Field Report for New Hampshire
Albany NE, Glens Falls SE,NE, Portland NE,SE,NW
October 26-30, 1987

I. Introduction:

A) Study area

1. Location: The areas checked on this trip cover southwestern and central New Hampshire from the Maine border at roughly 71°W longitude to the Connecticut River at roughly 72°15'W longitude and from 44°N latitude to the Massachusetts border at roughly 42°45' N. latitude.

2. Bailey's Ecoregions: The work area is located in the Northern Hardwoods-Spruce Forest Section of the Laurentian Mixed Forest Province (2114) as described by Bailey (1978). The topographic relief is moderate with abundant lakes and poorly drained depressions. The average winter temperature at Lebanon, in Grafton County, is 20°F while the average summer temperature is 66°F. The average annual precipitation at Lebanon is 35" with roughly 55% of this falling during April through September.

3. Major Drainages: The Sugar River, Mascoma River and Ashuelot River drain into the Connecticut River while the Contoocook, Baker, and Pemigewasset Rivers drain into the Merrimack and the Saco River drains into the Atlantic Ocean at Saco, Maine.

4. 1:100,00 Work Areas: Albany NE; Glens Falls NE,SE; Portland NE, NW.

B) Personnel:

1. Contractor
   Massachusetts Remote Sensing Project
   Glenn Smith
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2. U.S. Fish and Wildlife Service, Region 5
   William Zinni, Jr. (10/26-27/87)
   John Anderson (10/27-10/29/87)
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3. U.S. Fish and Wildlife Service, Region 5, Concord Office
   Laura Eaton (10/26-27/87)

4. U.S.D.A. Soil Conservation Service
   Henry Mount (10/26/87)

5. U.S. Environmental Protection Agency, Boston Office
   Mark Curran (10/26/87)

6. State of New Hampshire,
   Wetlands Board,
   Dept. Environmental Services
   Gino Infascelli (10/29/87)

C) Field trip Dates: October 26-30, 1987

D) Aerial Photography:
   Emulsion - Color Infrared
   Scale - 1:58,000
   Dates of photography - 4/17/85, 3/31/86, 5/13/86

E) Collateral Data
   U.S.G.S. topographic maps
   Bailey, R.G. 1978. Description of the Ecoregions of the United States. U.S.D.A. Forest Service
   Soil Surveys, U.S.D.A. Soil Conservation Service, for the following counties:
      Belknap (1968)
      Cheshire and Sullivan (1949)
      Sullivan (1983)

## II. Field trip Objectives

In general, to correlate photographic signatures with field observations of dominant vegetative communities and various water regimes in both early and late spring photography.

Specifically:

1) To determine if the red forest canopies in floodplain locations consisted of leafed- out deciduous, or evergreen trees.

2) To determine if extensive areas of PF04 were saturated or seasonally flooded/saturated.

3) To determine if smooth, light white and pink signatures were upland or wetland on the leafed-out (5/13/86) photography.

## III. Results

In general, the phtographic signatures corresponded well with the water regimes we expected to find in the field. Almost half of the photography in these areas is the leafed-out (5/13/86) imagery. This will present some difficulties during photointerpretation in determining the subclass in forested wetlands and appropriate water regimes in emergent areas.

A) FORESTED WETLANDS

1) Temporarily flooded, broad-leaved deciduous forested wetlands (PF01A) were relatively common and found almost exclusively adjacent to rivers and streams. Since the signatures were very light, evidence such as flood scouring, meander scars and

intermittent channels within the forested area should be used to distinguish these wetlands from the adjacent upland floodplains (sites #6,9A,20,28,29). NOTE: If these areas are downstream of flood control dams, extra caution should be used in classifying borderline areas. Some areas which historically were temporarily flooded, may now be upland due to the dams upstream. Presence of white pine interspersed in these areas indicates that the area probably is now upland. (sites #9A,9B,10)

2) Seasonally flooded, broad-leaved deciduous wetlands (PF01C) were not common and only one was check sited. They probably do occur along some of the larger rivers, especially in impounded areas upstream from flood control structures. (site #1B)

3) Seasonally flooded/saturated, broad-leaved deciduous wetlands (PF01E) were commonly found in association with beaver modified areas and in extensive areas adjacent to lakes and along broad stream drainages.

