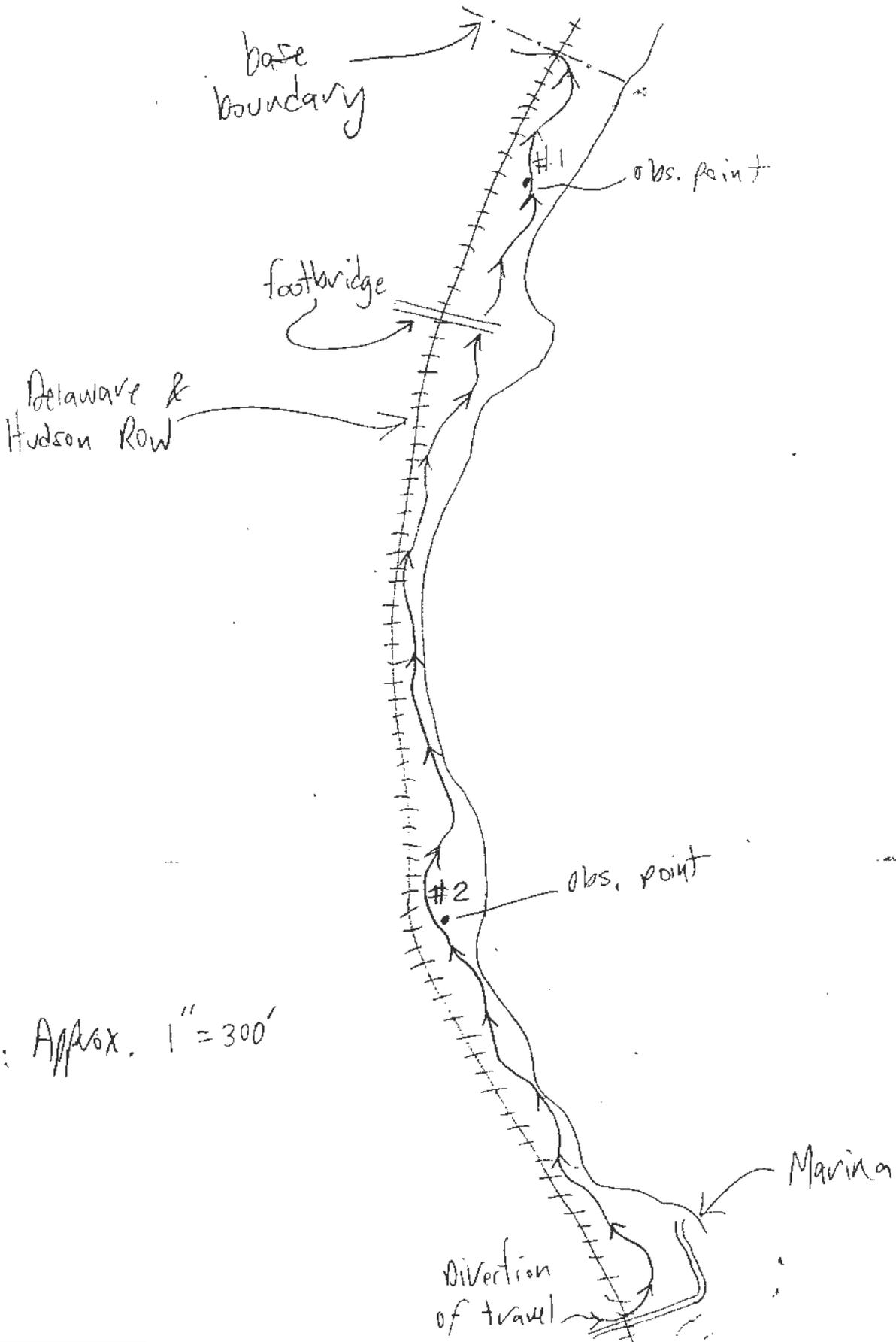
If primary and secondary boundaries coincide, draw the boundaries as 

4. If primary and/or secondary boundaries are drawn, provide justification for the location of these lines.

TRACT OWNERSHIP: (tract ownership, name, address, phone number)

U.S. Air Force

HABITAT MAP: Sketch the fine details of the habitat showing: 1) the route taken, 2) any element occurrences listed in the Element Index, 3) landmarks 4) evidence of disturbance, and 5) any other important features. Include scale and indicate north.



