U.S. Department of the Interior
National Park Service

Great Lakes Network Office
Ashland, Wisconsin

Assessment of Wetland Communities at Isle Royale National Park

Jim Meeker, Al Harris, Valena Hofman, Emmet Judziewicz, and Janet Marr



Great Lakes Network Report GLKN/2007/04 **February 2007**

Suggested Citation:
Meeker, J., A. Harris, V. Hofman, E. Judziewicz, and J. Marr. 2007. Assessment of wetland communities at Isle Royale National Park. National Park Service Great Lakes Inventory and Monitoring Network Report GLKN/2007/04.

ABSTRACT

Isle Royale National Park (ISRO) contains numerous named and unnamed lakes, stretches of protected Lake Superior coves, open peatlands, and miles of stream – all with a variety of wetland habitat. Over the 2003-2006 field seasons, we assessed these diverse wetlands guided by four main objectives.

We sought to: 1) describe and establish a monitoring benchmark for the aquatic and shoreline communities of all named lakes, 2) characterize the floristic composition in open peatlands, 3) give the island a 'bill of health' relative to aggressive wetland invaders especially cattails (*Typha* spp.) and common reed (*Phragmites australis*), and 4) expand the known flora of the island by locating plant taxa likely but not yet documented.

Relative to goal 1, we described three aquatic plant assemblages; the aquatic assemblages of Lake Superior bays differed from that of lakes less than 20 ha in size, and these, in turn, were different from lakes larger than 20 ha. For goal 2, we determined that peatland communities differed, as expected, along nutrient and water depth gradients, separating sedge meadow habitat from that of fens and bogs. For goal 3, we assessed 308 km of interior lake and Lake Superior bay shoreline, and determined that 1.2% was occupied by aggressive taxa. Finally for goal 4, thirteen new taxa were added to the flora of ISRO, including the aquatic lake cress (*Armoracia lacustris*) and Farwell's water milfoil (*Myriophyllum farwellii*), both ranked as Threatened in Michigan.

We believe that this snapshot in time of the wetland plant communities will better enable the parks to begin monitoring programs for these important wetland resources.

INTRODUCTION

Background

Isle Royale National Park (ISRO) is known to be rich in aquatic resources with 42 named lakes, 233 kilometers of perennial streams, and an estimated 7,000 hectares of wetlands (Lafrancois and Glase 2005). These wetlands support numerous wetland taxa, several of which are Endangered, Threatened, or of Special Concern in Michigan. Furthermore, it is believed that the aquatic plant communities of Isle Royale may have been considerably altered due to intense moose herbivory (Aho and Jordan 1979; Lafrancois and Glase 2005), suggesting the importance of establishing a baseline for monitoring these resources.

The importance of wetland and aquatic resources in general is now recognized as being greater than the mere proportion of these habitats in the landscape as a whole. In addition to providing areas for unique groups of plants, wetlands provide required food, habitat, and cover for fish, birds, mammals, and a host of invertebrates. Aquatic plants are also considered indicators of aquatic health; some wetland communities may be good candidates for long-term monitoring (Forst et al. 2004).

In 2002, the National Park Service (NPS) recognized a need for an inventory of wetland and aquatic habitat on ISRO (Route 2002). Previous inventories of wetland plants have been limited in scale (Toczydlowski et al. 1978), and not particularly designed to provide a summary of ISRO aquatic habitat (Lafrancois and Glase 2005).

Objectives

We developed several general objectives for this study, with the understanding that the wetland plant resources that we address include shorelines, shallow water habitat (aquatic plants), and open peatland habitats, such as open bogs and fens.

First, we wanted to describe the floristic communities of peatlands, lakeshores, and aquatic beds in as much of the island as we could cover. Our goal for the aquatic and shoreline communities was to sample wetland vegetation in a majority of the 32 named lakes assessed by Kallemeyn (2000) and, in addition, in sheltered Lake Superior waters (bays, harbors, coves) that likely support wetland plants. Secondly, we wanted to pilot the development of a long term monitoring strategy to assess the level of aggressive aquatic taxa, while giving the island a bill of health relative to these taxa. Finally, we wanted to document the status and occurrence of aquatic and wetland plant species that may be expected to be present on ISRO by adding to the known wetland plant flora. (The Inventory and Monitoring Program of the NPS has a goal of documenting the occurrence of 90% or more of species expected to occur in a given park.)

We concentrated on open, non-treed, wetlands that have been less well documented. These data will establish a baseline for monitoring vegetation changes. We did not address forested wetlands that have been adequately sampled in the USGS-NPS mapping project (The Nature Conservancy 1999).

METHODS

Inland Lake and Lake Superior Bay Segment Sampling

Forty-seven inland lakes and Lake Superior bays and coves were assessed for wetland vegetation during the 2003-2006 field seasons (Figures 1 and 2). Sampling took place along transects parallel to shorelines which we refer to as segments for this report. Most of this segment sampling took place between July 20 and August 20, at peak flowering time for the majority of wetland plant taxa. (Some peatland sampling, described below, was conducted in June to facilitate identification of early flowering taxa.)

Prior to sampling a given lake or bay, we looked at its general outline and identified all of its sheltered areas. These areas were chosen as primary locations to sample because they would most likely support macrophytes. On larger lakes, in addition, we often sampled along randomly selected portions of the sparsely vegetated shoreline that comprised the rest of the lake or bay shoreline. These sampling areas were of variable lengths. The

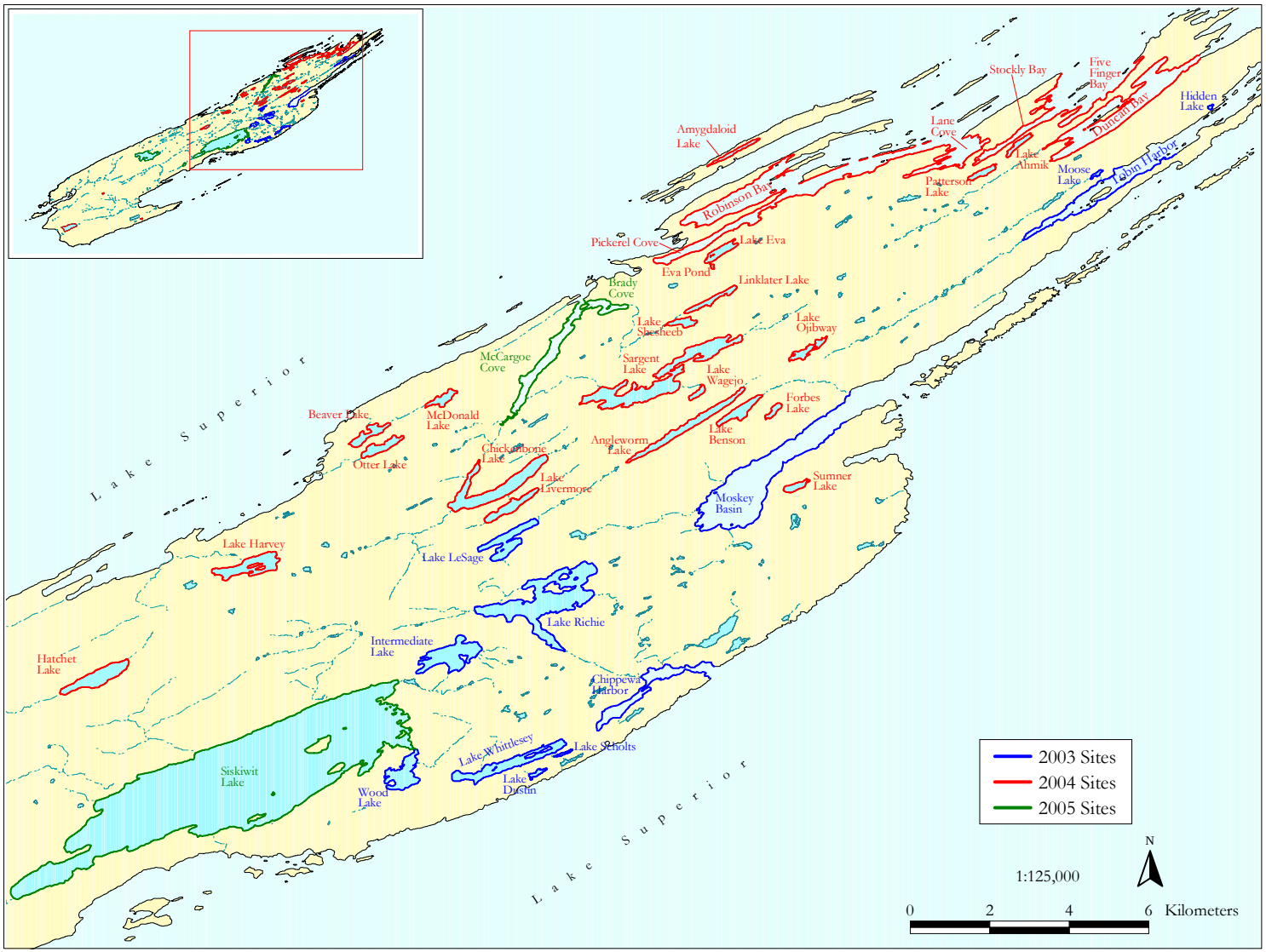


Figure 1. Interior lakes and Lake Superior bays sampled during 2003-2005 field seasons on northeast end of Isle Royale. The color of the outline indicates the year that the lake or bay was sampled for aquatic and/or shoreline plants as well as the perimeter of shoreline sampled for aggressive taxa (see text for list).

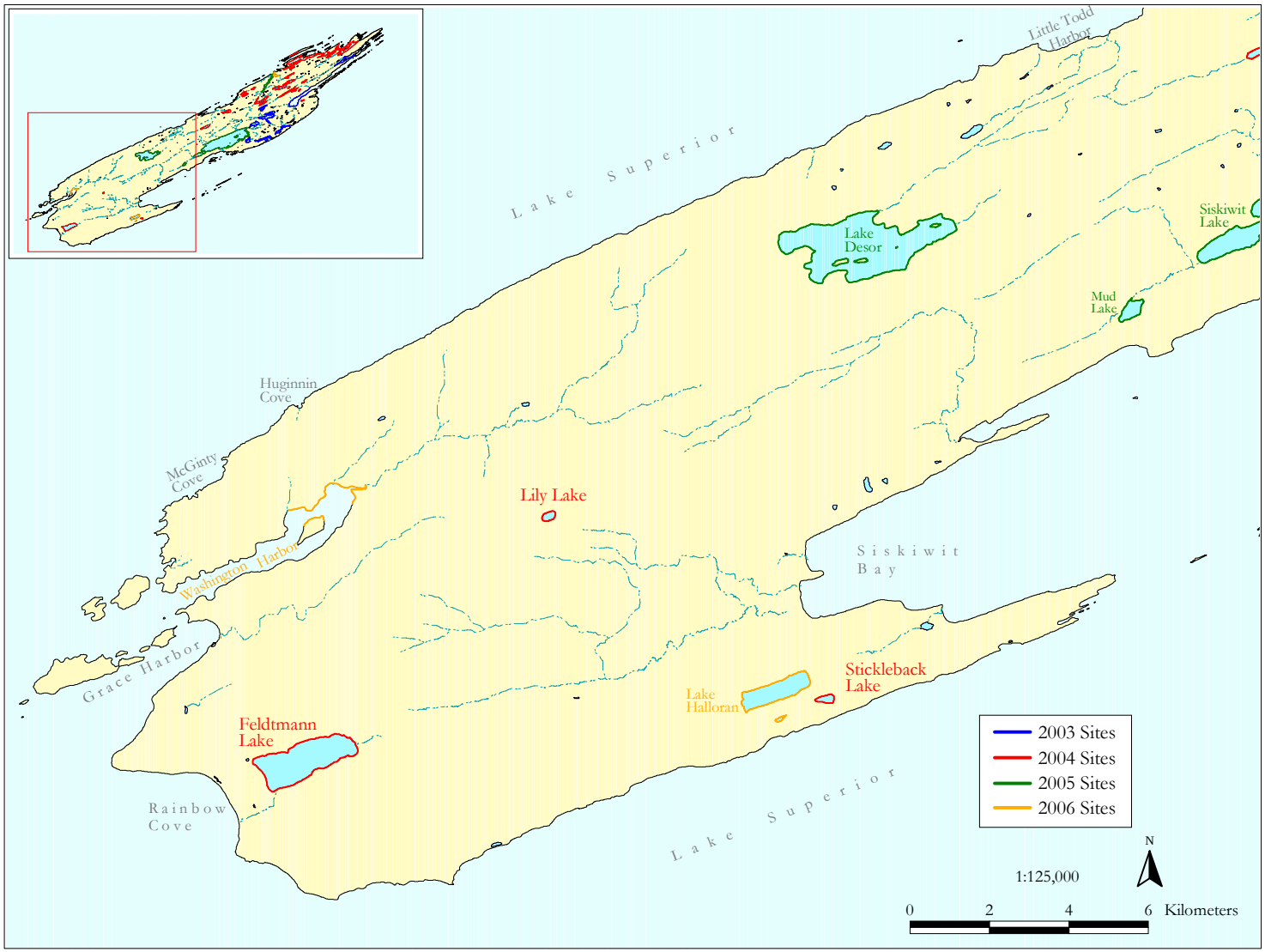


Figure 2. Interior lakes and Lake Superior bays sampled during 2003-2006 field seasons on southwest end of Isle Royale. The color of the outline indicates the year that the lake or bay was sampled for aquatic and/or shoreline plants as well as the perimeter of shoreline sampled for aggressive taxa (see text for list).

length of the bay segments depended on the size of the bays; the sparsely vegetated segments were roughly estimated in the field to be between 150 – 250 m in length.

Two types of segments were sampled – **aquatic** and **shoreline**. Aquatic habitat was defined as the area from damp substrate or the water's edge *into* the water to a depth of about 2.5 m. A total of 168 aquatic segments were sampled at the 47 sites (including 37 lakes and 10 bays, Table 1). Shoreline segments were also assessed, parallel to the aquatic segments but they sampled the area *up from* the water's edge to the shrub-line or mean high water mark. Shorelines were sampled in only 72 of these 168 segments, due to the fact there was often an abrupt transition from aquatic to upland, allowing minimal shoreline habitat.

Even though the line between aquatic and shoreline is arbitrary, we sampled these habitats separately because we knew that elevation, and hence water depth, would be the strongest influencing factor in ordination analyses. In order to minimize these water depth differences and maximize the potential to detect differences among large lakes, small lakes, and Lake Superior bays we analyzed aquatic and shoreline habitats separately. Some taxa occurred in both aquatic and shoreline segments; these taxa consisted primarily of emergent sedges and reeds that survive well out of water yet also grow in standing water.

We recorded sampling locations using GPS (Garmin 12XL) marking the beginnings and ends of all segments; coordinates are in UTM zone 16, NAD83 (Table 2).

Plant Sampling in Aquatic Segments

We traversed each segment by wading, canoe, or swimming with a snorkel and created a species list. Upon completion of the segment, we estimated each taxa's percent cover class, where trace (tr) = <1% cover, 1 = 1-5%, 2 = 6-25%, 3 = 26-50%, 4 = 51-75%, and 5 = 76-100%. To more accurately represent emergent, submergent, and floating species within each segment sampled, percent cover was determined based on the following criteria: for those emergent taxa that were generally restricted to shallow water or shoreline (e.g., some reeds, grasses, and sedges), cover was estimated relative to the total area capable of supporting the above taxa (usually the area between mean high water and about 0.50 m in depth). Cover of the floating and submergent taxa was estimated as the amount of aquatic habitat they covered relative to the total amount of habitat along the segment between 0.25 m and 2.5 m in depth.

In addition to listing taxa and estimating percent cover within segments, as we traveled from segment to segment we noted any additional taxa we had not seen along the segments, adding to the species list for each lake. Uprooted fragments of aquatic taxa were included in the species list for inland lakes but not included in segments along the Lake Superior shoreline.

Plant Sampling in Shoreline Segments

Percent cover of all taxa for the shoreline sampling was determined using the same percent cover classes explained above for the aquatic sampling. In addition, while

moving from segment to segment, any additional on-shore species not previously found were added to the species list.

Peatland Sampling

Peat forming wetlands were also sampled. This was done to describe the floristics of open peatlands such as bogs (Community Number 70; The Nature Conservancy 1999), fens (Community Numbers 44, 67, 42, 37), remnant beaver meadows, and sedge meadows (Community Numbers 40, 41, 48) that are "wet", but are only temporarily flooded annually.

