USGS-NPS Vegetation Mapping Program
Voyageurs NP Vegetation Mapping Project
Field Photo Album
September 2000

The Voyageurs National Park Vegetation Mapping Project is part of the USGS-NPS Vegetation Mapping Program, which is managed by the USGS Center for Biological Informatics (CBI). The USGS Upper Midwest Environmental Sciences Center (UMESC), The Nature Conservancy (TNC), Minnesota County Biological Survey (MCBS) of the Minnesota Department of Natural Resources, and Voyageurs National Park invested three field seasons to collect field data in support of the project. Along with these field efforts, numerous ground photographs were collected to capture representative map units, vegetation communities, and various field activities. Along with these field efforts, numerous ground photographs were collected to capture representative Map Units, Vegetation Communities, and various field activities.

Paper Birch Forest on Deer Point Islands

- UMESC field reconnaissance and aerial photo ground survey activities to support map unit and vegetation community classification development, and to support vegetation photo interpretation.
- TNC/MCBS vegetation plot and accuracy assessment field activities to support vegetation community classification development and vegetation map accuracy assessment and analysis.
- All ground photos were collected during spring 1996 - fall 1998.

Many of the ground photographs have been scanned and made digitally available.

* Key to Photo Credits

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Reconnaissance on Kawawia Island

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Figure 2-4. Oblique View of Cranberry Bay

Figure 3-17. View from Dryweed Island – Canada in foreground.

Figure 2-20. Finding the best route. Recon #25; SF – Spruce-Fir/Mountain Maple Mesic Forest.

Figure 6-18. Established trails at Voyageurs NP are uncommon locator Lake Trailhead – Cranberry Creek Portage Trail.

Figure 8-17. Recon crew climbing rocky ridge; Shores of Junction Bay. JPW – Boreal Pine Rocky

Figure 5-9. Boating; the most effective means of transportation at VOYA.

Figure 9-3. Boating; the most effective means of Transportation at VOYA.

Figure 7-12. Releve' within the Cattails. CM - Midwest Cattail Deep Marsh.

Figure 9-5. Overnight stay at Grassy Bay camp site.

Figure 2-2. Discussing fly over plan at Frank Bay - Rainy Lake pilot Ron Hook (NPS) & Kevin Hop (USGS UMESC).

Figure 2-7. Cramped quarters within the float plane.

Figure 2-14. Float plane for park fly over.

Figure 2-12. Don Faber-Langendoen (TNC) boarding float plane near Duckfoot Island - Saginaw Bay.

Figure 2-28. Field crew explores forest on Kawawia Island – Rainy Lake. Recon #31; RP - Red Pine/Blueberry Dry Forest.

Figure 8-4. Surveying a forest on Deer Point Islands – Kabetogama Lake. Recon #43; PB - Paper Birch/Fir Forest.

Figure 7-25. Ecologists discussing forest classification round Bear Island - Kabetogama Lake.

Figure 8-10. Surveying wetland near Deer Point Islands - Kabetogama Lake. Recon #45; DS - Dogwood-Pussy Willow Swamp.

Figure 5-25. Releve' team collecting vegetation plot data. Recon #37; TA – Northern Tamarack Rich Swamp.

Figure 5-17. Releve' team taking advantage of an old logging trail. BSB – Black Spruce Bog.

Figure 7-11. CM – Midwest Cattail Deep Marsh.

Figure 9-9. Collecting vegetation plot data via boat. WRM – Wild Rice Marsh.

Figure 2-36. Recon team exploring a large beaver Impoundment inland south of Kempton Channel - Rainy Lake.

Figure 8-5. Collecting field data on Deer Point Islands - Kabetogama Lake. Recon #43; PB -Paper Birch/Fir Forest.

Figure 9-6. JPF – Jack Pine/ Balsam Fir Forest.Veg plot #115; west of Crane Lake.

Figure P112a. JPF – Jack Pine/ Balsam Forest.Veg plot #112; west of Blind Ash Bay - Kabetogama Lake.

Figure P136b. JPF – Jack Pine/ Balsam Forest. Veg plot #136; Namakan Lake shores - Kabetogama Peninsula.

Figure 5-13. RP – Red Pine/Blueberry Dry Forest. Blind Ash Bay trail.

Figure 3-23. RP – Red Pine/Blueberry Dry Forest. Dryweed Island – Rainy Lake.