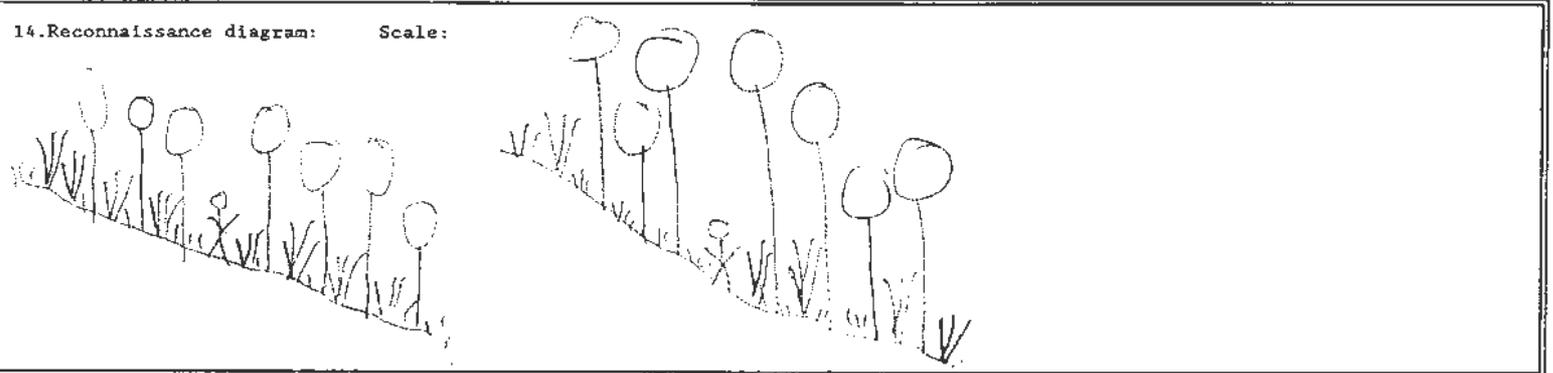


A. Identifiers

1. Site name: _____
 2. Survey site name: Plattsburgh Lakeshore
 3. Quad name(s): Plattsburgh 4. Quad code(s): 4407364
 5. County name(s): Clinton 6. County code(s): _____
 7. Town (LOCAL JURIS): Plattsburgh, City of
 8. Directions: From U.S. Route 9, pass through gate to "old" base. Follow road to bridge over the Delaware + Hudson RR tracks to the base of (recreational) marina. The Marina and access road forms the south end margin of this site.
 9. Source code: F-94-60304 10. Survey date: 1994 .05.25 11. State: NY
 12. Surveyors: Michael Carey

B. Topography

13. Transect A



C. Vegetation / Habitat

15. Observation point 1 <u>A</u>	Observation point 2 <u>A</u>	Observation point 3 _____
Community name: <u>Successional Hardwoods</u>	Community name: <u>late successional Hardwoods</u>	Community name: _____
Additional data: form 2 _____ form 3 _____	Additional data: form 2 _____ form 3 _____	Additional data: form 2 _____ form 3 _____
General description (physiognomy, dom. spp. of tree, shrub, herb, epiphyte layers): This point shows vegetation typical of the habitat, which is a steep wooded slope located between the railroad track and the lake shore. Trees - 80% cover Acer spicatum Populus tremuloides Acer negundo Shrubs - 70% Acer spicatum Prunus virginiana Cornus alternifolia Cornus idaeus Herbs - 60% Pteridium aquilense SSES SPP.	General description: Closer to the south end of the site, the woods here is different in quality from Pt. 1A. Trees are larger, the soils are sandier. The bank is quite steep. Trees - 90% Quercus rubra Acer rubrum Shrubs - 50% Prunus virginiana Cornus rugosa Acer spicatum Herbs - 70% Acalia nudicaulis Smilacina vacillans Carex sp.	General description: _____