A pool of potential peatland plot locations was established by looking at aerial photography, assessing park vegetation maps, talking to NPS staff, and relying on our field experience on the island. From this general list we selected sites to visit and sampled them if they were generally open (non-treed) and large enough to accommodate a 10 m x 10 m habitat plot. Within this site, an initial point was chosen in a pseudo random manner (an over the shoulder flag toss), and all taxa and estimates of their actual cover were taken in nested quadrats of increasing size. This process began at a chosen point with a 1 m x 1 m (1 m^2) quadrat, which then was expanded to a 5 m x 5 m (25 m^2) quadrat and then to a 10 m x 10 m (100 m^2) quadrat.

During the 2003-2005 field seasons, we sampled a total of 64 peatland plots at 23 general locations (Figures 3 and 4, Table 3). The centers of the 10 m x 10 m quadrats were geo-referenced using GPS (Garmin 12XL) (Table 4).

Aggressive and Exotic Aquatic Species

All inland lakes and portions of Lake Superior bays sampled for aquatic and shoreline vegetation (described above) were also surveyed for aggressive taxa (locations are delineated in Figures 1 and 2).

We searched for the following of aggressive taxa: wide-leaf cattail (*Typha latifolia* L.), narrow-leaf cattail (*Typha angustifolia* L.), common reed grass (*Phragmites australis* (Cav.) Trin.), reed canary grass (*Phalaris arundinacea* L.), curly-leaf pondweed (*Potamogeton crispus*), Eurasian milfoil (*Myriophyllum spicatum* L.), and purple loosestrife (*Lythrum salicaria* L.).

The locations of aggressive aquatics were mapped as either linear features or as points. If these features were greater than 5 m long, their endpoints were located and geo-referenced (Garmin 12XL). If an occurrence of aggressive aquatics was less than 5 m long, the center of the patch was marked as a point. Linear features were also referred to as beds or patches, and were considered continuous if there were less than 2 m between adjacent stems. Reed canary grass was noted for presence on inland lakes only, as the species was found fairly consistently scattered along the Lake Superior shorelines. In addition to referencing the location of these aggressive taxa, we estimated (in most cases) the number of stems constituting the point or beds.

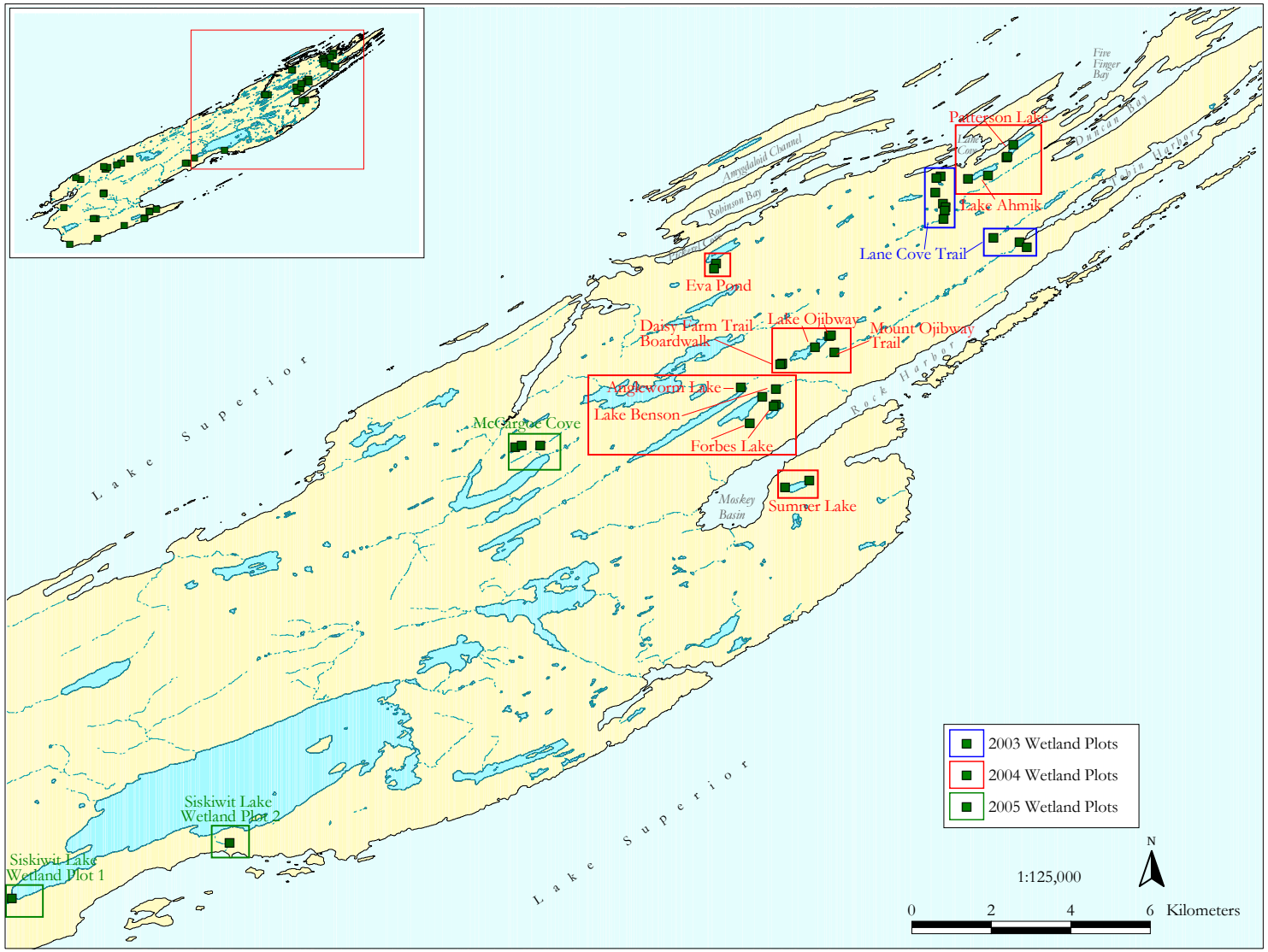


Figure 3. Location of 10 m x 10 m peatland plots sampled for wetland plants during the 2003–2005 field seasons on the northeast end of Isle Royale. The color of text label indicates the year that the peatland was sampled (see text for named list and GPS coordinates of plot centers).

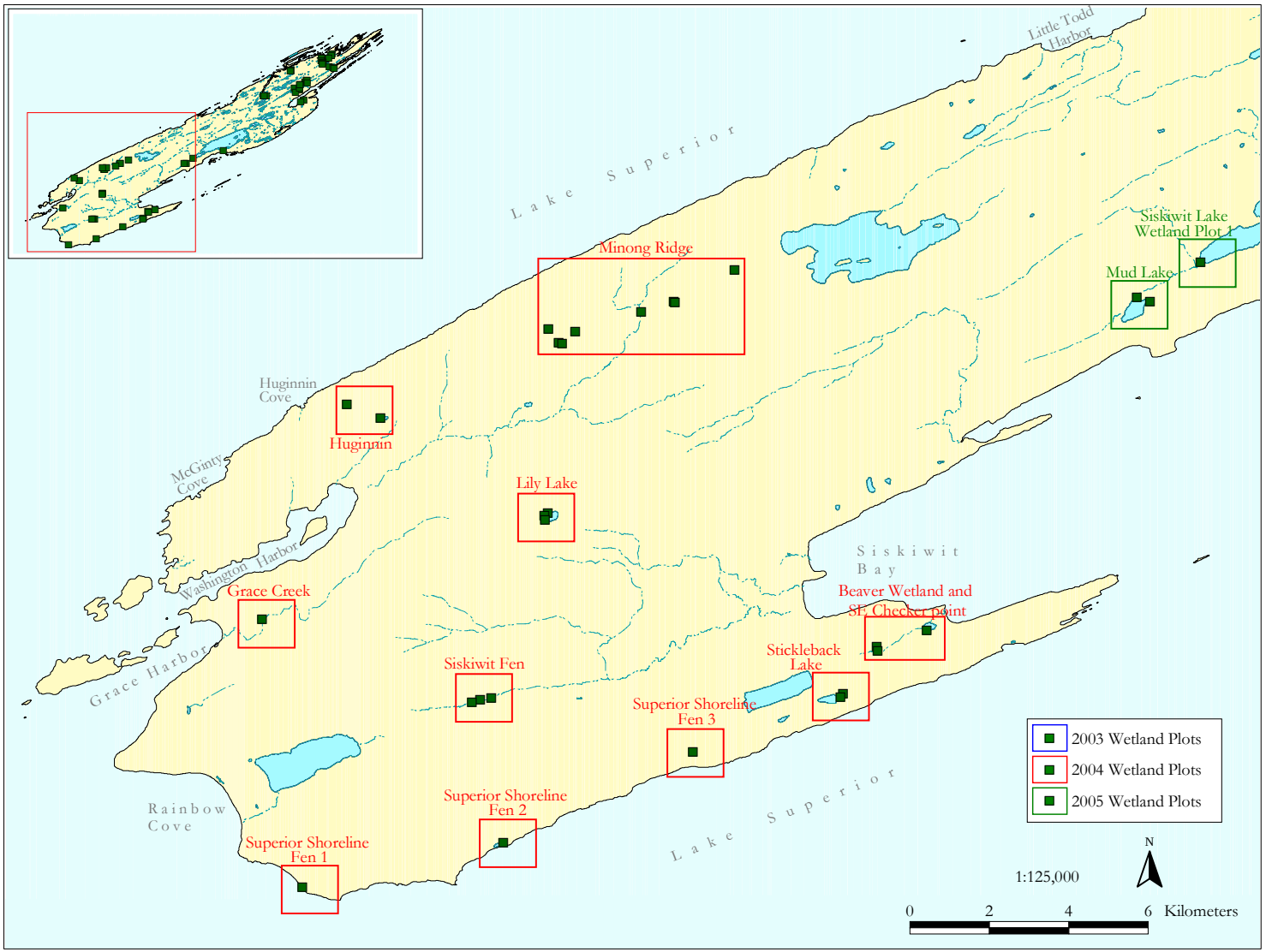


Figure 4. Location of 10 m x 10 m peatland plots sampled for wetland plants during the 2003–2005 field seasons on the southwest end of Isle Royale. The color of text label indicates the year that the peatland was sampled (see text for named list and GPS coordinates of plot centers).

New and Notable Species

As part of the goal to identify wetland taxa new to Isle Royale, we compiled a "hit" list (Table 5, modified from Judziewicz 2003, 1999) of the wetland plants that were likely to be found on the island but were not yet confirmed through collections (and hence not listed as part of the flora) (Slavick and Janke 1987, 1993). As we hiked and canoed to the aquatic, shoreline, and peatland sampling sites we looked for plants on this list. In the process, we also recorded and mapped occurrences of rare or notable plants, as well as larger beds of aquatic species present within lakes and bays but not recorded in the sampling segments. All new taxa were vouchered and have been placed in various regional herbaria.

RESULTS

Products

Map Creation

All locations of aquatic, shoreline, and peatland sampling as well as locations of aggressive taxa were mapped and are included in Appendix A. An example of the mapping results after sampling Angleworm, Benson, and Forbes Lakes is shown in Figure 5. Angleworm Lake was sampled for shoreline and/or aquatics along three segments (S1-S3) and the entire shoreline was sampled for aggressive taxa, resulting in 2 beds of *Phragmites* and one point of *Typha latifolia* consisting of 2 stems. In addition, one peatland plot was established on the northeast end of the lake (PP1). Note that Benson Lake had its own segments and plot numbering system (with 4 segments and 2 peatland plots). All maps were created in Arcview, projected in UTM zone 16, NAD 83. A compact disk containing all GIS data is included in this report.

Data Entry

All raw data from the wetland sampling were entered in Microsoft Excel spreadsheets, error checked twice, and included in Appendix B, one worksheet per lake, bay, or trail, in the following order: aquatic segments (A), shoreline segments (S), and peatland plots (P). These data sheets include all taxa found at the particular site, identified to the best of our abilities in the field. In a few cases, for more difficult taxa, we temporarily collected specimens for determination at a later date. Occasionally, small sprigs of plant material were found and we were only able to identify the taxon to genus (e.g., *Potamogeton* sp.) or to family (e.g., Poaceae sp.). These taxa were recorded even at this broad level of classification because they represent additional richness at the sites, information we wanted to retain. All nomenclature throughout this report is according to Gleason and Cronquist (1991). We encountered 402 taxa over the 2003-2005 field seasons, including those listed during sampling and those new taxa noted between sampling sites (Table 6).

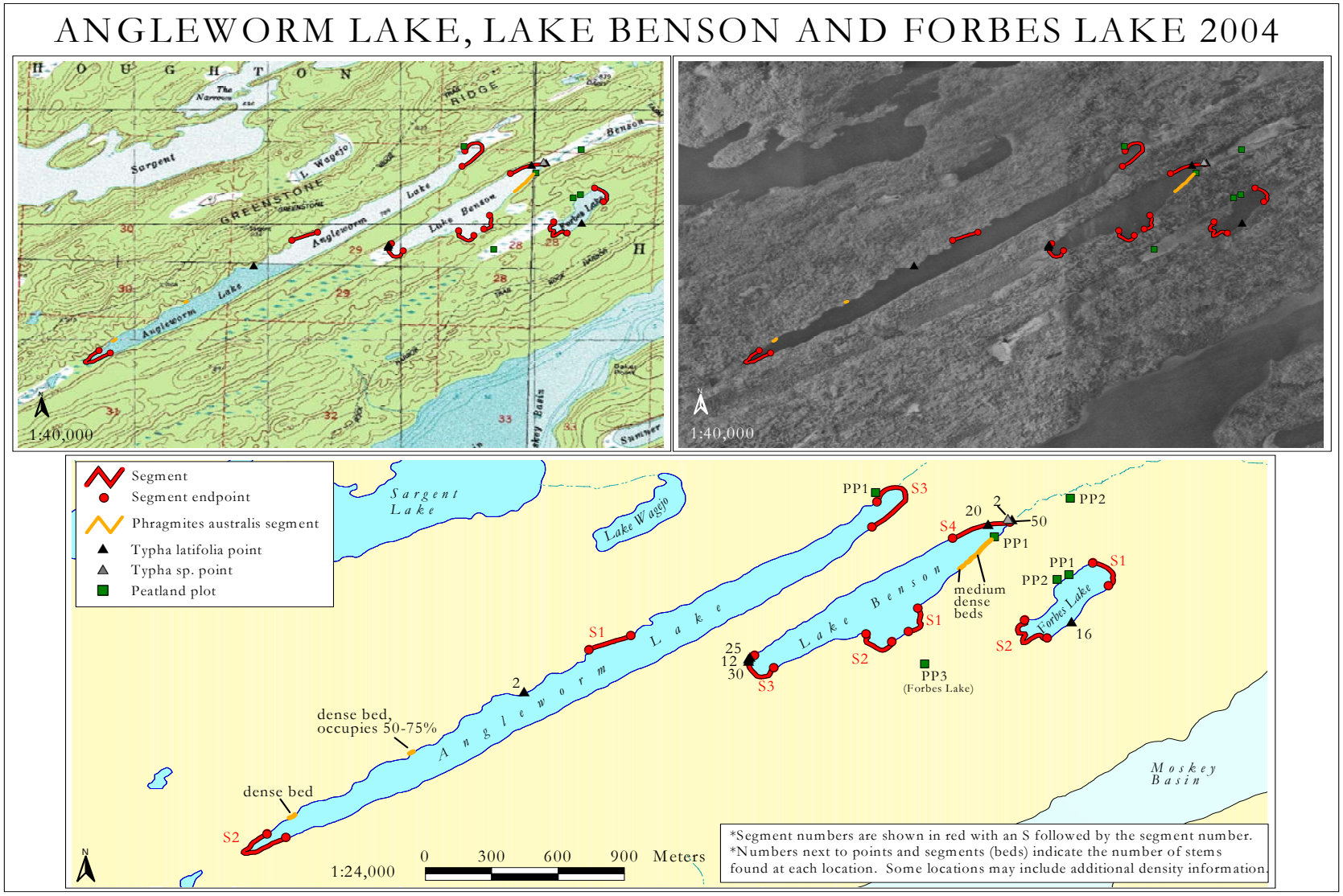


Figure 5. Locations of sampling segments, peatland plots, and aggressive taxa occurrences at Angleworm Lake, Lake Benson and Forbes Lake, Isle Royal 2004. GPS coordinates of all indicated features are listed in Table 2 (aquatic and shoreline segments), Table 4 (Peatland plots) and Table 12 (aggressive taxa).