Figure 7-18. WP – White Pine/Mountain Mesic Maple Forest. Mature pine stand; north of Mica Bay.

Figure P42a. WP – White Pine/Mountain Mesic Maple Forest. Veg plot #42; Kabetogama Peninsula near Sucker Creek.

Figure P110. SF – Spruce-Fir/ Mountain Maple Forest. Veg plot #110.

Figure 2-34. BSF – Black Spruce/Feathermoss Forest. Kawawia Island – Rainy Lake.

Figure 2-16. BSF - Black Spruce/Feathermoss Forest. Recon #21; Saginaw Bay area - Rainy Lake.

Figure 4-13. BSF - Black Spruce/Feathermoss Forest. Transition zone between wetland & upland forests.

Figure 2-31. BSF - Black Spruce /Feathermoss Forest. Kawawia Island – Rainy Lake.

Figure 4-19. WCU – White Cedar-Boreal Conifer Mesic Forest. Recon #35; near Cranberry Lake camp site.

Figure 8-19. WCU – White Cedar-Boreal Conifer Mesic Forest. Small stand on side of hill; Junction Bay – Namakan Lake.

Figure 8-21. WCU – White Cedar-Boreal Conifer Mesic Forest. Recon #47; Adjacent Johnson River - Junction Bay.

Figure 8-20. WCU – White Cedar-Boreal Conifer Mesic Forest. Small cedar stand as seen in picture 8-19.

Figure 5-18. BSB – Black Spruce Bog. Between Black Bay & Cranberry Bay.

Figure 2-21. BSL – Black Spruce /Labrador Tea Poor Swamp (evergreen phase). Recon #32; dense forest canopy with sedge understory.

Figure 6-6. BSL – Black Spruce/ Labrador Tea Poor Swamp (evergreen phase). Unique stand with Jack Pine as dominant emergent tree.

Figure 7-8. BSL – Black Spruce /Labrador Tea Poor Swamp (evergreen phase). Large peatland with Labrador Tea, Sedges & Sphagnum.

Figure 6-7. BSL – Black Spruce /Labrador Tea Poor Swamp (evergreen phase). Labrador Tea & Sphagnum.

Figure 8-16. BO – Northern Bur Oak Mesic Forest. Recon #46; Chief Wooden Frogs Islands - Kabetogama Lake.

Figure P106. BO – Northern Bur Oak Mesic Forest. Veg plot #106; Moose Bay area – Namakan Lake.

Figure 8-2. Recon # 43; Deer Point Islands - Kabetogama Lake.

Figure 4-21. BA – Black Ash-Mixed Hardwood Swamp. Closed canopy forest; near Cranberry Bay camp.

Figure 3-16. BA – Black Ash-Mixed Hardwood Swamp. Open canopy forest bordering a peatland.

Figure 5-26. TA – Northern Tamarack Rich Swamp. Recon #37; with Labrador Tea, Sedges, & Sphagnum.

Figure 7-7. TA – Northern Tamarack Rich Swamp with Alder shrubs.

Figure P58. SFA – Spruce-Fir-Aspen Forest. Veg plot #58; Kabetogama Peninsula near Cutover Island.

Figure 6-13. SFA – Spruce-Fir-Aspen Forest (Alliance). White Spruce-Balsam Fir-Aspen Association. Along Cranberry Creek Portage Trail.

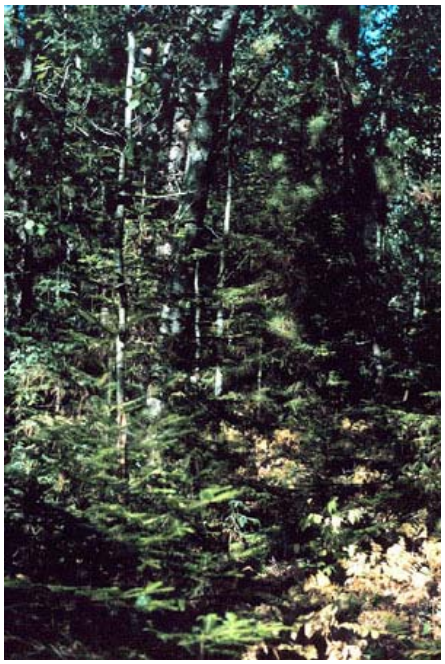

Figure P100. WRPA – White Pine-Red Pine-Quaking Aspen-Birch Forest (Alliance). Veg plot #100; White Pine-Aspen-Birch Association.