Reconnaissance Diagram: Scale:

Observation Point 4__	Observation Point 5__	Observation Point 6__	Observation Point 7__
Community name: _____ _____	Community name: _____ _____	Community name: _____ _____	Community name: _____ _____
Additional data: form 2__ form 3__			
General Description:	General Description:	General Description:	General Description:

OPTIONAL PLANT LIST
NY Natural Heritage Program

5-25-94

Instructions: Use the Site Survey Summary to complete the top section of this form.

SURVEY SITE: Plattsburgh Lakeshore
 QUADCODE: 4407364 (centrum quadcode)
 QUADNAME: Plattsburgh (centrum quadname)
 CHECK ONE: Plant list for the survey site or
 Plant list for a community within this survey site: _____ (community type)

SPECIES LIST: List species observed at this survey site and mark appropriate column(s). For unfamiliar species indicate, for example, "Carex sp." or "grass sp."

SPECIES NAME	TREES		SHRUBS/VINES		HERBS		COLLECTION NUMBER	PHOTO TAKEN? y/n
	dominant	other	dominant	other	dominant	other		
<i>Populus balsamifera</i>	✓							
<i>P. tremuloides</i>	✓							
<i>P. deltoides</i>		✓						
<i>Salix nigra</i>		✓						
<i>Sorbus americana</i>				✓				
<i>Acer spicatum</i>				✓				
<i>Cornus alternifolia</i>				✓				
<i>Prunus virginiana</i>				✓				
<i>Tilia americana</i>		✓						
<i>Alnus rugosa</i>				✓				
<i>Rubus odorata</i>				✓				
<i>Acer saccharinum</i>		✓						
<i>Rubus idaeus</i>				✓				
* <i>Acer platanoides</i>		✓						
<i>Viburnum trilobum</i>				✓				
<i>Toxicodendron radicans</i>				✓				
* <i>Ribes rubrum</i>				✓				
* <i>Lonicera tatarica</i>				✓				
<i>Prunus serotina</i>		✓						
<i>Betula papyrifera</i>		✓						
* <i>Rhamnus cathartica</i>				✓				
<i>Quercus rubra</i>		✓						
<i>Prunus pennsylvanica</i>		✓						
<i>Acer negundo</i>	✓							
<i>Ulmus americana</i>		✓						
<i>Parthenocissus quinquefolia</i>				✓				
<i>Spiraea latifolia</i>				✓				

OPTIONAL PLANT LIST (continued)

SPECIES NAME	TREES		SHRUBS/VINES		HERBS		COLLECTION NUMBER	PHOTO TAKEN? Y/N
	dominant	other	dominant	other	dominant	other		
<i>Fraxinus americana</i>		✓						
<i>Corylus americana</i>				✓				
<i>Corylus amomum</i> sp. <i>amomum</i>				✓				
<i>Fagus grandifolia</i>		✓						
<i>Hamamelis virginiana</i>				✓				
<i>Cornus rugosa</i>				✓				
<i>Diervilla lonicera</i>				✓				
<i>Pinus strobus</i>		✓						
<i>Populus grandidentata</i>		✓						
<i>Amelanchier arborea</i> var. <i>arborea</i>		✓						
<i>Crataegus</i> sp.				✓				
<i>Acer rubrum</i>		✓						
<i>Betula populifolia</i>		✓						
<i>Thuja occidentalis</i>		✓						
<i>Pinus rigida</i>		✓						
<i>Rubus allegheniensis</i>				✓				
<i>Picea glauca</i>		✓						
<i>Comptonia peregrina</i>				✓				
<i>Vaccinium angustifolium</i>				✓				
<i>Equisetum arvense</i>					✓			
* <i>Plantago major</i>						✓		
* <i>Euphorbia cyparissias</i>					✓			
* <i>Lythrum salicaria</i>						✓		
<i>Onoclea sensibilis</i>						✓		
<i>Athyrium asplenoides</i>						✓		
<i>Saxifraga racemosa</i>						✓		
<i>Actaea rubra</i>						✓		
<i>Fragaria vesca</i>						✓		
* <i>Tussilago farfara</i>						✓		
* <i>Rumex obtusifolius</i>						✓		
* <i>Hypericum perforatum</i>						✓		
<i>Fragaria virginiana</i>						✓		
* <i>Daucus carota</i>						✓		
* <i>Taraxacum officinale</i>						✓		
<i>Symplocarpus foetidus</i>						✓		
<i>Matteuccia struthiopteris</i>						✓		