Aquatic Segments at Inland Lakes and Lake Superior Bays

In addition to a list of species and their cover classes for each of the 168 aquatic segments, the richness of each segment is also reported in Appendix B. A summary of these richness data indicated that segment richness varied from as few as two taxa to as many as 41, with a mean of 16.9 taxa per segment. Ninety-five percent of all segment richness values ranged from 4 - 26 taxa per segment (Table 7A).

The aquatic data were combined into one spreadsheet, resulting in a matrix of 108 taxa by 168 segments. Prior to summarizing the data, all cover class determinations were modified to represent a cover percent. Tr (trace) was replaced by a value of 0.1% cover. Cover class 1 became 3%, cover class 2 became 15%, cover class 3 became 38%, cover class 4 became 63% and cover class 5 became 88%. These changes represent the midpoint of each cover class (e.g., 3 = the midpoint of the range 26-50% or 38%).

Twelve taxa occurred with greater than 2.0 % mean cover (Table 7B) over the 168 segments. The three most abundant taxa by cover included an emergent reed (*Eleocharis palustris*) at 9.86%, an emergent sedge (*Carex lasiocarpa*) at 8.39%, and a floating leaf pondweed (*Potamogeton gramineus*) at 8.60%. Most of the remaining abundant taxa by cover were submergents.

We used non-metric multidimensional scaling (NMS) ordination techniques included in PCORD software (McCune and Mefford 1999), to investigate the differences in aquatic macrophyte communities among segments found in large lakes (>20 ha), small lakes (< 20 ha), and Lake Superior coves and bays. Since we were interested in general patterns within this data set, we eliminated the rare taxa found in fewer than 3 segments. In addition, preliminary analyses indicated that 3 segments (Lily Lake 1, Siskiwit Lake 1 and Siskiwit Lake 4) were outliers primarily due to low taxa diversity per segment (5, 2, 2 taxa respectively) and these were eliminated from the NMS ordination analysis, resulting in a matrix of 165 aquatic segments by 78 taxa.

The NMS ordination of this matrix indicates that Lake Superior segments (Figure 6, solid squares, n=40) plot somewhat higher on axis 2, apart from the inland lakes. In addition there is a hint of a separation between the two inland lake groups with the segments on larger lakes (open triangles, n=82) generally plotting lower on axis 1.

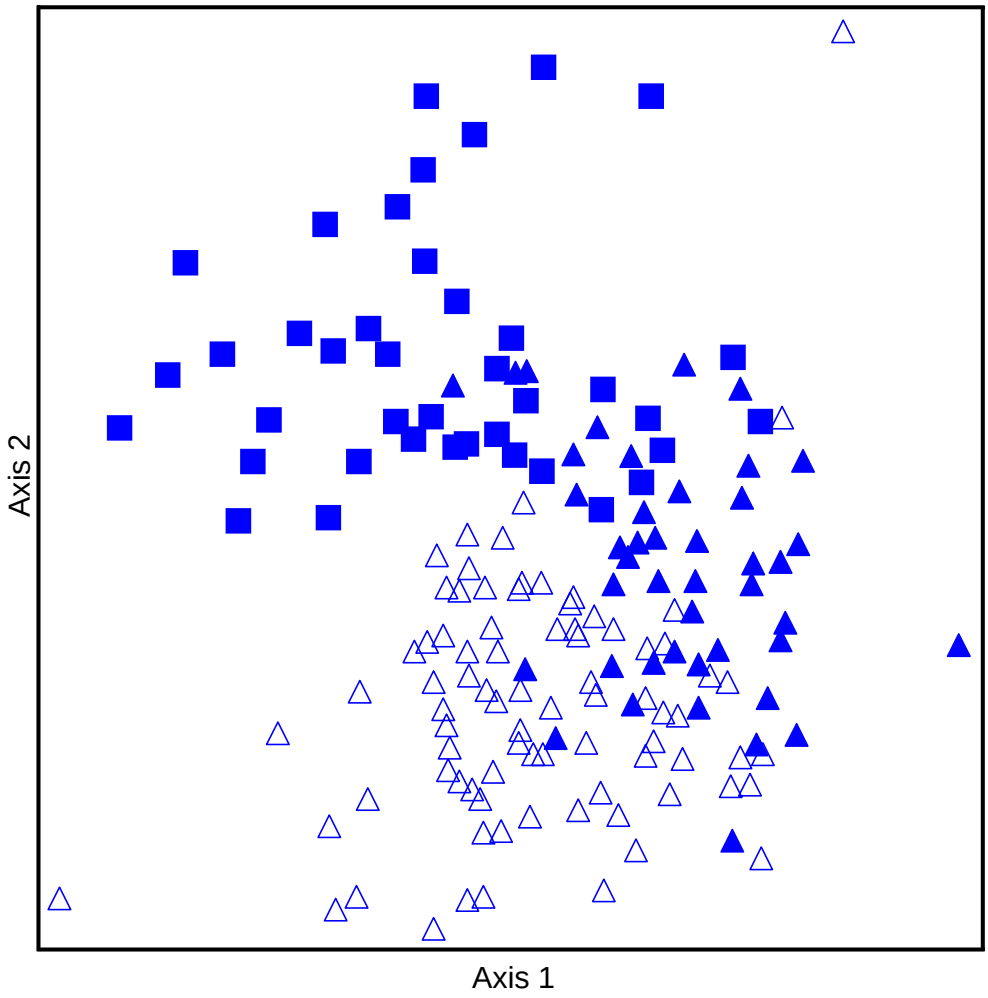


Figure 6. Non-metric multidimensional scaling (NMS) ordination of 165 aquatic segments, using the 78 taxa that occurred in more than 2 segments. Solid square symbols indicate Lake Superior bays and coves, solid triangles indicated segments on small (less than 20 hectare) lakes, and open triangles indicate segments on larger lakes (greater than 20 hectares).

Taxa that may contribute to these differences among aquatic segment categories are indicated in Table 8. Here we list the 22 taxa that occur with greater than 50% frequency in any one of the three categories. *Bidens beckii*, *Najas flexilis*, and *Sparganium fluctuans*, for example, are very infrequent in Lake Superior bays, while occurring much more frequently on inland lakes. Conversely, *Carex aquatilis*, *Myriophyllum verticillatum*, and *Ranunculus longirostris* are better represented on Lake Superior bay segments. Taxa that appear to favor small lakes include *Utricularia vulgaris*, *Nuphar variegata*, and *Dulichium arundinaceum*, whereas *Najas flexilis* is more likely in segments of larger lakes. It is likely that these axes represent a combination of wave energy, water temperature, substrate, and nutrient availability but we have no measures of these variables and may only infer. For example, some of the taxa better represented in small lakes (*Bidens beckii*, *Utricularis vulgaris*, and *Nuphar variegata)* are known to flourish in more sheltered locations, conditions more likely in small lakes (J. Meeker personal observation). In

addition, aquatic vegetation cover is often greater where fallen logs have created small exclosures, (Figure 7) limiting access by moose.

Shoreline Segments on Inland Lakes and Lake Superior Bays

Data from all shoreline segments (located in Appendix B) were combined in one spreadsheet resulting in a matrix of 128 taxa by 72 segments. The segments in this analysis were divided into only 2 categories, inland lakes and Lake Superior bays because of the limited number of segments overall (72 vs. 168 in the above aquatic segment analysis). Species cover values were transformed to presence and absence data (power transformation in PCORD, where $p = 0.0$), as the Lake Superior shoreline segments were generally low in cover compared to the inland lakes, and we wanted the ordination to maximize floristic differences. In addition, one inland lake segment (Amygdaloid Lake # 1) was eliminated from the analysis as an outlier with only two taxa.

The NMS ordination indicated floristic differences between the inland lakes and Lake Superior bays, as the bulk of the Lake Superior segments plotted higher on axis 1 and lower on axis 2. (closed squares in Figure 8). Twenty-one taxa occurred with a frequency of 50% or greater in at least one of the two shoreline categories, and some of these taxa showed an obvious preference for one habitat over the other (Table 9). For example, *Carex hystericina, Epilobium* spp., and *Phalaris arundinacea* had frequencies greater than 50% on Lake Superior segments while having frequencies less than 10% in the inland segments (Table 9). The distribution of *Phalaris* in the above mentioned NMS ordination can be seen in Figure 9, showing this species at 27 of the 31 Lake Superior sites and in only one of the inland lake sites. *Triadenum fraseri, Dulichium arundinaceum,* and *Carex lasiocarpa* are examples of taxa more frequently found in the inland lake segments (Table 9).

A)



B)



Figure 7. Aquatic vegetation protected from moose browse by fallen cedars, Isle Royale 2004. A) Yellow water lily (*Nuphar variegata*), B) Assorted emergents.

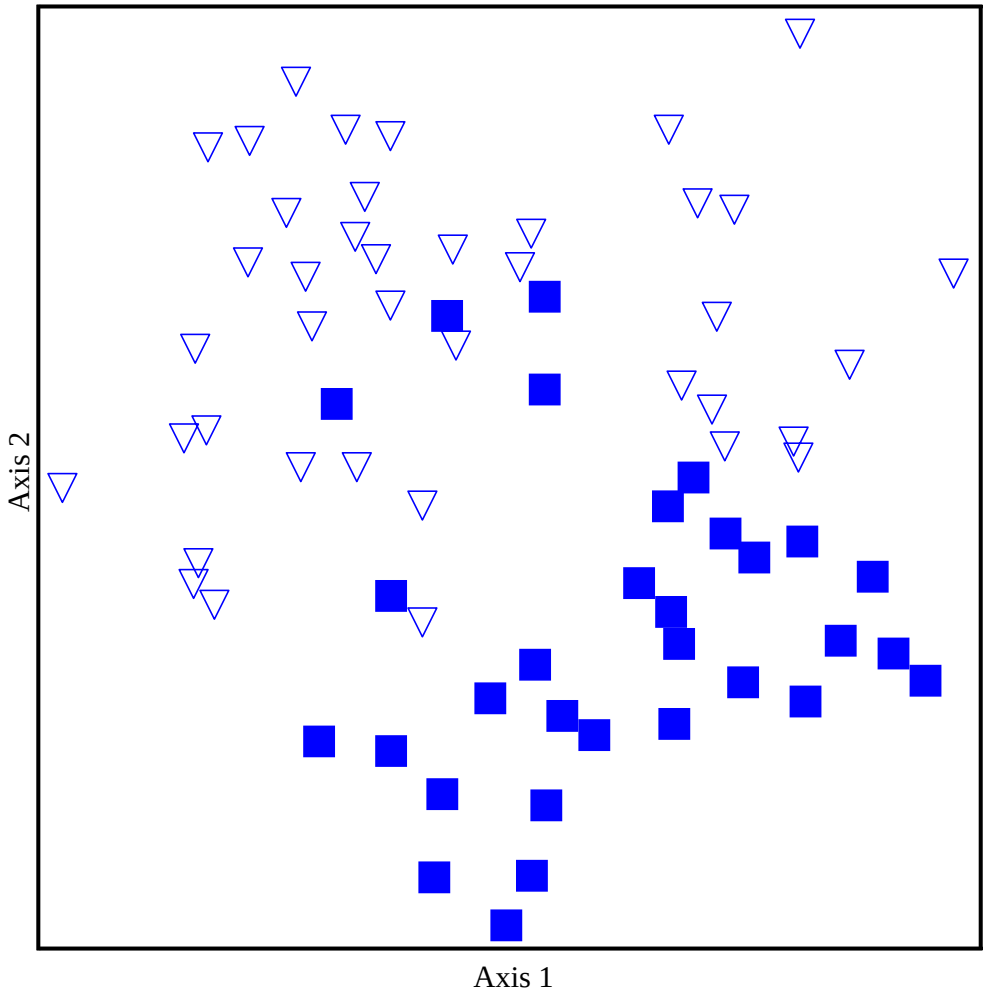


Figure 8. Non-metric multidimensional scaling (NMS) ordination of 71 shoreline segments and 128 taxa. Closed squares indicate shoreline segments along Lake Superior bays and coves, and open triangles indicate segments along inland lakes. One inland lake segment (Amygdaloid Lake segment # 4), having only two taxa, was eliminated from the ordination as an outlier.

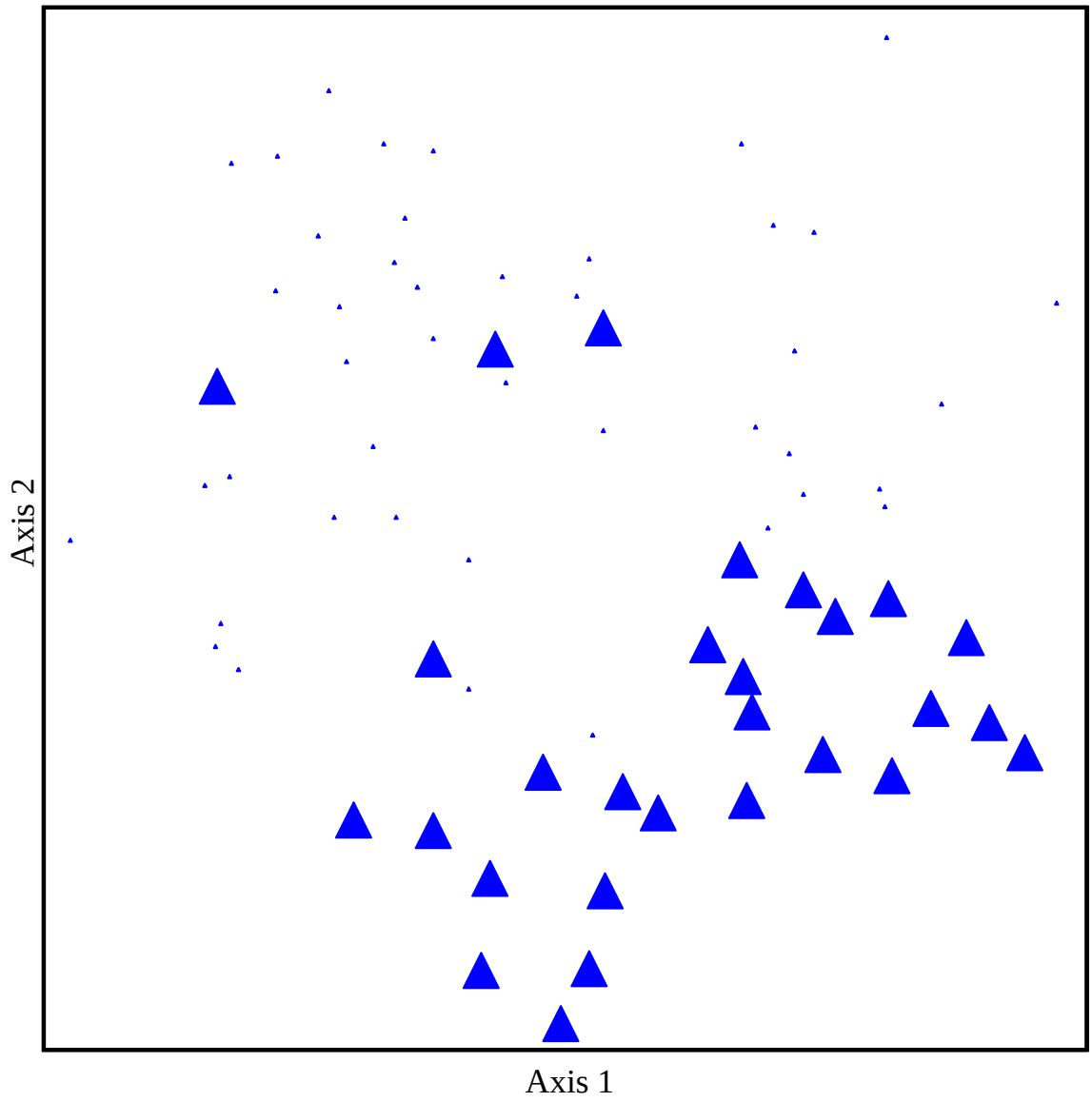


Figure 9. Non-metric multidimensional scaling (NMS) ordination of 71 shoreline segments and 128 taxa. Larger triangles indicate the presence of reed canary grass, *Phalaris arundinacea*, consistently more frequent along the segments in Lake Superior bays and coves, compare to Figure 8, showing Lake Superior Bays.