Figure P56. WRPA – White Pine-Red Pine-Quaking Aspen-Birch Forest (Alliance). Veg plot #56; White Pine-Aspen-Birch Association.

Figure 1-21. WRPA – White Pine-Red Pine-Quaking Aspen- Birch Forest (Alliance). Red Pine -Aspen-Birch Association.

Figure P186a WCA – White Cedar-Yellow Birch Forest. Veg plot #186; inland SE of Daley Bay.

Figure 7-24. WCBA – White Cedar-Black Ash Swamp. Recon #42; Round Bear Island.

Figure 7-23. JPW – Boreal Pine Rocky Woodland (jack pine phase).

Figure 4-6. JPW – Boreal Pine Rocky Woodland (jack pine phase). Shores of Saginaw Bay - Rainy Lake.

Figure 4-7. JPW – Boreal Pine Rocky Woodland (jack pine phase). Inland west of Saginaw Bay - Rainy Lake.

Figure 4-8. JPW – Boreal Pine Rocky Woodland (jack pine phase).

Figure 4-10. Recon #34; inland west of Saginaw Bay – Rainy Lake.

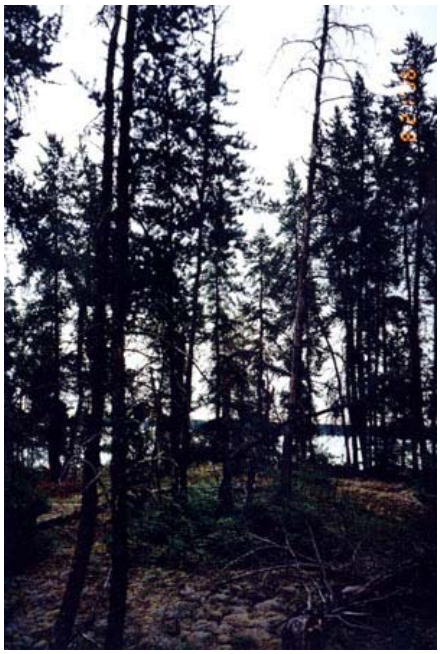

Figure 5-35. JPW – Boreal Pine Rocky Woodland (jack pine phase). Recon #39; shores of Dryweed Island – Rainy Lake.

Figure 8-1. ABW – Mixed Aspen Rocky Woodland Near Cruiser Lake Trailhead; Lost Bay – Kabetogama Lake.

Figure P72. OW – Northern Pine Oak-Bur Oak-(Jack Pine) Rocky Woodland (deciduous phase). Vegetation plot #72.

Figure 5-14. MPHW – Northern Pine Oak-Bur Oak-(Jack Pine) Rocky Woodland (mixed pine -oak phase); Dryweed Island.

Figure 1-20. MPHW – Northern Pine Oak-Bur Oak-(Jack Pine) Rocky Woodland (mixed pine -oak phase). Recon #11; Dryweed Island.

Figure 9-4. MPHW – Northern Pine Oak-Bur Oak-(Jack Pine) Rocky Woodland (mixed pine -oak phase); affected by blow-down.

Figure P46. UBS – Boreal Hazelnut-Serviceberry Rocky Shrubland. Veg plot #46; Cutover Island.

Figure P164a. AS – Speckled Alder Swamp. Veg plot #164; near Ash River Visitor Center.

Figure P62. DS – Dogwood-Pussy Willow Swamp. Veg plot #62; Tom Cod Bay – Kabetogama Lake

Figure 7-14. DS – Dogwood-Pussy Willow Swamp; Black Bay.

Figure 8-11. DS – Dogwood-Pussy Willow Swamp. Near recon #45; Irwin Bay – Kabetogama Lake.

Figure 6-5. BBSF – Bo Birch-Willow Shore Fen; Black Bay.

Figure 4-16. BBSF – Bo Birch-Willow Shore Fen; Cranberry Bay.

Figure 2-24. LB – Leatherleaf Bog; near Brule Narrows – Rainy Lake.

Figure 7-15. LB – Leatherleaf Bog; Black Bay area.

Figure 6-23. LB – Leatherleaf Bog; south of Diamond Island – Rainy Lake.