(if additional space is needed, attach another form)

RARE PLANT SURVEY FORM

NY Natural Heritage Program, 700 Troy-Schneckady Road, Latham, NY 12110-2400

phone: (518) 783-3932

INSTRUCTIONS: Write in pencil only, complete 1 form per visit.

QUADCODE(s): 4407364	Heritage Dot# (if known):
QUADNAME(s): Plattsburgh	
SURVEY SITE: Plattsburgh Lakeshore	
TNC SITE NAME (if known):	

ELEMENT INFORMATION

Scientific name: Equisetum palustre	Occ.# (if known):
Revisit to this EO needed? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no Why?: Good coverage of plant populations accomplished	

SURVEYOR INFORMATION

VISIT # 02	SURVEY DATE: 1994-10-01	TIME from: 4:00 to: 5:30	SOURCECODE: F 94C0331
SURVEYORS (principal surveyor first, include first & last names): Michael Covey			

TOPOGRAPHY where this element occurrence is located

Elevation: 100 ft.	Aspect:	Slope:	Light:	Position:	Moisture:
If elevation is a range:	<input checked="" type="checkbox"/> N <input type="checkbox"/> NE <input checked="" type="checkbox"/> E <input type="checkbox"/> NW <input type="checkbox"/> S <input type="checkbox"/> SE <input type="checkbox"/> W <input type="checkbox"/> SW	<input type="checkbox"/> flat <input checked="" type="checkbox"/> 0-10 <input type="checkbox"/> 10-35 <input type="checkbox"/> 35+ <input type="checkbox"/> vertical	<input checked="" type="checkbox"/> open <input checked="" type="checkbox"/> partial <input checked="" type="checkbox"/> filtered <input type="checkbox"/> shade	<input type="checkbox"/> crest <input type="checkbox"/> upper slope <input checked="" type="checkbox"/> lower slope <input type="checkbox"/> bottom	<input type="checkbox"/> inundated <input checked="" type="checkbox"/> saturated (wet-mesic) <input checked="" type="checkbox"/> moist (mesic) <input type="checkbox"/> dry-mesic <input type="checkbox"/> dry (xeric)
Minimum: _____ ft.					
Maximum: _____ ft.					

MANDATORY TOPOGRAPHIC MAP: Attach a photocopy of the appropriate part of the USGS topographic map showing the following:
1) The precise location or the element occurrence and 2) the element occurrence boundary (using solid lines or shading).

Is the full extent of element occurrence known? yes no If no, explain:
Are the precise locations of individuals mapped on attached topo? yes no If no, explain:

IDENTIFICATION

Photograph/slide taken? yes no If yes, has a copy been submitted to NY Natural Heritage Program? yes no
Specimen collected? yes no Collection # and repository: _____
Identification problems? yes no Explain: _____

BIOLOGY AND ECOLOGY of this element occurrence:

PHENOLOGY:	# RAMETS: (# of indiv.)	# GENETS: (# of groups)	AREA of the occurrence: # of square yards if < 1/4 acre	VIGOR:
<input checked="" type="checkbox"/> in leaf	_____	_____	150	<input type="checkbox"/> very feeble
<input type="checkbox"/> in bud	1-10	6	_____ 1/4 - 1/2 acre	<input type="checkbox"/> feeble
<input type="checkbox"/> in flower	11-50	_____	_____ 1/2 - 1 acre	<input type="checkbox"/> normal
<input type="checkbox"/> immature fruit	51-100	_____	_____ 1 - 2 acres	<input checked="" type="checkbox"/> vigorous
<input type="checkbox"/> mature fruit	101-1,000	_____		<input type="checkbox"/> very vigorous
<input type="checkbox"/> seed dispersing	5000? 1001-10,000	_____	If > 2 acres, indicate total estimated acreage:	
<input type="checkbox"/> dormant	10,000 +	_____	_____ acres	
	total estim.#			

STAGE OF LIFE CYCLE SUCCESS	good	fair	poor	none	?	Comments and/or optional sketch of important plant characteristics: strobili were gone at the time of my visit - all genets appeared healthy
reproduction					<input checked="" type="checkbox"/>	
dispersal	<input checked="" type="checkbox"/>					
establishment	<input checked="" type="checkbox"/>					
maintenance					<input checked="" type="checkbox"/>	

Reproduction: ? sexual asexual both Evidence of disease, predation etc: one smallish, dark, inch-long caterpillar spotted feeding on tips of one individual's branch

List any animal pollinators seen on the EO: _____

Do other members of this genus co-occur at this survey site? yes no If yes, complete below:Hybridization? yes no List species: Equisetum arvense