Peatland Sampling

Mean plant richness per peatland plot increased with plot size, with means of 10.4, 19.0, and 25.2 taxa respectively for the 1 m x 1 m, 5 m x 5 m, and 10 m x 10 m plots (Table 10A). Richness was beginning to level off in the largest plots, but we did not attempt to calculate richness values for larger plot sizes as the maximum patch size often appeared to be close to the 10 m x 10 m plot size.

As in the aquatic segments, each taxon's cover class determined in the field (tr and 1-5) was transformed to the mid point of the range where tr = 0.1, 1 = 3%, 2 = 15%, 3 = 38%, 4 = 63% and 5 = 88%. Using these transformed values, twenty-seven peatland taxa had mean per plot cover values of 2.0% and greater, which contributed almost 76% of the total relative cover for all taxa (Table 10A). *Carex lasiocarpa* had the greatest cover, averaging 30% per plot, followed by *Sphagnum* species (16.8%) and two shrub taxa, *Myrica gale* and *Chamaedaphne calyculata*. The most frequency encountered taxa over all 64 plots were *Iris versicolor* and *Calamagrostis canadensis* (with frequencies of 47 and 42 respectively).

In order to investigate differences among these plots, data from all 10 m x 10 m peatland plots (Appendix B) were combined in a matrix with 268 taxa. This matrix was reduced by eliminating those taxa occurring in fewer than 3 plots resulting in a matrix of 154 taxa by 64 plots.

A NMS ordination of the peatland data resulted in a two dimensional representation of habitat presumably along both a nutrient gradient (axis 1) and an elevational or moisture gradient (axis 2). One small group of plots had generally higher axis 1 and lower axis 2 scores, separated from two other groups (Figure 10). These plots tend to have greater cover values for *Carex stricta* and a combination of grass taxa (primarily *Calamagrostis canadensis* and *Agrostis hymenalis*), as indicated by those plots with larger symbols in Figure 11. The other plots with higher axis 2 scores formed two groups that grade into each other across axis 1, with one group dominated by *Sphagnum* taxa (Figure 12) and the other by *Carex lasiocarpa* (Figure 13). In summary, Figures 11-13 represent three habitat groups that we refer to as: 1) sedge meadows (dominated by *Carex stricta*, grasses, and *Aster* spp.), 2) *Sphagnum* bogs dominated by Sphagnum and Ericaceous shrubs, and 3) fens dominated by thin leaf sedges (particularly *Carex lasiocarpa*).

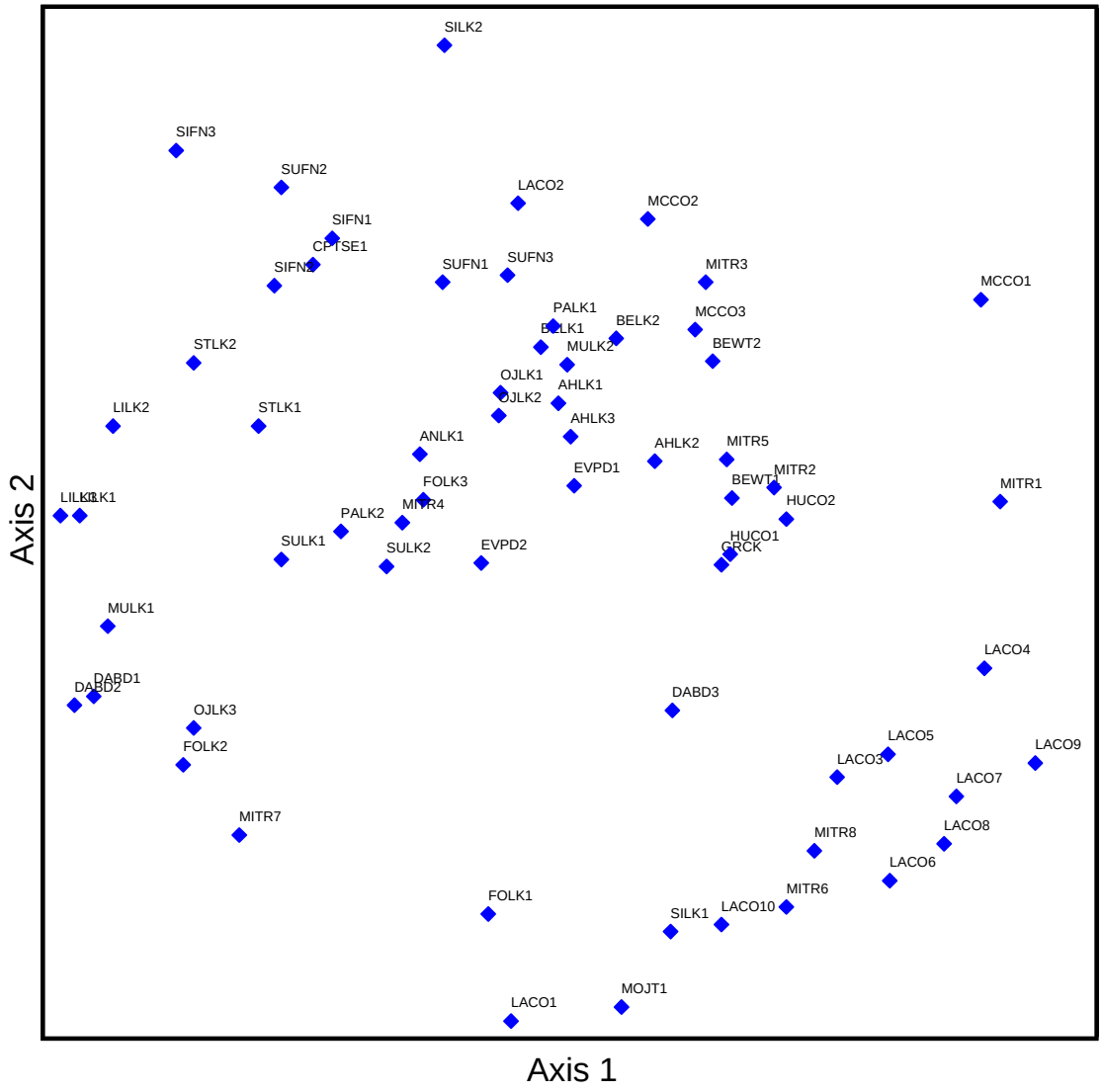


Figure 10. Non-metric multidimensional scaling (NMS) ordination of 64, 10m x 10m peatland plots using the 154 taxa that occurred in more than 2 plots. See Table 4 for explanation of site codes.

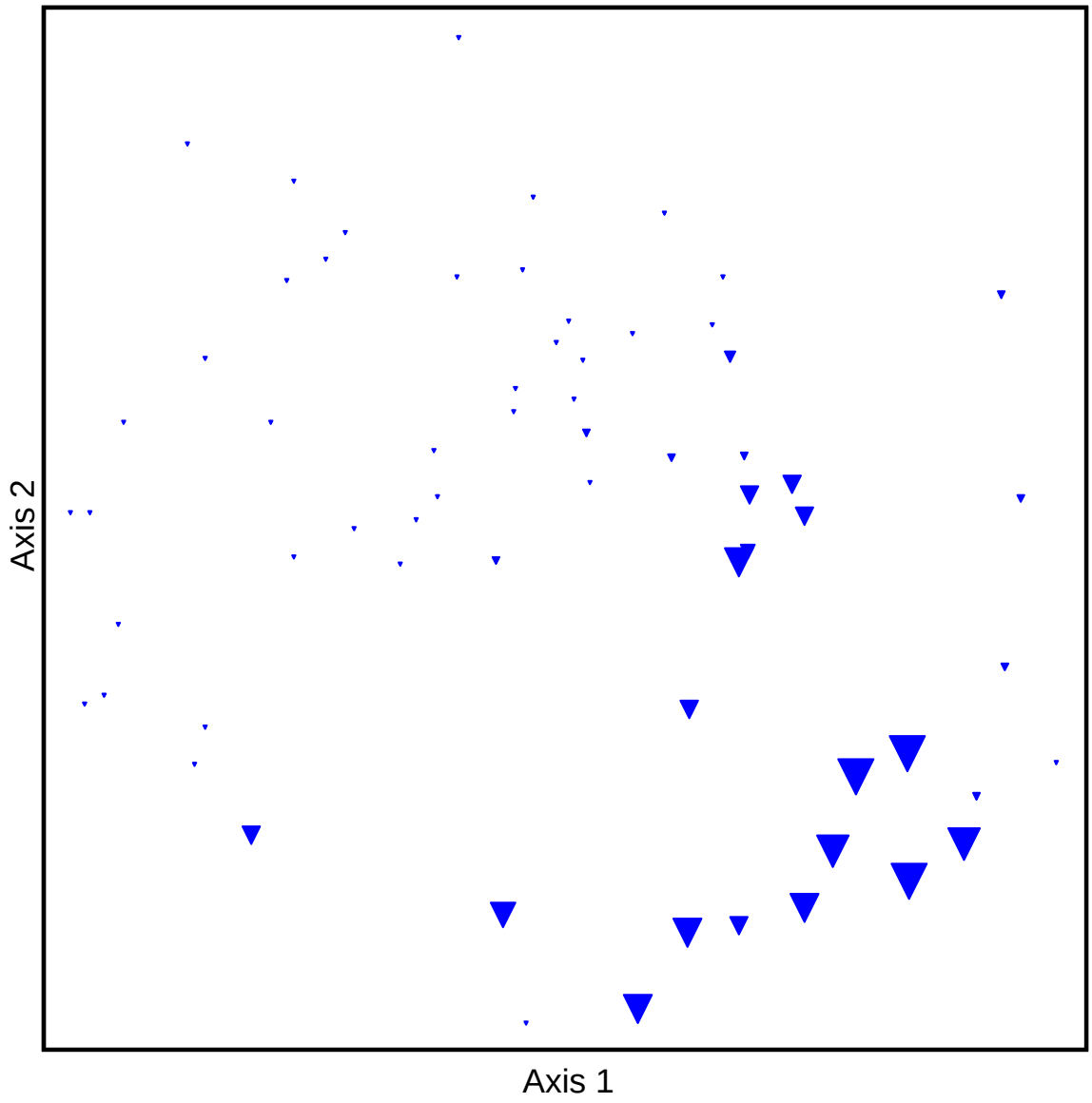


Figure 11. Non-metric multidimensional scaling (NMS) ordination of 64, 10m x 10m peatland plots using the 154 taxa that occurred in more than 2 plots. Plots with larger symbols indicate greater coverage of *Carex stricta* combined with grass taxa, abundant in sedge meadows.

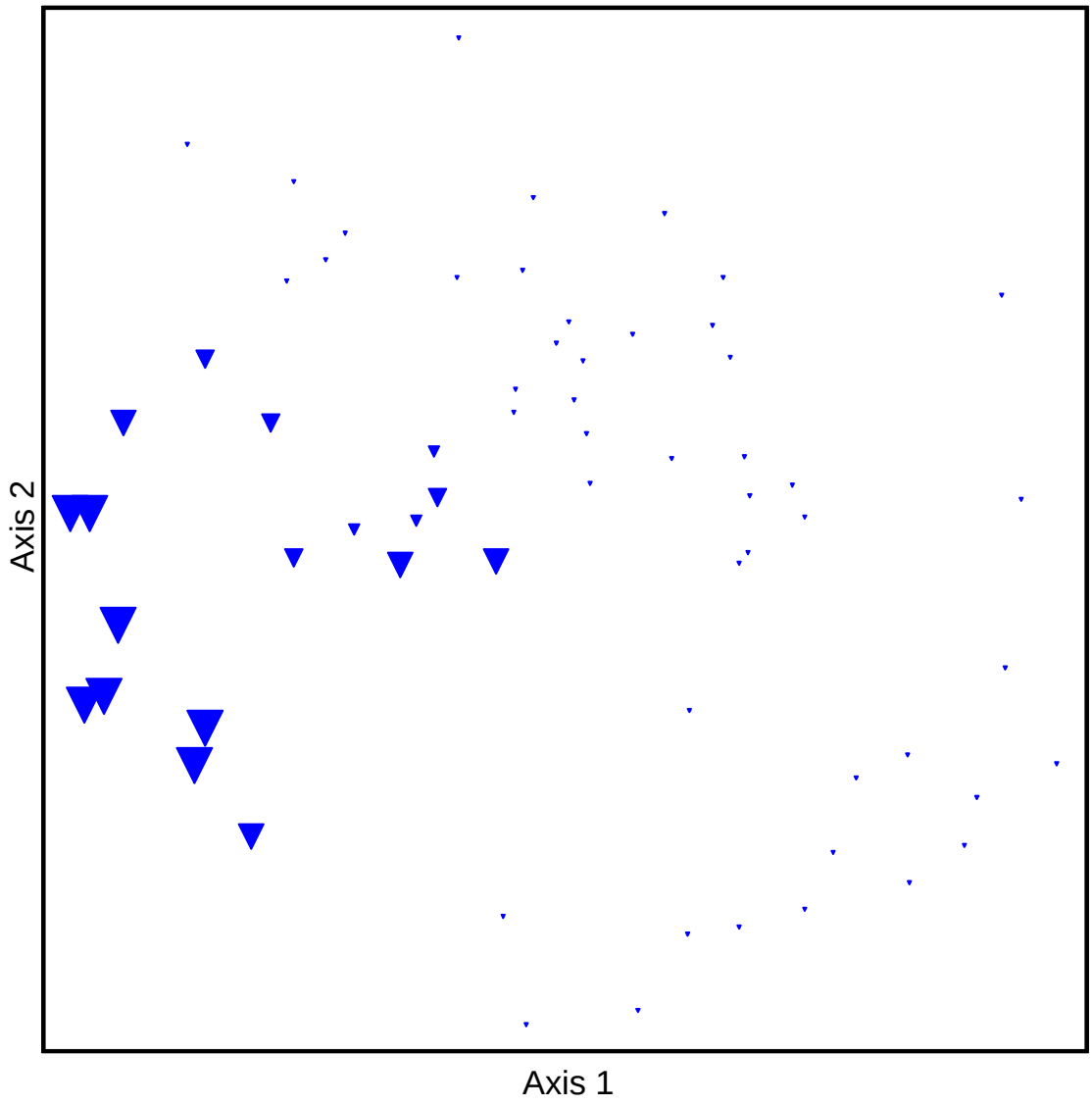


Figure 12. Non-metric multidimensional scaling (NMS) ordination of 64, 10m x 10m peatland plots using the 154 taxa that occurred in more than 2 plots. Plots with larger symbols indicate greater coverage of *Sphagnum* taxa, indicating more acidic bog conditions.