4) Saturated, needle-leaved evergreen wetlands (PF04B) were common and often will have a dense, even age canopy of dark red, purple or pink/red crowns. These wetlands were often times large basins at the beginning of drainages or were the source of a drainage. These areas generally had pronounced microtopography and no evidence of flooding. (sites #7B, 12, 16B) One site (#21B) had 3-4 foot microrelief and was located at the bottom of a gentle slope and drained into an adjacent stream.

5) Seasonally flooded/saturated needle-leaved evergreen wetlands (PF04E) were fairly common and will have a similar signature to the saturated areas. These areas may be distinguished from the PF04B areas by their hydrologic location. The PF04B classification should be reserved for those areas at the beginning of drainages, the source of a drainage or in true bog areas. The PF04E classification should be used in areas that are lower (hydrologically) in the drainage. (site #26)

6) Needle-leaved deciduous trees (PF02) were found interpersed with PF04 and PF01 trees in boggy type areas, but were not dominant in any check sites areas. They will be mapped with the PF01 in most areas since they can't be distinguished from the F01 signature with accuracy.

7) Dead trees (PF05) were found in areas impounded by roads and beaver and commonly had an emergent understory in older beaver impoundments. (sites #19C, road side check near #7)

B. SHRUB WETLANDS

1) Saturated deciduous, scrub/shrub wetlands (PSS1B) were not common but do occur in some of the true bog areas. Check site #7A is a PF04B area that has been clearcut for a powerline and has revegetated with deciduous shrubs.

2) Saturated evergreen scrub/shrub wetlands (PSS3/2Ba) were

relatively common. Leatherleaf dominated these areas but was commonly mixed with Myrica gale and other deciduous shrubs. Most saturated areas with an orange scrub/shrub signature probably are mixed with deciduous shrubs and should be classified as PSS3/1Ba. (site #15)

3) Seasonally flooded, broad-leaved deciduous scrub/shrub wetlands (PSS1C) were not common, but were found along some of the more well drained stream sides. (sites #2,22,23A,B)

4) Seasonally flooded/saturated, broad-leaved deciduous scrub/shrub (PSS1E) wetlands were found commonly in meander scars, along streams, behind beaver dams and in extensive swamp areas. It was commonly mixed with emergents and generally had a well defined signature. (sites #3,8,11,18,19,24)

5) Semipermanently flooded, deciduous scrub/shrub wetlands (PSS1F) were not common but were found along slow moving streams and in beaver modified areas. (site #14, roadside check in Portland NW-Plymouth quad.). These signatures will be very dark due to dense vegetation with standing water underneath.

C. EMERGENT WETLANDS

1) Temporarily flooded persistent emergent wetlands (PEM1A) were not common but two were check sited. Site #4A had a light pink drainage-shaped signature in a mowed field. Site #17 had a light pink/white smooth signature which was grazed heavily. This area appeared to be in transition form upland to wetland due to beaver influence. It will not be possible to distinguish many of these borderline emergent areas from upland fields in the late spring photography.

2) Seasonally flooded, persistent emergent wetlands (PEM1C) were not common but probably do occur along small streams. (site #21C)

3) Seasonally flooded/saturated persistent emergent wetlands (PEM1E) were commonly found in extensive marshes, impounded areas, beaver influenced areas and were commonly mixed with deciduous shrubs. (sites #4B,5,13,17,27,30A). Most well defined emergent areas should be classified as PEM1E.

4) Semipermanently flooded, persistent emergent wetlands (PEM1F) were not commonly found but do occur in large impoundments, along lake shores and in beaver impoundments. The signatures are usually dark, mottled gray. (sites #1,8A)

IV. Summary

The field observations indicate that, in general, the various wetlands encountered on this trip are associated with distinct signatures. Caution must be used in delineating borderline forested areas along streams and rivers. The presence of conifers indicates that the area probably does not flood frequently, based on field observations.

The saturated water regimes should generally be reserved for seeps on slopes and true "bog" areas.

The hydrologic location of some of the coniferous wetlands field checked indicated that the areas were connected with a ground water source and due to the topographic location, did not flood. In these cases, it is appropriate to use the "saturated" water regime rather than the "seasonally flooded/saturated" regime.