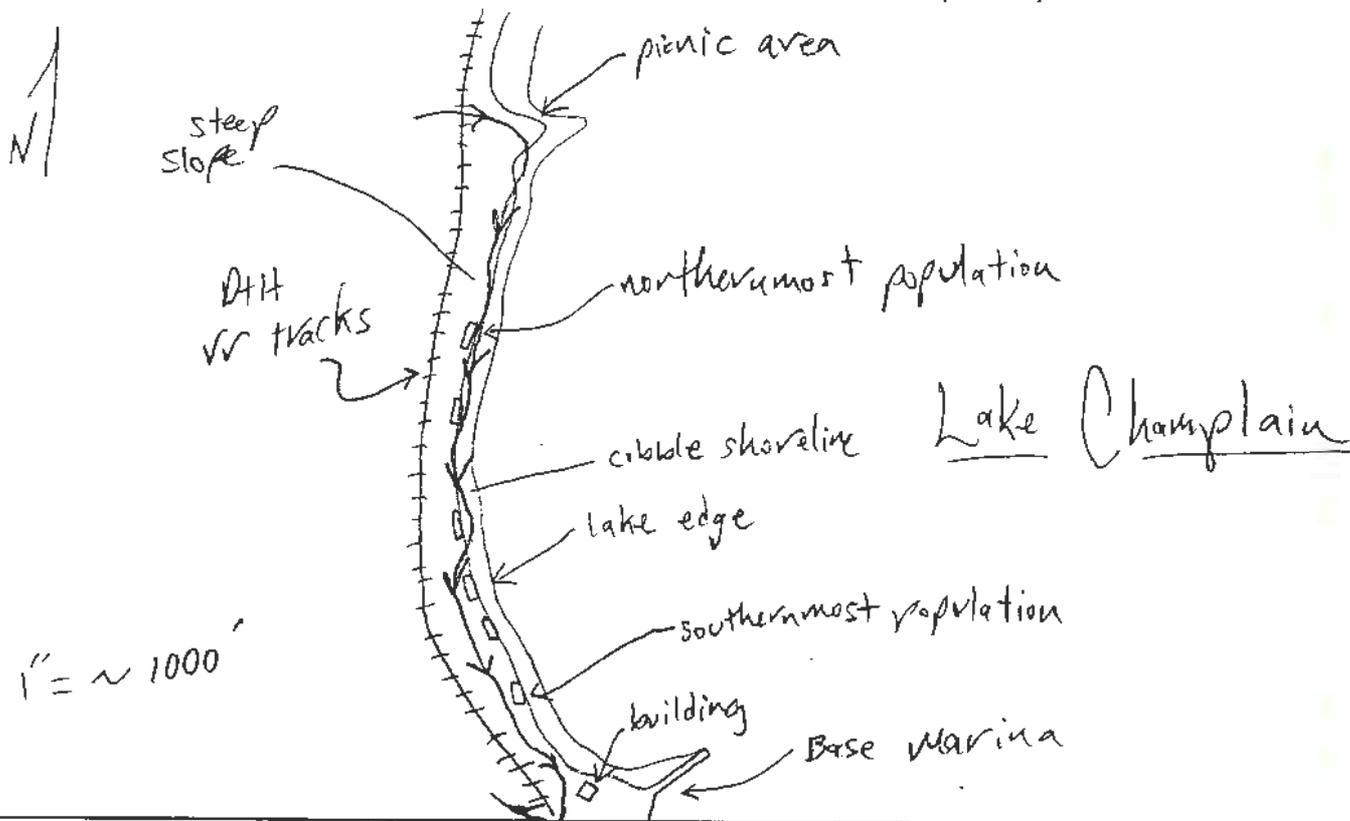
HABITAT OF ELEMENT OCCURRENCE

DIRECTIONS: Provide detailed directions to this element occurrence rather than the surveysite. Refer to nearby landmarks, roads and villages. Include distances, compass directions (North, South etc.)

Approach shoreline side by crossing D+H railroad tracks via pedestrian bridge to picnic area, walk south from picnic area along shoreline. There are six separate populations of these plants along a stretch of shoreline that measures about 1200' long. The most northern patch lies about 1000' south of the picnic area at the base of an old stormwater headwall constructed of limestone. The southernmost patch lies about 300' north of the Base Marina building. The other 4 patches lie in between.

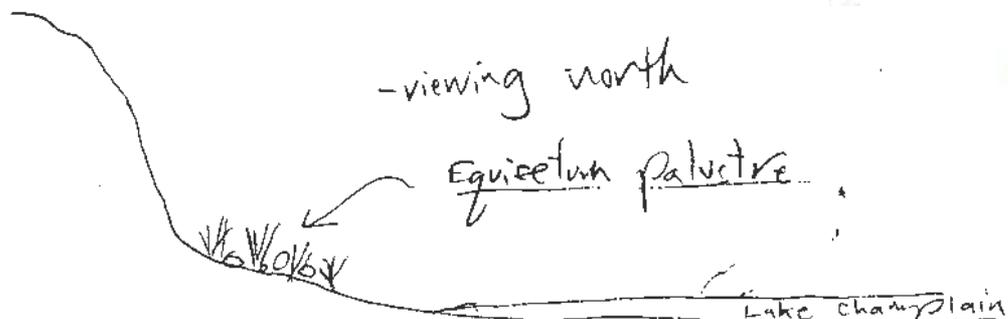
HABITAT SKETCH (mandatory unless already shown in detail on the Site Survey Summary.) Sketch the fine details of an overhead view of this element occurrence showing: landmarks, other important features, route taken, the element occurrence, disturbances & threats, scale, indicate north.

Check if habitat sketch is already shown in detail on the "Site Survey Summary" form.



CROSS-SECTION OF TOPOGRAPHY: Draw a cross-section of the topography and include this element occurrence, scale, direction.

1" = ~ 20'



HABITAT DESCRIPTION: Describe the specific habitat or microhabitat where this element occurs. Convey a mental image of the habitat and its features including: landforms, aquatic features, vegetation, scenic qualities, slope, aspect, soils, associated plant and animal species, natural disturbances and scenic qualities.

Six separate populations of *Equisetum palustre* were observed along the base of a steep slope, between the slope and water's edge. Habitat and conditions were generally very similar to that of the Plattsburgh Lakeshore south side, where two populations of the species were noted (see field Rare Plant Survey Form dated 7-29-94). The six populations were similar in habitat but not in size, ranging from 20' x 10' to 100' x 20' in size. The plants are healthy at each site, growing in saturated mixed sandy and clayey soil among cobbles and boulders along the base of the steep slope that runs the length of the survey site. Associated plant species include *Lythrum salicaria*, *Botanilla anserina*, *Echinochloa muricata* var. *microstachya*, *Equisetum arvense*, *Solanum dulcamara* and *Eleocharis obtusa*. Patches of *Equisetum palustre* plants vary in exposure from fully exposed to mostly shaded by overhanging trees. The site is mostly a naturally eroding shoreline. The northern area of the survey site is characterized by exposed bedrock.