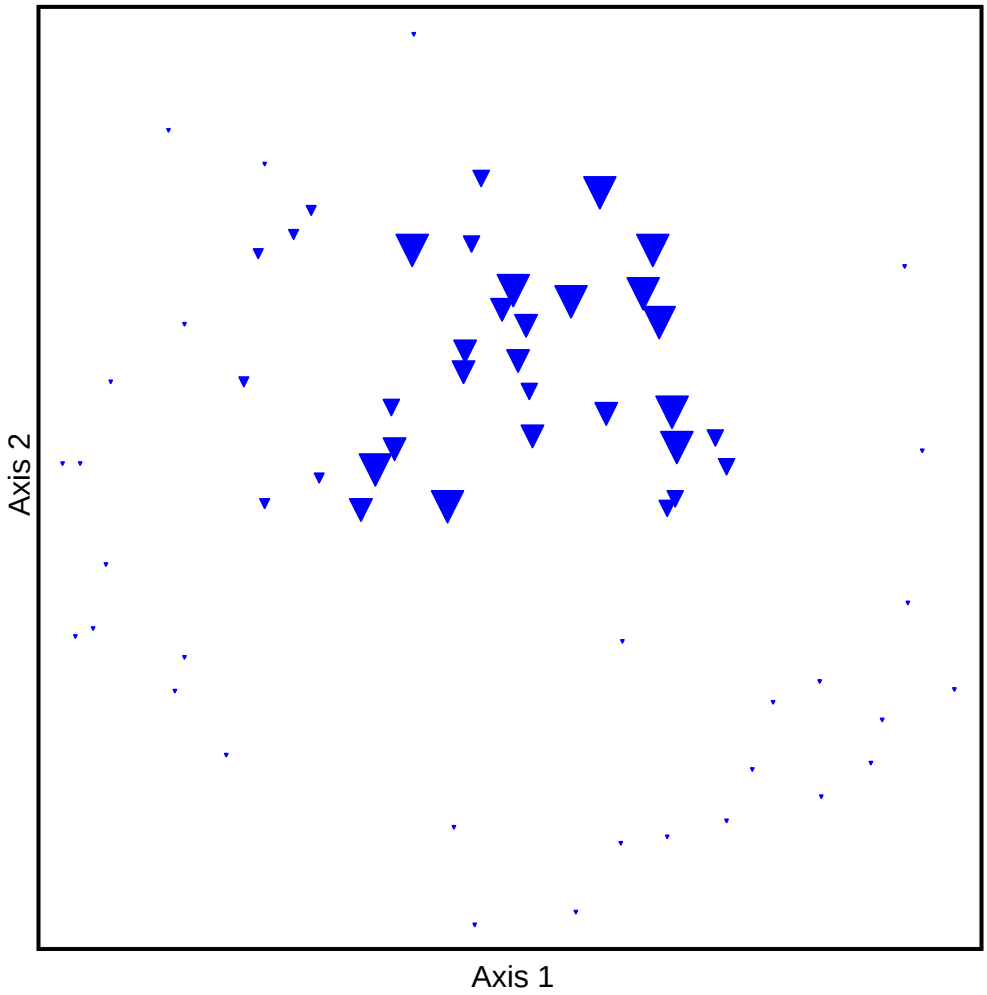


Figure 13. Non-metric multidimensional scaling (NMS) ordination of 64, 10m x 10m peatland plots using the 154 taxa that occurred in more than 2 plots. Plots with larger symbols indicate greater coverage of *Carex lasiocarpa*, indicating more pH neutral, fen-like plots.

Aggressive and Exotic Aquatic Species

A summary of occurrences of *Typha* spp. and *Phragmites australis* across all inland lakes and Lake Superior bays indicates a total of 265 *Typha latifolia*, seven *T. angustifolia,* and 31 *Phragmites* locations (Table 11). Although exact determination of *Typha* species can be difficult or impossible in the field with sterile individuals, we assume that most of the sterile occurrences were *T. latifolia* due to leaf width, generally color, and the scarcity of *T. angustifolia* or the hybrid (*T.* x *glauca*). It is notable that the only two general locations for either *T. angustifolia* or *T.* x *glauca* are at Sargent Lake (one point) and McCargoe/Brady coves (2 large potentially troublesome beds, see Appendix A for the detailed map). We did not find any curly-leaf pondweed (*Potamogeton crispus*), Eurasian milfoil (*Myriophyllum spicatum* L.), and purple loosestrife (*Lythrum salicaria* L.) on the island in any of our segments, plots or travels.

A detailed list of all the aggressive taxa beds and points is presented in Table 12 along with their general location (lake or bay), length in meters (if a bed), stem count, GPS coordinates (start and end points if a bed), and added notes. From these data we estimated the total length and percent of each lake or bay's shoreline occupied by either *Typha latifolia, T. angustifolia,* and/or *Phragmites.* For this analysis we assume all points to be 2.5 meters in length (half of the maximum length possible by our definition of points). (This is likely a slight over-estimate, as many of the points were merely 1-5 stems occupying about a meter in length). The largest percent of shoreline occupied by any of the aggressives was about 15% by *T. latifolia* on Linklater Lake and 11% by Phragmites on Wagejo Lake (Table 13). Overall *Typha latifolia, T. angustifolia,* and *Phragmites* occur on 39, 3, and 13 of the 50 sampled locations respectively.

In total, 1.2% of the 308 km of interior lake and Lake Superior bay shoreline surveyed was occupied by *Typha* or *Phragmites*. Although precise data are unavailable, Isle Royale probably has less invaded lake shoreline than most other parks in the northeastern US, although we only have comparable data from Voyageurs National Park. There percent invasion varied from as low as 4% to almost 90% in select bays of Namakan Lake, and was as much as 45% in some parts of Rainy Lake (Meeker et al. 2005). However, *Typha angustifolia* (or *T.* x *Glauca*) is probably at an early stage of invading Isle Royale since the species has been spreading quickly across the northeastern US and Canada (Galatowitsch et al. 1999) and was not observed in the park until 2004. We predict that *Typha* may continue to spread in the park, but may not reach the extreme abundance observed in areas with greater nutrients and manipulated water levels.

New and Notable Species

We found thirteen species during 2003 – 2005 fieldwork that were not previously documented from Isle Royale National Park (Table 14, and noted immediately below), nine were predicted to occur (Table 5). We also found new populations of seventeen species that are rare in Michigan, but had been previously reported for the park. These species are listed further below and the comments on their status around Lake Superior are derived from *Online Atlas of Michigan Plants* (2004), Voss (1972, 1985, 1996), Soper et al. (1989), and Ownbey and Morley (1991).

The species newly reported to Isle Royale include:

***Armoracia lacustris* (A. Gray) Al-Shehbaz & V. Bates**
Collected at several locations at the east end of Lake Richie. Elsewhere around Lake Superior known from the Wisconsin mainland and recently discovered on Lake Superior tributaries at the Nipigon River mouth, Ontario (Harris, pers. obs.) and in the AuTrain River in the Upper Peninsula of Michigan. Apparently declining across most of its range.

***Ceratophyllum demersum* L.**
Submergent in west end of Patterson Lake. Common south and west of Lake Superior, but rare on the north shore.

***Glyceria grandis* S. Wats.**
Stream floodplain along portage between Moskey Basin and Lake Richie. Common on the mainland around Lake Superior.

***Leersia oryzoides* (L.) Swartz**
Stream floodplain between Siskiwit Lake and Intermediate Lake. Uncommon and local on the north shore of Lake Superior.

***Malva moschata* L.**
Single plant growing along portage between Moskey Basin and Lake Richie. A European exotic.

***Myriophyllum farwellii* Morong**
Discovered at several lakes on the northeast side of Isle Royale including Lake Ahmik, Lake Shesheeb, Linklater Lake, and Patterson Lake. This submergent species is known from scattered locations around Lake Superior.

***Myriophyllum heterophyllum* Michx.**
Submergent in north inlet at west end of Duncan Bay. Not known from the north shore of Lake Superior in Minnesota or Ontario.

***Ophioglossum vulgatum* L. var. *pseudopodum* (S.F. Blake) Farw.; =*O. pusillum* Raf.**
Wetland along Minong Ridge. Uncommon and scattered in the Lake Superior Basin.

***Sagittaria rigida* Pursh**
West end of Linklater Lake. Uncommon near Lake Superior.

***Scirpus pungens* Vahl; =*Schoenoplectus pungens* (Vahl) Palla**
Beach on south side of Sargent Lake. Uncommon on the mainland around Lake Superior.

***Typha angustifolia* L.**
Northeast end of Sargent Lake. Several vegetative populations of cattail may have been this species or its hybrid with *Typha latifolia* (=*Typha X glauca*). Invasive and spreading in central North America.

***Xyris montana* H. Ries**
Fen at Lily Lake. Near Lake Superior, it is confined to a few rich fens.

***Zosterella dubia* (Jacq.) Small; = *Heteranthera dubia* (Jacq.) MacMill.**
Submergent in the east end of Lake Richie. Uncommon around Lake Superior, but recently discovered at several locations on the north shore in Ontario.

Species Rare in Michigan

The following nineteen species noted during fieldwork in 2003 – 2005 are ranked as Endangered, Threatened, or Special Concern in Michigan (Michigan Natural Features Inventory 2005); seventeen of these were noted previously.

***Armoracia lacustris* (A. Gray) Al-Shehbaz & V. Bates Threatened (S2/G4)**
Also new to ISRO, collected at several locations at the east end of Lake Richie. Elsewhere around Lake Superior known from the Wisconsin mainland and recently discovered on Lake Superior tributaries at the Nipigon River mouth, Ontario (Harris, pers. obs.) and in the AuTrain River in the Upper Peninsula of Michigan. Apparently declining across most of its range.

***Beckmannia syzigachne* (Steud.) Fern. Threatened (S2/G5)**
Lake Superior shoreline at southwest end of Stockly Bay. A western species sporadically distributed around Lake Superior.

***Callitriche hermaphroditica* L. Special Concern (S2/G5)**
Submergent in Pickerel Cove and Five Finger Bay. A northern species, fairly common north of Lake Superior.

***Carex atratiformis* Britton Threatened (S2/G5)**
Lake Superior shoreline at Five Finger Bay. An arctic-alpine disjunct species (Given and Soper 1981), known in Michigan from Isle Royale (Voss 1972) and mainland Keweenaw and Marquette counties. Also scattered locations on the Ontario side of Lake Superior.

***Carex norvegica* Retz. (*C. media*) Threatened (S2S3/G5T5)**
Lake Superior shoreline at Stockly Bay. A northern species relatively common on the north shore of Lake Superior and northward, but rare and local in Michigan.

***Castilleja septentrionalis* Lindl. Threatened (S2S3/G5)**
Lake Superior shorelines at Stockly Bay, Five Finger Bay, and Pickerel Cove. An arctic-alpine disjunct species (Given and Soper 1981), known from scattered locations around the lake.

***Drosera anglica* Hudson Special Concern (S3/G5)**
Lake Superior shoreline fen and Siskiwit Fen. Its Michigan range includes the Upper Peninsula and northern Lower Peninsula (Penskar and Higman 1999b). Also widespread along the north shore of Lake Superior in Ontario in rich fens and edges of Lake Superior rock pools.

***Juncus stygius* L.** **Threatened (S1S2/G5)**
Fen at Stickleback Lake. Previously collected only once (1901) on Isle Royale (location unknown) and three other counties in Michigan's Upper Peninsula. Relatively common in fens on the Ontario side of Lake Superior.

***Lycopodium selago* L.; = *Huperzia selago* (L.) Bernhardi ex Schrank & Martius**
Special Concern (S3/G5)
Between Lake Whittlesey and Lake Dustin. A northern species typically found on north facing cliffs near Lake Superior.

***Myriophyllum alterniflorum* DC.** **Special Concern (S2S3/G5)**
Submergent species discovered at Feldtmann Lake and Stockly Bay. A northern species fairly common on the north shore of Lake Superior.

***Myriophyllum farwellii* Morong** **Threatened (S2/G5)**
Also new to ISRO, discovered at several lakes on the northeast side of Isle Royale including Lake Ahmik, Lake Shesheeb, Linklater Lake, and Patterson Lake. This submergent species is known from scattered locations around Lake Superior.

***Nymphaea tetragona* Georgi; = *N. leibergii* Morong** **Endangered (S1/G5)**
Duncan Bay at edge of stream channel and Hatchet Lake. A northern species at the southern limit of its range.

***Orchis rotundifolia* Banks; =*Amerorchis rotundifolia* (Banks ex Pursh) Hultén**
Endangered (S1/G5)
Rich fen habitat at Siskiwit Fen. Widespread in boreal North America, but rare and local in the east (Penskar and Higman 1999a). Common in suitable habitat on the Sibley Peninsula, Ontario, approximately 30 km north of Isle Royale.

***Parnassia palustris* L.** **Threatened (S2/G5)**
Rich fen habitat at Sumner Lake, Siskiwit Fen, and Dustin Lake. Common on the north shore of Lake Superior.

***Pinguicula vulgaris* L.** **Special Concern (S3/G5)**
Shorelines at Lane Cove, Siskiwit Lake, and Five Finger Bay. A northern species, locally common on the north shore of Lake Superior.

***Poa alpina* L.** **Threatened (S1S2/G5)**
Hidden Lake. An arctic-alpine disjunct species, rare and local on Lake Superior (Given and Soper 1981).

***Ranunculus macounii* Britton** **Threatened (S1/G5)**
Shoreline at Robinson Bay. Known in Michigan only from Isle Royale (Voss 1985), but relatively common on the Ontario side of Lake Superior.

***Subularia aquatica* L.** **Endangered (S1/G5)**
Submergent in Lake Richie, Lake LeSage and five Lake Superior bays on the east end of the island. Previously reported on Isle Royale from only one location (Moskey Basin) in 1930. A northern species, generally rare around Lake Superior and easily overlooked when sterile.

***Trisetum spicatum* (L.) K. Richter** **Special Concern (S2S3/G5)**
Observed on Lake Superior shorelines at Robinson Bay and Stockly Bay. A northern species, relatively common on the north shore of Lake Superior.

SUMMARY AND RECOMENDATIONS

Isle Royale is an exciting location to conduct biological studies. For the same reason that islands everywhere offer allure for students of natural history, this rugged insular park offers researchers the opportunity of witnessing native ecological communities and their interactions in as close to pristine conditions as one can experience in the upper Midwest. Highlighted, of course, are the ongoing moose, wolf, and loon studies (Peterson and Vucetich 2004; Egan and Oelfke 2000), but there are numerous other examples touting the ecological integrity of the park. Brood stocks of coastal brook trout have been developed from ISRO for use in restoration efforts elsewhere around Lake Superior. Elements of the flora of ISRO include rare, relictual plants with distinctive arctic-alpine affinity and western disjuncts not common elsewhere (Judziewicz 2004). In addition, many of the wetland communities we describe in this report are intact, especially in their low level of exotic plant invasion. We believe that, due to its insular nature, ISRO presents one of the best opportunities in the Midwest to maintain examples of intact native wetland communities into the distant future. In order to achieve this goal, these resources will have to be monitored for change, including a continuation of the types of aggressive plant surveys that we piloted in this report. As we are all well aware, weeds are best dealt with at very early stages of their invasions.

In addition to presenting ideas for ongoing shoreline plant monitoring, we were also able to characterize some general differences among wetlands types. For example, we have determined that prior to the monitoring of peat forming wetlands, it may be appropriate to stratify types into newly formed communities (what we have referred above as sedge meadows) from those peatlands described as fens or bogs. Future studies that follow the development of peat forming wetlands throughout the cycle of beaver ponding and abandonment would be very helpful in better understanding the successional processes that occur on the island. This type of work may answer questions about the time it takes to move from one state to the next, and, very importantly, how to separate these natural cyclic changes from that of invasion by aggressive taxa (Meeker 2003).

Insularity, however, is a double edged sword. The same insular nature that protects this island archipelago from exotic invasion, permits or even enhances eruptive ecological behavior. Beginning with the moose introduction in the 1930s, observers have noted the effects of herbivory on aquatic plants (Koelz 1929; Murie 1934; both as reported in Lafrancois and Glase 2005). Photographs depicting two views of the wetland shoreline of Sumner Lake in the 1905 (Adams 1908), and near the same locations in 2005 (J.E.M photos) shows the almost complete eradication of floating vegetation, most likely yellow water lilies (*Nuphar variegata*) (Figures 14 and 15).



Figure 14. Two views of the northeast end of Sumner Lake. The top photograph was taken in 1905 as reprinted in an *Ecological Survey of Isle Royal, Lake Superior* (Adams 1908), while the bottom digital image was taken in August 2004 (Jim Meeker photo).