The leafed-out (5-13-86) photography, will present some problems during photointerpretation, especially in emergent areas. Since both the uplands and wetlands are showing new spring growth on this imagery, the upland-wetland boundaries as well as water regimes may be difficult to determine. The field conditions showed that most areas appearing light pink, light red, and white that looked as if they might be wet, generally were at least seasonally flooded and more commonly, seasonally flooded/saturated.

Very few non-persistent emergents and aquatic beds were observed during the October field trip and are infrequent on the spring photography, therefore, little will be mapped.

Strip 8 of Portland NE (along the New Hampshire/Maine border) will be very difficult to complete. This entire strip shows ice on most water bodies and wet areas, resulting in white glare obscuring all vegetation or making water regime decisions a "guess" at best. The northern photos have enough snow and ice cover to make accurate photointerpretation nearly impossible.

## Topographic Index to Checksites

| | |
|---|---|
| **Albany NE** | |
| Brattleboro 15' | 1,2,30a,30b |
| Monadnock 15' | 3,4a,4b,5,6a,6b,7a,7b |
| Keene 15' | 8a,8b,9a,9b,10a,10b |
| **Glens Falls SE** | |
| Bellows Falls 15' | 11,12 |
| Lovewell Mountain 15' | 13,14,15,16,17a,17b |
| **Glens Falls NE** | |
| Hartland 7.5' | 18 |
| North Hartland 7.5' | 19,20 |
| Mascoma 15' | 21a,b,c |
| Piermont 7.5' | 22 |
| **Portland NW** | |
| Squam Mountains 7.5' | 23a,b |
| Holderness 15' | 24,25,26 |
| Newfound Lake 7.5' | 27 |
| Rumney 7.5' | 28 |
| Warren 7.5' | 29 |

## Wetland Communities

### Albany NE

Site 1. A) PEM1Fh. Typha latifolia dominant with Lythrum salicaria and Onoclea sensibilis common.

B) PFO1/SS1Ch. Salix nigra dominant. Alnus rugosa common.

Site 2. A) PSS1C. Spiraea latifolia is dominant and Sphagnum spp., Salix nigra, Thelypteris thelypteroides, and Juncus effusus are common.

B) Upland. Andropogon sp. dominant. Pinus strobus and Vaccinium sp. common.

Site 3. PSS1E. Alnus rugosa dominant. Onoclea sensibilis, Solidago sp., Spiraea sp. and Salix nigra common.

Site 4. A) PEM2A. Mixed community including mowed grasses, Phalaris arundinacea, Carex sp., Juncus effusus, and Taraxacum sp.

B) PEM1E. Calamagrostis canadensis dominant and Spiraea tomentosa, Juncus effusus, Phalaris arundinacea, and Scirpus cyperinus common.

Site 5. PEM2E. Typha latifolia dominant with Calamagrostis canadensis, Carex sp., Spiraea sp., and Solidago sp. common.

Site 6. A) PFO1A. Mixed community including Fraxinus americana, Populus tremuloides, Prunus serotina, Carpinus caroliniana, and Quercus sp. Solidago sp. is common.

B) R3UBH

Site 7. A) PSS1B. Dominant species are Betula populifolia and Acer rubrum. Vaccinium corymbosum, Picea rubens, Cornus canadensis, Rubus hispidus, Gaultheria procumbens, and Sphagnum sp. are common.

B) PFO4B. Abies balsamea and stunted Picea rubens are dominant. Rubus sp., Coptis groenlandica, and Dryopteris sp. are common, with Sphagnum sp. common in open areas.

Site 8. A) PEM2Fb. Mixed community of Calamagrostis sp. and Carex spp. Cephalanthus occidentalis is less common.

B) PSS1E. Mixed community of Cephalanthus occidentalis, Alnus rugosa, and Vaccinium corymbosum.

Site 9. A) PFO1A. Mixed community including Acer rubrum, Carpinus caroliniana, Tsuga canadensis, Betula lutea, and Quercus rubra.

B) Upland. Mixed community including Tsuga canadensis and Pinus strobus.

Site 10. A) PUBH. Pontedaria sp. is dominant.