Additional habitat in the immediate area? yes no Explain: other seepage areas along slope base

Associated ecological/plant community: cobble shore wet meadow

Ecological Community Survey forms completed? yes no If yes: Reconnaissance form Releve form

MANAGEMENT and PROTECTION of this element occurrence

DISTURBANCE TO THIS EO: Describe on-site disturbances (grazing, logging, mining, plantations, ATVs, dumping, exotics).

Along several sections of the bank, large stones used as riprap shore protection have been dumped from above

THREATS TO THIS EO: Describe on-site and off-site threats (e.g. planned mall, pollution, changes in hydrology, ATV's, exotics).

Threats are mostly from the very erodible soils along the bank - a number of bad soil slumps that have recently occurred are evident - potential plant burial

MANAGEMENT NEEDS FOR THIS EO: Describe management needed (e.g. burn periodically, open the canopy, ensure water quality, control exotics, keep out the ATV's) to ensure continued survival of the EO at this survey site.

Tough one - Most potential disturbance is from natural erosion from the lakeside and slumping soils from the landward side. If possible, the steep slopes in the vicinity of the plant populations could be stabilized

PROTECTION NEEDS FOR THIS EO: (Describe legal protection needed to ensure continued survival of the EO at this survey site.)

Property is owned by federal government - legal protection assumed

AREAS of survey site in need of protection: (e.g. the entire marsh, the slope and crest of slope, the fen and upland, etc.)

The cobble beach and the steep slope up to the railroad grade

RESEARCH AND INFORMATION NEEDS FOR THIS EO: (e.g. taxonomic study, demographic study, study effects of browsing)

- environmental conditions of the site such as nature of substrate and seepage groundwater - pH of substrate, soil nutrients, etc.

ELEMENT OCCURRENCE RANK SUMMARY:

The EO Rank Summary is an evaluation of this occurrence compared to the element throughout its range. Please complete the Summary regardless of your range-wide familiarity with this element.

Important: are you familiar with this element throughout its entire global range? yes no unsure. If no or unsure, list those geographic areas of the range with which you do have familiarity (e.g. eastern Long Island, western NY, Catskills, Vermont): _____

Please circle the appropriate rank or rank combinations: A = excellent; B = good; C = marginal; D = poor; ? = unknown.

EO QUALITY (How representative is this occurrence? Consider the size of the occurrence and evidence of successful reproduction.)

A B C D ? Reasons: Hard to say. I'm not familiar with the range, typical habitat, or other environmentally related aspects of this species.

EO CONDITION (Is the habitat supporting the EO pristine/degraded & is there potential for habitat to recover from disturbance?)

A B C D ? Reasons: Not particularly degraded in terms of human disturbance, but the slumping, unstable soils and location adjacent to Lake Champlain and its storm waves puts the plants at a disadvantage

EO VIABILITY (What are the long-term prospects for continued existence of this occurrence at the indicated level of quality?)

A B C D ? Reasons: Good, as long as the steep slopes can withstand the tendency to slump and collapse - the populations have the potential for burial.

EO DEFENSIBILITY (Can this occurrence be protected from extrinsic human factors?)

A B C D ? Reasons: Yes - the property is owned by the U.S. Airforce - fencing the sites is possible.

EO RANK (Summarize all of the factors listed above)

A B C D ? Reasons: The six separate populations are healthy and not in imminent danger from human influence. The major potential disturbance along the slope is from unstable soils.

MISCELLANEOUS COMMENTS

These may not be typical habitat conditions for this species, but each population appears healthy.



Picnic area

Equisetum
palustre
patches

Base Marina

Equisetum
palustre