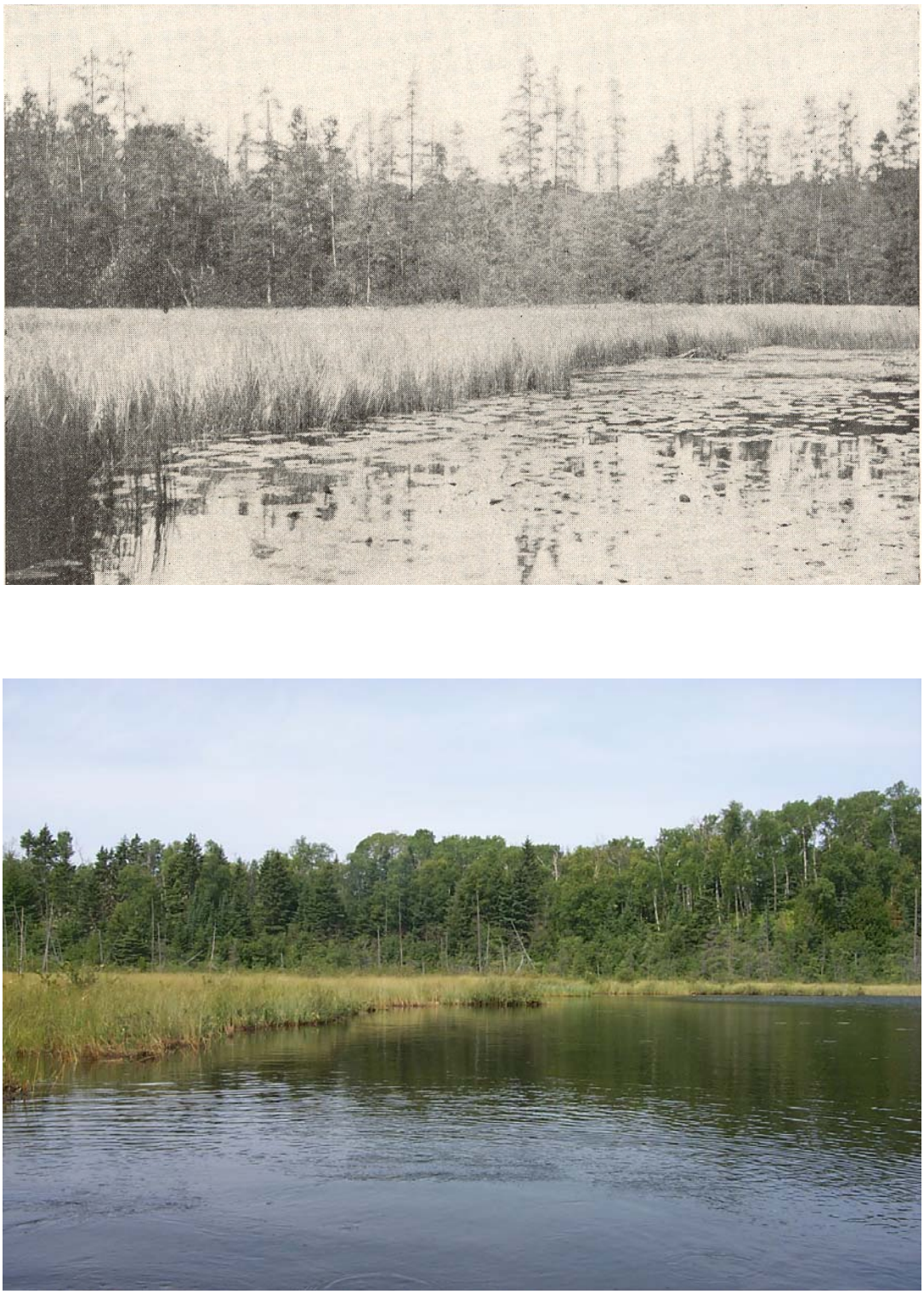


Figure 15. Two views of the southwestern end of Sumner Lake. The top photograph was taken in 1905 as reprinted in an *Ecological Survey of Isle Royal, Lake Superior* (Adams 1908), while the bottom digital image was taken in August 2004 (Jim Meeker photo).

Almost every aquatic bed that we surveyed by snorkel showed signs of herbivory, either in the form of remnant stems, with the leafy tissue removed or moose prints revealed in the sedimentary/organic substrate. If moose numbers decline, important questions include: 1) are there enough relict patches remaining in the lakes to offer real recovery without transplanting?, and 2) how quickly could remnant or refugial patches of aquatics (as the water lilies depicted in figure 7, protected by woody debris) respond to a release of herbivory? Do their abundances track changes in herbivore pressure? The first question can be partially addressed by looking at the raw data for the aquatic segments. These data indicate that all of the lakes surveyed have at least one small patch of *Nuphar*, although most of the abundance estimates are recorded as trace, representing less than 1 percent cover. Tracking lily response to herbivory would need to include monitoring of existing patches (their size changes), and more extensive surveys designed to detect any new colonies that may appear. This sampling would require more precise global positioning equipment and repeated sampling.

During the duration of this study thirteen new taxa were added to the flora of ISRO, including the aquatic lake cress (*Armoracia lacustris*) and Farwell's water milfoil (*Myriophyllum farwellii*), both ranked as Threatened in Michigan. In total, we have verified nine of the taxa listed on the May, 2003 target list (Table 5). After the first summer of our field work, a review of the ISRO flora was reported to contain 731 species (Judziewicz 2003), including our 2003 new species reports. In 2004, we located an additional eight species suggesting the flora should now amount to at least 739 species.

No doubt the flora will increase as weedy taxa arrive, yet some species, not thought of as 'weeds', are fairly common on the Wisconsin and Michigan mainland and are yet to be recorded for ISRO. These include some taxa that would not appear to be restricted in their dispersal such as swamp milkweed (*Asclepias incarnata*) and star duckweed (*Lemna trisulca*). How many of these we will continue to find is anyone's guess, they may be over the next ridge.

ACKNOWLEDGMENTS

We appreciate the help of numerous individuals in this project. Joan Elias, Mike Jones, Kate Thompson, and Chris Tyrell assisted with the fieldwork; Tara King created all of the site maps. Jean Battle, Mark Romanski and Alex Egan of Isle Royale National Park made the sometimes difficult logistics possible. Suzanne Sanders and Joan Elias of the Great Lakes Inventory and Monitoring Network provided helpful reviews.

REFERENCES CITED

Adams C. C. 1908. Ecological Survey of Isle Royal, Lake Superior, A report from the University of Michigan Museum published by the State Biological Survey. Lansing MI. 468 pp.

Aho, R. W. and P. A. Jordan. 1979. Production of aquatic macrophytes and its utilization by moose on Isle Royal National Park. Proceedings of the 1st Conference on Scientific Research in the National Parks. 1:341-348.

Egan, A. and J. Oelfke. 2000. Common loon survey at Isle Royale National Park, Michigan. Resource Management Report 00-3, Isle Royale National Park, Houghton, MI.

Forst, C., L. Silk, N. Stadler-Salt, P. Bertram. 2004. State of the Lakes Ecosystem Conference Peer Review Report Part 2: Stakeholder Review of the Great Lakes Indicators. Detroit, MI. 50 p.

Galatowitsch, S., N. Anderson, and P. Ascher. 1999. Invasiveness in wetland plants in temperate North America. Wetlands 19:733-755.

Given, D.R. and J.H. Soper. 1981. The Arctic-Alpine Element of the Vascular Flora at Lake Superior. National Museums of Canada, Publications in Botany No. 10. 70 p.

Gleason, H.A, and Cronquist, A. 1991. Manual of Vascular Plants of NortheasternUnited States and Adjacent Canada, 2nd edition. The New York Botanical Garden, Bronx, NY. 910 p.

Judziewicz, E. J. 1999. Isle Royale National Park aquatic vascular plant species. MWR-ISRO-2129/ISRO.

Judziewicz, E. J. 2003. Review of vascular plant species lists for nine Midwestern National Parks, Monuments, Lakeshores and Riverways: A final report. Submitted to the Great Lakes Network of the National Park Service, Ashland WI.

Judziewicz, E. J. 2004. Inventory and establishment of monitoring programs for special floristic elements at Isle Royale National Park, Michigan. Third iteration of surveys. Unpublished report to National Park Service.

Kallemeyn. L. 2000. A comparison of fish communities from 32 inland lakes in Isle Royale National Park, 1929 and 1995-1997. Biological Science Report 0004, U.S. Geological Survey, Columbia Environmental Research Center and International Falls Biological Station, International Falls, MN.

Koelz, W. 1929. A survey of the lakes of Isle Royale, with an account of the fishes occurring in them. Report 136. Institute for Fisheries Research, University of Michigan.

Lafrancois, B. and J. Glase. 2005 Aquatic Studies in National Parks of the upper Great Lakes States: past efforts and future directions. Water Resources Division Tech. Report, NPS/NRWRD/NRTR-2005/334. NPS, Denver, Colorado.

McCune, B. and M. J. Medford. 1999. PC-ORD. Multivariate Analysis of Ecological Data, Version 4. MjM Software Design, Gleneden Beach, OR., USA.

Meeker, J. E. 2003. What changes are 'natural'? - Monitoring plant community composition in wetlands of the Apostle Islands National Lakeshore, 1996-2002. Annual Meeting of the Natural Areas Association, Madison WI.

Meeker, J., A. Harris, and R. Foster. 2005. Voyageurs National Park Aquatic Plant Study, Interim Report, submitted to Voyageurs National Park 1/2005.

Michigan Natural Features Inventory. 2005. Michigan's Special Plants. http://web4.msue.msu.edu/mnfi/data/specialplants.cfm. Accessed December 2005.

Murie, A. 1934. The moose of Isle Royale, University of Michigan Museum of Zoology, Ann Arbor, MI.

Online Atlas of Michigan Plants. A.A. Reznicek., E.G. Voss, & Rachel Simpson. Edition 1. April 2004. University of Michigan. http://herbarium.lsa.umich.edu/website/michflora/onlinemaps.html. Accessed January 2006.

Ownbey, G.B. and T. Morley. 1991. Vascular Plants of Minnesota: A Checklist and Atlas. University of Minnesota Press, Minneapolis. 307 pp.

Penskar, M.R. and P.J. Higman. 1999a. Special plant abstract for *Amerorchis rotundifolia* (round-leaved orchis). Michigan Natural Features Inventory, Lansing, MI. 3 pp.

Penskar, M.R. and P.J. Higman. 1999b. Special plant abstract for *Drosera anglica* (English sundew). Michigan Natural Features Inventory, Lansing, MI. 2 pp.

Peterson, R. and J. Vucetich. 2004. Ecological studies of wolves on Isle Royale. Annual Report 2003-2004, School of Forest Resources and Environmental Science, Michigan Technological University, Houghton, MI.

Route, B. 2002. Executive Summary of Study Plan for Conducting Biological Inventories: FY2001-2004, Great Lakes Network, US National Park Service.

Slavick, A. D. and Janke, RA. 1987. The vascular flora of Isle Royale National Park. Michigan Botanist 26(3):91-134

Slavick, A. D. and Janke, R. A. 1993. The vascular flora of Isle Royale National Park. Revised ed. Isle Royale Natural History Association, Houghton. iv + 50 pp.

Soper, J.H., C.E. Garton, and D.R.Given. 1989. Flora of the North Shore of Lake Superior (Vascular Plants of the Ontario Portion of the Lake Superior Drainage Basin). National Museums of Natural Sciences. National Museums of Canada. Syllogeus No. 63.

The Nature Conservancy. 1999. Classification of the Vegetation of Isle Royale National Park. USGS-NPS Vegetation Mapping Program. 140 pp.

Toczydlowski, D. G., T. Abramson, R. S. Burdett, T. Beecher-Rocker, R. DePuydt, M. A. Mitchell, J. Rice, and J. Stave. 1978. Aquatic Baseline on Isle Royale, Michigan. Isle Royal National Park, National Park Service, U. S. Department of Interior.

Voss, E. G. 1972. Michigan Flora. Part I. Gymnosperms and Monocots. Bull. CranbrookInst. Sci. 55 and Univ. Michigan Herbarium. xv + 488 pp.

Voss, E. G. 1985. Michigan Flora. Part II. Dicots (Saururaceae-Cornaceae). Bull. Cranbrook Inst. Sci. 59 and Univ. Michigan Herbarium. xix + 724 pp.

Voss, E. G. 1996. Michigan Flora. Part III. Dicots (Pyrolaceae-Asteraceae). Bull. Cranbrook Inst. Sci. 61 and Univ. Michigan Herbarium. xix + 622 pp.

Table 1. Inland lakes and Lake Superior bays sampled for vegetation at Isle Royale 2003-2005; columns indicate the number of aquatic and shoreline segments sampled in each basin.

Site	Number of Aquatic Segments	Number of Shoreline Segments	1=Lake Superior Bay 2=Inland Lake	Year
Ahmik Lake	7	6	2	2004
Amygdaloid Lake	6	6	2	2004
Angleworm Lake	3	3	2	2004
Beaver Lake	2		2	2004
Benson Lake	4	4	2	2004
Chickenbone Lake	6		2	2004
Chippewa Harbor	4	3	1	2003
Desor Lake	6		2	2005
Duncan Bay	8	8	1	2004
Dustin Lake	1		2	2003
Eva Lake	6	6	2	2004
Eva Pond[1]	1	1	2	2004
Feldtmann Lake	3	2	2	2004
Five Finger Bay	2	2	1	2004
Forbes Lake	2	2	2	2004
Harvey Lake	5		2	2004
Hatchet Lake	4		2	2004
Hidden Lake[2]		1	2	2003
Intermediate Lake	9		2	2003
Lane Cove	5	5	1	2004
LeSage Lake	5		2	2003
Lily Lake[1]	1		2	2004
Linklater Lake	2		2	2004
Livermore Lake	3		2	2004
McCargoe/Brady Coves	2		1	2005
McDonald Lake	1		2	2004
Moose Lake[2]	1	2	2	2003
Moskey Basin	1		1	2003
Mud Lake	2		2	2005
Ojibway Lake	2	1	2	2004
Otter Lake	2		2	2004
Patterson Lake	2	2	2	2004
Pickerel Cove	6	6	1	2004
Richie Lake	12		2	2003
Robinson Bay	7	7	1	2004
Sargent Lake	6		2	2004
Scholts Lake[1]	1	1	2	2003
Shesheeb Lake	1		2	2004
Siskiwit Lake	5		2	2005
Siskiwit Lake (NE)[3]	1		2	2003
Stickleback[1]	1	1	2	2004
Stockly Bay	2	2	1	2004
Sumner Lake	1	1	2	2004
Tobin Harbor	3		1	2003
Wagejo Lake	2		2	2004
Whittlesey Lake	5		2	2003
Wood Lake	7		2	2003
TOTALS	**168**	**72**		

[1] entire lake as segment

[2] presence/absence data only at the shoreline segments

[3] Northeast portion of Siskiwit Lake sampled in 2003

	2003-2005 TOTALS		
Year	**Number of Sites**	**Aquatic Segments**	**Shoreline Segments**
2003	13	50	7
2004	30	103	65
2005	4	15	0
TOTAL	**47**	**168**	**72**

Table 2. Isle Royale wetland sampling locations 2003-2005; inland lake and Lake Superior bay aquatic segment start and endpoint coordinates are in UTM Zone 16, NAD 83