Figure 8-14. LB – Leatherleaf Bog; near Blind Ash Bay – Kabetogama Lake.

Figure 3-9. LB – Leatherleaf Bog. Stereo view tail of large breached beaver impoundment.

Figure 5-5. LB – Leatherleaf Bog. Floating mat within beaver impoundment; Hitchcock Bay area.

Figure 5-3. LB – Leatherleaf Bog.

Figure 4-24. Floating ericaceous mats within beaver impoundments; Hitchcock Bay area.

Figure 3-13. LSF –Leatherleaf-Sweet Gale Shore Fen; Dryweed Island.

Figure 6-17. LSF –Leatherleaf-Sweet Gale Shore Fen; Cranberry Creek near Locator Lake.

Figure 4-20. SMX – Wet Meadow/Fen Mosaic/ Complex; beaver impoundment with mix or wet meadow vegetation.

Figure 4-11. SMX – Wet Meadow/Fen Mosaic/ Complex. Mix or wet meadow vegetation; inland West of Saginaw Bay.

Figure 3-5. SMX – Wet Meadow/Fen Mosaic/ Complex; stereo view of large breached beaver impoundment.

Figure 3-8. SMX – Wet Meadow/Fen Mosaic/ Complex; panoramic right view of large breached beaver impoundment.

Figure 4-22. SMX – Wet Meadow/Fen Mosaic/ Complex; beaver impoundment with standing dead.

Figure 3-1. BJ – Canada Bluejoint Eastern Meadow. Recon #33; Big Island – Rainy Lake.

Figure 4-25. BJ – Canada Bluejoint Eastern Meadow. Tail of beaver impoundment; Hitchcock Bay area – Rainy Lake

Figure 8-24. BJ – Canada Bluejoint Eastern Meadow. Johnson River near Junction Bay - Namakan Lake.

Figure P78b. SMX - Wet Meadow/Fen Mosaic/ Complex. Veg plot #78; Northern Sedge Wet Meadow Association.

Figure 7-16. BM – Freshwater Bulrush Marsh. Wild Rice bordering; Skunk Island – Black Bay.

Figure P64. CM – Midwest Cattail Deep Marsh. Large stand of cattail; Black Bay/Rat Root River.

Figure 4-1. CM – Midwest Cattail Deep Marsh; Black Bay.

Figure 4-4. CM – Midwest Cattail Deep Marsh. Beaver impoundment with cattail transitioning into SMX.

Figure 9-8. WRM – Wild Rice Marsh; large stand of wild rice in Crane Lake.

Figure 6-8. WRM – Wild Rice Marsh; uncommon Within beaver impoundments; Black Bay.

Figure AA1036. SMX – Wet Meadow/Fen Mosaic /Complex. AA site #1306; Wiregrass Sedge Poor Fen Association.

Figure AA1147. DMX – Deep Marsh Mosaic/ Complex. AA site #11147; Water Horsetail - Spikerush Marsh Association.

Figure 7-2. DMX – Deep Marsh Mosaic/Complex; Stand of Spikerush.

Figure P156. WL – Northern Water Lily Aquatic Wetland. Veg plot #156; Moose Bay area - Namakan Lake.

Figure 5-4 . WL – Northern Water Lily Aquatic Wetland; common within moats surrounding floating ericaceous mats.

Figure P90. PW – Midwest Pondweed Submerged Aquatic Wetland. Veg plot #90; submergent vegetation.

Figure 8-6. Recon #44; near Daley Bay.

Figure P94a. JPL – Jack Pine/Lichen Rocky Barrens. Veg plot #94; inland east of Daley Bay.

Figure 3-20. "Rockhop" Isle; Rainy Lake off of Dryweed Bay.

Figure 4-18. Majestic White Pines.

Figure 6-20. Near Cranberry Creek camp.

Figure 6-10. Gold Portage

Figure 6-11. Up to the falls.

Figure 3-2. The bear slide – washout beaver dam Breach; Lee Grim (VOYA) & Tom Owens (USGS).

Figure 8-25. Johnson Falls – Junction Bay.

Figure 7-5. Schist geologic formation; rocky Shores of Big Island – Rainy Lake.