B) Upland. Acer rubrum is dominant. Prunus serotina, Quercus rubra, Osmunda regalis, and Lycopodium obscurum are common.

Site 30. A) PEM2E. Phalaris sp. is dominant with Carex sp. and Solidago sp. common.

B) PSS1E. Alnus rugosa is the dominant species with Rhamnus frangula and Phalaris sp. common.

Glens Falls SE

Site 11. A) PSS1/EM1Eb. Alnus rugosa is dominant. Common plants include Acer rubrum, Rubus sp., Typha latifolia, Carex sp. and Sparganium sp. are common.

B) Upland Solidago sp. is dominant. Unidentified grasses are common.

Site 12. PFO4B. Mixed community including Picea rubens, Tsuga canadensis, Sphagnum sp., and Gaultheria hispidula.

Site 13. PEM1E. Calamagrostis sp. is dominant. Juncus canadensis, Carex sp., Cornus amomum and unidentified grasses are common.

Site 14. A) PEM1E. Calamagrostis sp. is dominant. Salix sp., Myrica gale, Spiraea latifolia and Osmunda regalis are common.

B) PSS1F. Cephalanthus occidentalis is dominant. Rosa sp., Salix sp. and Typha latifolia are common. Osmunda regalis is common on hummocks.

Site 15. PSS3/2Ba. Chamaedaphne caliculata and Larix laricina are dominant with Abies mariana, Pinus strobus, dead trees, Sphagnum sp., and Vaccinium corymbosum common.

Site 16. PSS4/FO4B. Picea mariana and Abies balsamea are dominant. Common plants include Acer rubrum, Ilex verticillata, Sphagnum sp., Carex sp. and Osmunda regalis.

Site 17. A) PEM1E. Carex sp. and Solidago sp. are dominant. Spiraea sp. is common.

B) PEM1A. Carex sp. is dominant and Spiraea sp. and Juncus sp. are common.

Glens Falls NE

Site 18. PSS1E. A binocular check showed Alnus rugosa and Cornus sp. dominant and Acer rubrum, Typha sp. Carex sp., and unidentified brown vines common.

Site 19. A) PABH. This area is dominated by unidentified submergents.

B) PEM1/SS1Eb. Juncus effusus and Scirpus cyperinus are dominant, with Cornus sp., Corex sp., Solidago sp., and unidentified upland grasses are common.

C) PFO5Eb. Dead Pinus strobus is dominant.

D) R3UBHx

Site 20. PFO1A. Mixed community including Acer saccharum, Franxinus sp., and Quercus spp.

Site 21. A) PSS1/EM1E. Area is dominated by Myrica gale and Carex sp. Solidago sp. is common.

B) PFO4B. Mixed community of Abies balsamea, Picea mariana, Pinus strobus and Tsuga canadensis.

C) PEM1C. Carex sp. is dominant with Iris sp. and Solidago sp. common.

Site 22. PSS1/EM1C. Alnus rugosa is dominant and grazed Phalaris sp. and other grazed grasses are common.

Portland NW

Site 23. A) PSS1/EM1C. Alnus rugosa is dominant and common plants are Spiraea sp., Rubus sp., Solidago sp., and Phalaris arundinacea.

B) PSS1C. Alnus rugosa is dominant with Carex spp. common.

Site 24. PSS1/EM1E. Alnus rugosa is dominant and Carex sp., Spiraea tomentosa, and Spiraea latifolia are common.

Site 25. Upland. Spiraea tomentosa, Spiraea latifolia, Cornus sp., and unidentified grasses are common.

Site 26. PFO4E. Abies balsamea and Tsuga canadensis are dominant in the overstory while Taxus canadensis is dominant in the understory. Some common plants are Betula lutea, Fraxinus pennsylvanica, and Dulichium arundinaceum.

Site 27. PEM1E. Common plants include Spiraea tomentosa, Scirpus cyperinus, Juncus effusus, and Solidago sp.

Site 28. PFO1A. Mixed community including Prunus serotina, Quercus sp., Ulmus sp., Fraxinus sp., Vitis sp. and Osmunda regalis.

Site 29. PFO1A. Fraxinus americana, Fraxinus pennsylvanica, and Acer rubrum are dominant.