Location	Segment Number	Year Sampled	Start		End		Length (m)
			Easting	Northing	Easting	Northing	
Ahmik Lake	1	2004	385728.738	5334265.683	385851.101	5334249.645	177.7
Ahmik Lake	2	2004	385208.456	5333733.014	385371.998	5333851.028	297.0
Ahmik Lake	3	2004	385217.442	5333845.637	385318.083	5333922.316	168.5
Ahmik Lake	4	2004	385376.192	5333987.613	385404.947	5334058.901	153.5
Ahmik Lake	5	2004	385519.650	5334139.161	385681.218	5334236.577	188.9
Ahmik Lake	6	2004	385551.320	5334072.002	385693.056	5334207.992	196.4
Ahmik Lake	7	2004	385500.642	5333975.217	385659.240	5334104.115	204.7
Amygdaloid Lake	1	2004	378482.904	5333876.877	378662.374	5333961.377	203.4
Amygdaloid Lake	2	2004	378228.655	5333725.075	378313.903	5333767.699	104.1
Amygdaloid Lake	3	2004	377673.046	5333479.052	377756.051	5333515.693	131.3
Amygdaloid Lake	4	2004	378221.177	5333814.810	378402.890	5333903.049	203.0
Amygdaloid Lake	5	2004	378390.926	5333903.797	378568.152	5333998.767	202.7
Amygdaloid Lake	6	2004	378939.805	5334176.741	378992.898	5334179.732	113.5
Angleworm Lake	1	2004	377187.871	5327067.951	377374.767	5327140.178	201.3
Angleworm Lake	2	2004	375625.199	5326012.223	375820.141	5326089.953	366.7
Angleworm Lake	3	2004	378465.952	5327706.818	378569.155	5327911.312	414.2
Beaver Lake	1	2004	369536.371	5326952.262	369694.286	5326978.745	198.7
Beaver Lake	2	2004	369072.755	5326572.628	369192.506	5326675.799	162.8
Benson Lake	1	2004	378630.732	5327163.329	378672.487	5327280.563	153.9
Benson Lake	2	2004	378434.004	5327115.151	378555.253	5327104.712	189.4
Benson Lake	3	2004	377906.221	5326990.690	378020.185	5326972.997	230.9
Benson Lake	4	2004	378829.124	5327645.733	379082.915	5327728.291	271.8
Brady Cove	1	2005	374770.490	5329923.030	374860.280	5329927.230	115.7
Chickenbone Lake	1	2004	373348.587	5326117.083	373501.319	5326189.909	179.3
Chickenbone Lake	2	2004	373647.982	5326079.658	373580.214	5326217.218	238.3
Chickenbone Lake	3	2004	372210.929	5325018.458	372387.215	5325094.009	193.1
Chickenbone Lake	4	2004	371731.099	5324860.999	371885.851	5324900.334	162.1
Chickenbone Lake	5	2004	371164.897	5324894.798	371280.613	5324803.189	160.8
Chickenbone Lake	6	2004	371548.287	5325458.721	371634.223	5325607.522	176.7
Chippewa Harbor	1	2003	376261.804	5320292.945	376333.563	5320246.093	86.8
Chippewa Harbor	2	2003	376140.228	5320315.481	376249.350	5320332.086	159.6
Chippewa Harbor	3	2003	375566.745	5320677.243	375986.034	5320609.635	636.3
Chippewa Harbor	4	2003	375994.040	5320605.401	376044.054	5320583.047	105.5
Lake Desor	1	2005	351371.730	5314524.500	351278.000	5314724.250	254.8
Lake Desor	2	2005	350584.560	5314504.020	350357.820	5314642.950	278.8
Lake Desor	3	2005	350293.170	5314872.500	350324.290	5315011.330	250.6
Lake Desor	4	2005	349758.180	5315234.760	349624.650	5315353.910	181.8
Lake Desor	5	2005	352176.700	5316006.010	352241.780	5315976.330	102.0
Lake Desor	6	2005	353109.720	5315996.160	353209.010	5316084.840	218.6
Duncan Bay	1	2004	385784.162	5333712.812	386599.501	5334144.379	969.4
Duncan Bay	2	2004	386481.066	5334156.660	386703.001	5334327.813	284.7
Duncan Bay	3	2004	387893.003	5335165.081	388129.175	5335183.365	348.2
Duncan Bay	4	2004	388347.825	5335509.435	388435.437	5335498.007	177.3
Duncan Bay	5	2004	389036.533	5336140.243	389259.754	5336173.002	324.2
Duncan Bay	6	2004	386294.263	5333610.481	386454.972	5333635.289	251.8
Duncan Bay	7	2004	386357.899	5333678.432	386339.563	5333719.418	49.6
Duncan Bay	8	2004	386692.259	5334014.949	386695.495	5334048.385	57.7
Dustin Lake	1	2003	373204.105	5318156.954	373532.775	5318278.996	440.8

Table 2. Isle Royale wetland sampling locations 2003-2005; inland lake and Lake Superior bay aquatic segment start and endpoint coordinates are in UTM Zone 16, NAD 83

Location	Segment Number	Year Sampled	Start		End		Length (m)
			Easting	Northing	Easting	Northing	
Eva Lake	1	2004	378310.721	5331577.680	378388.079	5331643.016	172.1
Eva Lake	2	2004	378319.607	5331524.888	378453.415	5331519.661	261.8
Eva Lake	3	2004	377898.843	5331147.246	378056.172	5331266.942	200.4
Eva Lake	4	2004	377629.659	5331040.095	377618.160	5331113.794	109.0
Eva Lake	5	2004	377636.454	5331151.428	377681.928	5331183.834	106.7
Eva Lake	6	2004	377977.246	5331432.111	378140.847	5331533.513	205.5
Eva Pond	1	2004	377806.670	5330893.695	377749.469	5331038.105	473.6
Feldtmann Lake	1	2004	336567.513	5302591.640	336697.482	5302620.987	137.2
Feldtmann Lake	2	2004	338732.743	5302614.143	338886.907	5302611.314	176.5
Feldtmann Lake	3	2004	337315.820	5301859.496	337504.770	5301955.537	217.0
Five Finger Bay	1	2004	386595.586	5334753.816	386792.704	5334849.414	346.3
Five Finger Bay	2	2004	386577.603	5334472.123	386756.403	5334559.687	202.1
Forbes Lake	1	2004	379530.781	5327401.086	379462.329	5327521.316	177.6
Forbes Lake	2	2004	379119.430	5327168.076	379255.108	5327127.475	297.7
Harvey Lake	1	2004	366827.894	5323496.023	366883.541	5323607.317	182.5
Harvey Lake	2	2004	366813.687	5323297.115	366825.527	5323493.655	221.6
Harvey Lake	3	2004	365544.622	5323033.522	365699.111	5323160.593	206.4
Harvey Lake	4	2004	365231.716	5323234.710	365270.688	5323338.634	187.0
Harvey Lake	5	2004	365690.861	5323378.956	365868.894	5323421.990	185.4
Hatchet Lake	1	2004	362390.778	5320388.583	362550.552	5320484.448	191.7
Hatchet Lake	2	2004	362195.074	5320340.546	362378.567	5320378.567	193.4
Hatchet Lake	3	2004	361385.670	5320261.286	361529.945	5320363.172	192.0
Hatchet Lake	4	2004	362105.374	5320682.833	362281.116	5320777.126	225.5
Hidden Lake	1	2003	390275.031	5334963.000	390417.656	5335027.500	240.7
Intermediate Lake	1	2003	370339.861	5320728.631	370420.819	5320698.271	172.4
Intermediate Lake	2	2003	370389.999	5320929.645	370530.756	5320937.005	375.8
Intermediate Lake	3	2003	370451.638	5321091.561	370593.314	5321102.141	297.5
Intermediate Lake	4	2003	370904.726	5321314.655	371079.292	5321366.404	184.1
Intermediate Lake	5	2003	371352.984	5321591.338	371593.788	5321563.049	411.8
Intermediate Lake	6	2003	371669.686	5321484.851	371839.422	5321483.471	179.1
Intermediate Lake	7	2003	371732.245	5321081.441	371987.078	5321288.436	376.2
Intermediate Lake	8	2003	371560.669	5320910.326	371454.412	5321073.622	237.1
Intermediate Lake	9	2003	371174.739	5320818.788	371070.782	5320962.765	194.4
Lane Cove	1	2004	383995.701	5333472.180	384157.633	5333521.790	343.9
Lane Cove	2	2004	383847.831	5333494.906	383928.807	5333524.690	89.7
Lane Cove	3	2004	383523.927	5333421.376	383617.003	5333463.260	103.3
Lane Cove	4	2004	382607.129	5333214.747	382685.313	5333197.993	152.3
Lane Cove	5	2004	382678.797	5333295.723	382716.028	5333274.316	82.6
LeSage Lake	1	2003	372845.715	5324099.441	373001.094	5324033.000	335.9
LeSage Lake	2	2003	372393.640	5323753.516	372402.172	5323859.067	184.8
LeSage Lake	3	2003	372365.037	5323944.354	372518.528	5323983.746	163.3
LeSage Lake	4	2003	371918.406	5323763.500	371975.275	5323910.681	302.5
LeSage Lake	5	2003	372848.036	5324377.193	373060.934	5324481.366	241.2
Lily Lake	1	2004	343609.531	5308600.500	343953.406	5308690.500	968.9
Linklater Lake	1	2204	378329.024	5330462.077	378425.846	5330433.031	130.5
Linklater Lake	2	2004	378160.500	5330256.744	378321.358	5330322.012	229.4
Livermore Lake	1	2004	373295.673	5325186.004	373404.383	5325290.657	158.8
Livermore Lake	2	2004	372997.533	5324959.661	373149.645	5325080.134	195.5
Livermore Lake	3	2004	373121.405	5325225.445	373291.002	5325325.359	198.9
McCargoe Cove	1	2005	372829.310	5327254.230	372884.190	5327283.330	111.9
McDonald Lake	1	2004	370608.463	5327427.881	370795.124	5327481.213	201.4

Table 2. Isle Royale wetland sampling locations 2003-2005; inland lake and Lake Superior bay aquatic segment start and endpoint coordinates are in UTM Zone 16, NAD 83

Location	Segment Number	Year Sampled	Start		End		Length (m)
			Easting	Northing	Easting	Northing	
Moose Lake	1	2003	387411.944	5333229.500	387598.240	5333338.048	276.9
Moose Lake	2	2003	387415.906	5333225.538	387602.202	5333334.086	270.8
Moskey Basin	1	2003	377464.267	5324730.747	377448.818	5324864.334	359.0
Mud Lake	1	2005	358708.530	5313895.070	358669.130	5313720.060	184.4
Mud Lake	2	2005	358763.190	5314008.200	358712.550	5313917.360	106.0
Ojibway Lake	1	2004	380162.795	5328918.512	380316.226	5328977.207	239.4
Ojibway Lake	2	2004	380660.011	5329098.995	380677.512	5329200.303	159.5
Otter Lake	1	2004	368977.090	5326163.813	369060.545	5326294.475	188.0
Otter Lake	2	2004	369580.288	5326545.238	369664.105	5326590.139	119.2
Patterson Lake	1	2004	384909.971	5333391.181	384933.257	5333540.532	283.3
Patterson Lake	2	2004	384187.304	5333118.173	384376.000	5333139.853	204.8
Pickerel Cove	1	2004	376393.343	5331028.138	376356.560	5331158.296	223.2
Pickerel Cove	2	2004	376593.936	5331026.004	376764.662	5331075.948	218.3
Pickerel Cove	3	2004	378726.228	5331989.205	378672.717	5332061.063	181.1
Pickerel Cove	4	2004	379001.561	5332118.380	379019.251	5332192.678	131.0
Pickerel Cove	5	2004	379282.505	5332434.656	379333.325	5332440.050	79.1
Pickerel Cove	6	2004	379356.889	5332459.923	379418.497	5332507.052	135.3
Richie Lake	1	2003	373974.998	5323052.541	374090.440	5323075.637	121.0
Richie Lake	2	2003	373011.406	5322867.500	373196.954	5322870.008	343.4
Richie Lake	3	2003	372975.169	5322556.100	373058.500	5322504.000	161.6
Richie Lake	4	2003	372229.293	5322427.512	372431.788	5322457.024	218.3
Richie Lake	5	2003	371980.054	5322190.085	371927.188	5322387.000	474.3
Richie Lake	6	2003	372253.461	5322145.500	372571.828	5322141.448	353.6
Richie Lake	7	2003	373732.313	5321372.000	373842.195	5321327.394	187.9
Richie Lake	8	2003	374089.522	5321281.305	373882.617	5321500.699	306.4
Richie Lake	9	2003	373504.947	5322169.583	373732.313	5322267.000	321.0
Richie Lake	10	2003	374133.432	5322299.106	374347.469	5322346.500	343.8
Richie Lake	11	2003	374389.750	5322416.500	374512.947	5322421.673	223.1
Richie Lake	12	2003	374900.131	5323275.909	374797.275	5323451.781	214.7
Robinson Bay	1	2004	379059.316	5332591.876	379228.863	5332718.215	213.7
Robinson Bay	2	2004	377660.225	5332015.069	377762.788	5332030.535	135.7
Robinson Bay	3	2004	377377.831	5331939.336	377663.503	5332024.727	324.2
Robinson Bay	4	2004	377076.875	5331999.559	377224.159	5332264.440	491.1
Robinson Bay	5	2004	378564.552	5332931.211	378740.378	5333030.542	210.7
Robinson Bay	6	2004	379230.549	5333438.435	379326.428	5333508.770	214.1
Robinson Bay	7	2004	379711.929	5333709.084	379866.746	5333775.507	284.4
Sargent Lake	1	2004	376304.279	5328189.620	376408.304	5328273.113	175.8
Sargent Lake	2	2004	377223.917	5328915.923	377418.054	5328963.810	201.3
Sargent Lake	3	2004	377412.877	5328968.987	377597.308	5329024.640	193.8
Sargent Lake	4	2004	377794.680	5329105.530	377987.523	5329152.123	208.1
Sargent Lake	5	2004	378379.679	5329139.181	378514.928	5329216.188	173.6
Sargent Lake	6	2004	376967.612	5327949.698	376946.643	5328067.841	212.9
Scholts Lake	1	2003	373798.468	5318627.690	374056.289	5318703.591	295.6
Shesheeb Lake	1	2004	377128.371	5329663.461	377258.619	5329657.672	199.9
Siskiwit Lake NE	1	2003	368875.844	5318164.000	369263.906	5318422.360	933.8
Siskiwit Lake	1	2005	363156.800	5316222.080	363079.560	5316312.000	168.7
Siskiwit Lake	2	2005	362205.310	5315928.500	362206.410	5315865.000	81.8
Siskiwit Lake	3	2005	360302.570	5315007.540	360163.560	5315086.500	166.0
Siskiwit Lake	4	2005	361609.530	5316202.000	361487.290	5316292.690	181.7
Siskiwit Lake	5	2005	362347.280	5317240.000	362229.500	5317388.000	263.7
Stickleback Lake	1	2004	350492.170	5304001.369	350975.898	5304066.792	1188.1

Table 2. Isle Royale wetland sampling locations 2003-2005; inland lake and Lake Superior bay aquatic segment start and endpoint coordinates are in UTM Zone 16, NAD 83

Location	Segment Number	Year Sampled	Start		End		Length (m)
			Easting	Northing	Easting	Northing	
Stockly Bay	1	2004	384347.011	5333523.943	384444.058	5333520.947	152.5
Stockly Bay	2	2004	384423.690	5333626.381	384433.874	5333683.292	103.5
Sumner Lake	1	2004	379719.371	5325264.035	379612.839	5325417.442	241.4
Tobin Harbor	1	2003	387325.583	5332439.790	387641.832	5332654.189	427.5
Tobin Harbor	2	2003	385752.986	5331680.661	385902.557	5331780.216	181.8
Tobin Harbor	3	2003	386225.003	5332151.253	386366.417	5332206.058	157.3
Wagejo Lake	1	2004	377229.050	5327700.157	377389.398	5327796.591	196.7
Wagejo Lake	2	2004	377606.934	5327787.620	377550.868	5327960.303	235.1
Whittlesey Lake	1	2003	372248.140	5318423.437	372475.963	5318455.023	255.6
Whittlesey Lake	2	2003	371802.505	5318157.647	372248.140	5318423.437	593.6
Whittlesey Lake	3	2003	371253.570	5318173.538	371802.505	5318157.647	609.3
Whittlesey Lake	4	2003	371237.469	5318146.500	371742.808	5318012.570	682.2
Whittlesey Lake	5	2003	371742.808	5318012.570	372273.369	5318145.328	701.3
Wood Lake	1	2003	370279.373	5318308.816	370352.813	5318442.807	207.3
Wood Lake	2	2003	370282.046	5318127.608	370252.082	5318280.217	199.0
Wood Lake	3	2003	370309.215	5317910.068	370314.447	5318083.556	330.6
Wood Lake	4	2003	369984.064	5317761.500	370237.068	5317894.612	314.8
Wood Lake	5	2003	369588.188	5317843.000	369729.147	5317766.917	325.9
Wood Lake	6	2003	369545.231	5317964.352	369566.901	5318189.572	272.3
Wood Lake	7	2003	369714.055	5318252.478	369917.654	5318262.991	265.9

Table 3. General locations of 10 m x 10 m peatland plots sampled at Isle Royale 2003-2005.

Site Number	Site	Number of Plots	Year
1	Ahmik Lake	3	2004
2	Angleworm Lake	1	2004
3	Beaver Wetland	2	2004
4	Benson Lake	2	2004
5	Checker Point SE	1	2004
6	Daisy Farm Trail Boardwalk	3	2004
7	Eva Pond	2	2004
8	Forbes Lake	3	2004
9	Grace Creek	1	2004
10	Huginnin Cove Trail	2	2004
11	Lane Cove Trail	10	2003
12	Lily Lake	3	2004
13	McCargoe Cove	3	2005
14	Minong Ridge	8	2004
15	Mount Ojibway Trail	1	2004
16	Mud Lake	2	2005
17	Ojibway Lake	3	2004
18	Patterson Lake	2	2004
19	Siskiwit Fen	3	2004
20	Siskiwit Lake	2	2005
21	Stickleback Lake	2	2004
22	Sumner Lake	2	2004
23	Superior Shoreline Fens	3	2004
Plots by Year			
2003	10		
2004	47		
2005	7		
	Total Plots	64	

Table 4. Isle Royale wetland sampling locations 2003-2005; coordinates are the centers of 10 m x 10 m peatland plots in UTM Zone 16, NAD 83.