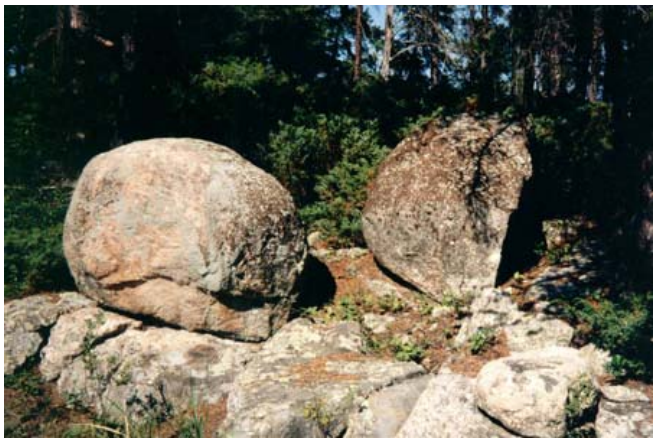

Figure 7-4. Granite boulders; Big Island - Rainy Lake.

Figure 5-34. Greenstone geologic formation; Dryweed Island – Rainy Lake.

Figure 6-1. Old mine; Small Island – Rainy Lake.

Figure 3-12. Moss & lichens on rocky outcrops.

Figure 5-7. Moss & lichens on rocky outcrops.

Figure 5-2. Shallow root ball of white pine; Hitchcock Bay area.

Figure 4-2. Beaver activity in the forest.

Figure 5-6. Conks growing on the bark of Aspen.

Figure 7-9. Hornet's nest.

Figure 3-19. A spider's home.

Figure 6-16. Garter snake finding sun.

Figure 5-37. Rainy Lake Visitor Center boat launch.

Figure 5-10. Boating in Hitchcock Bay.

Figure 2-19. L-R: Michael Lew-Smith (Botanist), Kevin Hop (USGS), & Don Faber-Langendoen (TNC).

Figure 4-5. VOYA NP summer technicians with Ecologist Norm Aaseng (MN DNR) on far right.

Figure 6-12. Photo interpreter Kevin Hop (USGS) photo reconnaissance.

Figure 5-1. L-R: Jim Schaberl (VOYA NP), Norm Aaseng (MN DNR), Lee Grim (VOYA NP), and front: Michael Lew-Smith (Botanist).

Figure 3-24. Tom Owens – Geospatial Coordinator (USGS UMESC). Dryweed Island - Rainy Lake.

Figure 3-18. Kevin Hop – Photo Interpreter (USGS UMESC). Dryweed Island - Rainy Lake.

Figure 2-29. Sam Lammie - Geographer (VOYA NP).

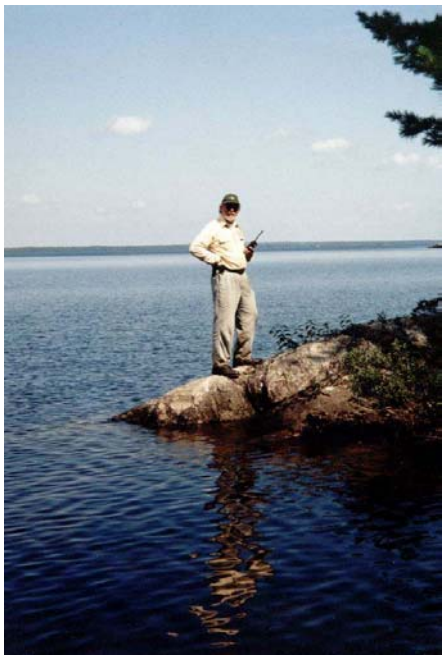

Figure 7-1. Lee Grim (VOYA NP).

Figure 4-9. Joe Cayou (VOYA NP). Collecting GPS Coordinates.

Figure 3-14. L-R : Jim Schaberl - Ecologist (VOYA NP) & Tom Owens (USGS).

Figure 7-19. Don Faber-Langendoen – Ecologist (TNC-Midwest).

Figure 5-23. Norman Aaseng - Ecologist (MN DNR).

Figure 5-21. Michael Lew-Smith - Botanist.

Figure 6-25. Deb Pomroy-Petry – Botanist.

Figure 7-13. Michael Lew-Smith (Botanist). Releve' work in the cattails.

Figure 3-25. Jim Schaberl (VOYA NP). Blazing the tail.

Figure 2-35. Lunch on the shores of Kempton Channel – Rainy Lake.

Figure 2-26. Field reconnaissance in Red Pine Forest; Kawawia Island – Rainy Lake.