Location	Plot Number	Town Range Section	Easting	Northing	*Abbrev.
Ahmik Lake	1	T66N R33W S06	385333.000	5334000.000	AHLK1
Ahmik Lake	2	T66N R33W S06	385179.000	5333706.000	AHLK2
Ahmik Lake	3	T66N R33W S06	385158.000	5333678.000	AHLK3
Angleworm Lake	1	T66N R34W S21/28	378481.000	5327884.000	ANLK1
Beaver Wetland	1	T63N R37W S03	351970.000	5305351.000	BEWT1
Beaver Wetland	2	T63N R37W S03	351989.000	5305249.000	BEWT2
Benson Lake	1	T66N R34W S28	379018.000	5327655.000	BELK1
Benson Lake	2	T66N R34W S28	379360.000	5327853.000	BELK2
Checker Point SE	1	T63N R37W S02	353236.000	5305764.000	CPTSE1
Daisy Farm Trail Boardwalk	1	T66N R34W S21	379495.574	5328468.654	DABD1
Daisy Farm Trail Boardwalk	2	T66N R34W S21	379516.660	5328491.017	DABD2
Daisy Farm Trail Boardwalk	3	T66N R34W S21	379458.817	5328470.257	DABD3
Eva Pond	1	T66N R34W S17	377854.000	5331008.000	EVPD1
Eva Pond	2	T66N R34W S17	377805.000	5330888.000	EVPD2
Forbes Lake	1	T66N R34W S28	379353.000	5327460.000	FOLK1
Forbes Lake	2	T66N R34W S28	379300.000	5327432.000	FOLK2
Forbes Lake	3	T66N R34W S28	378702.000	5326991.000	FOLK3
Grace Creek	1	T63N R38W S06	336489.000	5306047.000	GRCK
Huginnin Cove Trail	1	T64N R38W S20	338628.000	5311450.000	HUCO1
Huginnin Cove Trail	2	T64N R38W S21	339482.000	5311097.000	HUCO2
Lane Cove Trail	1	T66N R34W S1	383506.193	5333204.023	LACO1
Lane Cove Trail	2	T66N R34W S1	383388.194	5333154.028	LACO2
Lane Cove Trail	3	T66N R34W S1	383366.183	5332789.046	LACO3
Lane Cove Trail	4	T66N R34W S1	383559.169	5332507.057	LACO4
Lane Cove Trail	5	T66N R34W S12	383623.165	5332441.059	LACO5
Lane Cove Trail	6	T66N R34W S12	383607.162	5332343.064	LACO6
Lane Cove Trail	7	T66N R34W S12	383577.157	5332141.075	LACO7
Lane Cove Trail	8	T66N R34W S12	384827.110	5331653.073	LACO8
Lane Cove Trail	9	T66N R33W S7	385491.090	5331552.065	LACO9
Lane Cove Trail	10	T66N R33W S7	385673.081	5331405.069	LACO10
Lily Lake	1	T64N R38W S26	343690.979	5308724.032	LILK1
Lily Lake	2	T64N R38W S26	343605.868	5308649.105	LILK2
Lily Lake	3	T64N R38W S26	343613.315	5308540.774	LILK3
McCargoe Cove	1	T66N R35W S35	372796.000	5326380.000	MCCO1
McCargoe Cove	2	T66N R35W S35	372962.000	5326432.000	MCCO2
McCargoe Cove	3	T66N R35W S35	373433.000	5326435.000	MCCO3
Minong Ridge	1	T64N R37W S05	348398.000	5314827.000	MITR1
Minong Ridge	2	T64N R37W S07	346863.000	5314051.000	MITR2
Minong Ridge	3	T64N R37W S07	346885.000	5314028.000	MITR3
Minong Ridge	4	T64N R37W S07	346047.000	5313769.000	MITR4
Minong Ridge	5	T64N R38W S14	343968.000	5313001.000	MITR5
Minong Ridge	6	T64N R38W S14	344050.000	5312992.000	MITR6
Minong Ridge	7	T64N R38W S12	344377.000	5313277.000	MITR7
Minong Ridge	8	T64N R38W S11	343701.000	5313358.000	MITR8
Mount Ojibway Trail	1	T66N R34W S22	380830.000	5328768.000	MOJT1
Mud Lake	1	T64N R36W S09	358851.000	5314044.000	MULK1
Mud Lake	2	T64N R36W S08	358522.000	5314138.000	MULK2
Ojibway Lake	1	T66N R34W S22	380699.718	5329184.086	OJLK1
Ojibway Lake	2	T66N R34W S22	380746.315	5329196.872	OJLK2
Ojibway Lake	3	T66N R34W S22	380340.000	5328898.000	OJLK3

Table 4. Isle Royale wetland sampling locations 2003-2005; coordinates are the centers of 10 m x 10 m peatland plots in UTM Zone 16, NAD 83.

Location	Plot Number	Town Range Section	Easting	Northing	*Abbrev.
Patterson Lake	1	T66N R34W S01	384696.000	5333234.000	PALK1
Patterson Lake	2	T66N R34W S01	384199.000	5333130.000	PALK2
Siskiwit Fen	1	T63N R38W S10	342265.608	5304066.923	SIFN1
Siskiwit Fen	2	T63N R38W S10	341983.505	5304012.847	SIFN2
Siskiwit Fen	3	T63N R38W S10	341774.098	5303956.793	SIFN3
Siskiwit Lake	1	T64N R36W S04	360128.054	5315033.921	SILK1
Siskiwit Lake	2	T65N R35W S31	365610.328	5316422.916	SILK2
Stickleback Lake	1	T63N R37W S10	351128.000	5304154.000	STLK1
Stickleback Lake	2	T63N R37W S10	351058.000	5304079.000	STLK2
Sumner Lake	1	T66N R34W S34	380193.000	5325550.000	SULK1
Sumner Lake	2	T66N R34W S33	379591.000	5325364.000	SULK2
Superior Shoreline Fen	1	T63N R38W S29/30	337504.385	5299302.043	SUFN1
Superior Shoreline Fen	2	T63N R38W S23	342571.428	5300413.095	SUFN2
Superior Shoreline Fen	3	T63N R37W S17	347346.651	5302685.394	SUFN3
* Site abbreviations used in ordination figures.					

Table 5. Isle Royale 'target' wetland plants; species thought to possibly occur on ISRO, but not yet reported as of May 2003. List created by E.J.J. (as derived from Judziewicz 2003).

	Species	Family	Reported in this study
1	*Alisma subcordatum*	Alismataceae	
2	*Armoracia lacustris*	Brassicaceae	x
3	*Asclepias incarnata*	Asclepiadaceae	
4	*Caltha natans*	Ranunculaceae	
5	*Carex arcta*	Cyperaceae	
6	*Carex brachyglossa*	Cyperaceae	
7	*Carex bromoides*	Cyperaceae	
8	*Carex comosa*	Cyperaceae	
9	*Carex crawei*	Cyperaceae	
10	*Carex granularis*	Cyperaceae	
11	*Carex pellita*	Cyperaceae	
12	*Carex pseudo-cyperus*	Cyperaceae	
13	*Carex tribuloides*	Cyperaceae	
14	*Carex tuckermanii*	Cyperaceae	
15	*Carex vulpinoidea*	Cyperaceae	
16	*Ceratophyllum demersum*	Ceratophyllaceae	x
17	*Chrysosplenium americanum*	Saxifragaceae	
18	*Eleocharis elliptica*	Cyperaceae	
19	*Eleocharis erythropoda*	Cyperaceae	
20	*Eleocharis mamillata*	Cyperaceae	
21	*Eleocharis obtusa*	Cyperaceae	
22	*Eleocharis quinqueflora*	Cyperaceae	
23	*Eleocharis robbinsii*	Cyperaceae	
24	*Elodea nuttallii*	Hydrocharitaceae	
25	*Epilobium strictum*	Onagraceae	
26	*Eriophorum chamissonis*	Cyperaceae	
27	*Eriophorum virginicum*	Cyperaceae	
28	*Galium labradoricum*	Rubiaceae	
29	*Glyceria grandis*	Poaceae	x
30	*Hypericum ellipticum*	Clusiaceae	
31	*Juncus articulatus*	Juncaceae	
32	*Juncus balticus var. littoralis*	Juncaceae	
33	*Juncus brachycephalus*	Juncaceae	
34	*Juncus bufonius*	Juncaceae	
35	*Juncus canadensis*	Juncaceae	

Table 5. Isle Royale 'target' wetland plants; species thought to possibly occur on ISRO, but not yet reported as of May 2003. List created by E.J.J. (as derived from Judziewicz 2003).

	Species	Family	Reported in this study
36	*Leersia oryzoides*	Poaceae	x
37	*Lemna turionifera*	Lemnaceae	
38	*Littorella uniflora*	Plantaginaceae	
39	*Lythrum salicaria*	Lythraceae	
40	*Myriophyllum farwellii*	Haloragaceae	x
41	*Myriophyllum heterophyllum*	Haloragaceae	x
42	*Potamogeton crispus*	Potamogetonaceae	
43	*Potamogeton friesii*	Potamogetonaceae	
44	*Potamogeton illinoensis*	Potamogetonaceae	
45	*Potamogeton nodosus*	Potamogetonaceae	
46	*Ranunculus gmelini*	Ranunculaceae	
47	*Sagittaria rigida*	Alismataceae	x
48	*Scirpus atrocinctus*	Cyperaceae	
49	*Scirpus (Schoenoplectus) pungens*	Cyperaceae	x
50	*Spirodela polyrhiza*	Lemnaceae	
51	*Tillaea aquatica*	Crassulaceae	
52	*Utricularia resupinata*	Lentibulariaceae	
53	*Zannichellia palustris*	Zannichelliaceae	
54	*Zizania palustris*	Poaceae	
55	*Zosterella (Heteranthera) dubia*	Pontederiaceae	x

Table 6. Summary list of taxa encountered in all the types of wetland sampling throughout the 2003-2005 field seasons. The primary authority is Gleason and Cronquist (1991).

	Genus	Species	Notation[1]	Author[2]
1	*Abies*	*balsamea*	ABIBAL	(L.) Miller.
2	*Acer*	*rubrum*	ACERUB	L.
3	*Acer*	*spicatum*	ACESPI	Lam.
4	*Achillea*	*millefolium*	ACHMIL	L.
5	*Agrostis*	*gigantea*	AGRGIG	Roth.
6	*Agrostis*	*hyemalis*	AGRHYE	(Walter) BSP.
7	*Alnus*	*incana*	ALNINC	(L.) Moench.
8	*Alnus*	*viridis*	ALNVIR	(Villars) Lam.
9	*Alisma*	*triviale*	ALITRI	Pursh.
10	*Amelanchier*	spp.	AMESPP	Medikus.
11	*Anaphalis*	*margaritacea*	ANAMAR	(L.) Benth. & Hook.
12	*Andromeda*	*glaucophylla*	ANDGLA	L.
13	*Anemone*	*canadensis*	ANECAN	L.
14	*Aralia*	*nudicaulis*	ARANUD	L.
15	*Arethusa*	*bulbosa*	AREBUL	L.
16	*Armoracia*	*lacustris*	ARMLAC	(A.Gray) Al-Shehbaz & V.Bates
17	*Aronia*	*melanocarpa*	AROMEL	(Michx) Elliot
18	*Aster*	*lanceolatus*	ASTLAN	Willd.
19	*Aster*	*macrophyllus*	ASTMAC	L.
20	*Aster*	*puniceus*	ASTPUN	L.
21	*Aster*	spp.	ASTSPP	L.
22	*Aster*	*umbellatus*	ASTUMB	Miller
23	*Asteraceae*	spp.	ASTESP	
24	*Athyrium*	*filix-femina*	ATHFIL	(L.) Roth.
25	*Beckmannia*	*syzigachne*	BECSYZ	(Steud.) Fern.
26	*Betula*	*papyrifera*	BETPAP	Marshall.
27	*Betula*	*pumila*	BETPUM	L.
28	*Bidens*	*beckii*	BIDBEC	Torr.
29	*Bidens*	*cernua*	BIDCER	L.
30	*Bidens*	*connata*	BIDCON	Muhl.
31	*Botrychium*	*multifidum*	BOTMUL	(S.G. Gmelin) Rupr.
32	*Brasenia*	*schreberi*	BRASCH	J. F. Gmelin.
33	*Calamagrostis*	*canadensis*	CALCAN	(Michx.) P. Beauv.
34	*Calamagrostis*	spp.	CLGSPP	Adans.
35	*Calla*	*palustris*	CALLAP	L.
36	*Callitriche*	*hermaphroditica*	CALHER	L.
37	*Callitriche*	*palustris*	CLTPAL	L.
38	*Callitriche*	spp.	CALSPP	L.
39	*Calopogon*	*tuberosus*	CALTUB	(L.) BSP.
40	*Caltha*	*palustris*	CALPAL	L.
41	*Campanula*	*aparinoides*	CAMAPA	Pursh.
42	*Cardamine*	*pensylvanica*	CARPEN	Muhl.
43	*Carex*	*aquatilis*	CARAQU	Wahlenb.
44	*Carex*	*arctata*	CARARC	W. Boott.
45	*Carex*	*atratiformis*	CARATR	Britton.
46	*Carex*	*aurea*	CARAUR	Nutt.
47	*Carex*	*bebbii*	CARBEB	(L. H. Bailey) Fern.
48	*Carex*	*brunnescens*	CARBRU	(Pers.) Poiret.
49	*Carex*	*buxbaumii*	CARBUX	Wahlenb.
50	*Carex*	*canescens*	CARCAN	L.
51	*Carex*	*chordorrhiza*	CARCHO	L.

Table 6. Summary list of taxa encountered in all the types of wetland sampling throughout the 2003-2005 field seasons. The primary authority is Gleason and Cronquist (1991).

	Genus	Species	Notation[1]	Author[2]
52	*Carex*	*crinita*	CARCRI	Lam.
53	*Carex*	*cryptolepis*	CARCRY	Mackenzie.
54	*Carex*	*diandra*	CARDIA	Schrank.
55	*Carex*	*disperma*	CARDIS	Dewey.
56	*Carex*	*echinata*	CARECH	Murray.
57	*Carex*	*exilis*	CAREXI	Dewey.
58	*Carex*	*flava*	CARFLA	L.
59	*Carex*	*gracillima*	CARGRA	Schwein.
60	*Carex*	*gynandra*	CARGYN	Schwein.
61	*Carex*	*hystericina*	CARHYS	Muhl.
62	*Carex*	*interior*	CARINT	L Bailey.
63	*Carex*	*intumescens*	CARINU	Rudge.
64	*Carex*	*lacustris*	CARLAC	Willd.
65	*Carex*	*lasiocarpa*	CARLAS	Ehrh.
66	*Carex*	*leptalea*	CARLEP	Wahlenb.
67	*Carex*	*limosa*	CARLIM	L.
68	*Carex*	*livida*	CARLIV	(Wahlenb.) Willd.
69	*Carex*	*michauxiana*	CARMIC	Boeckeler
70	*Carex*	*norvegica*	CARNOR	Retz.
71	*Carex*	*oligosperma*	CAROLI	Michx.
72	*Carex*	*pauciflora*	CARPAU	Lightf.
73	*Carex*	*paupercula*	CARPAP	Michx.
74	*Carex*	*retrorsa*	CARRET	Schweinitz.
75	*Carex*	*rostrata*	CARROS	Stokes.
76	*Carex*	spp.	CARSPP	L.
77	*Carex*	spp. (Ovales type)	CAROVA	L.
78	*Carex*	spp. (Stellulatae type)	CARSTE	L.
79	*Carex*	*stipata*	CARSTI	Muhl.
80	*Carex*	*stricta*	CARSTR	Lam.
81	*Carex*	*trisperma*	CARTRI	Dewey.
82	*Carex*	*utriculata*	CARUTR	F. Boott
83	*Carex*	*vesicaria*	CARVES	L.
84	*Carex*	*viridula*	CARVIR	Michx.
85	*Caryophyllaceae*	spp.	CAYSPP	
86	*Castilleja*	*septentrionalis*	CASSEP	Lindl.
87	*Ceratophyllum*	*demersum*	CERDEM	L.
88	*Chamaedaphne*	*calyculata*	CHACAL	(L.) Moench.
89	*Chara*	spp.	CHASPP	
90	*Chelone*	*glabra*	CHEGLA	L.
91	*Chrysanthemum*	*leucanthemum*	CHRLEU	L.
92	*Cicuta*	*bulbifera*	CICBUL	L.
93	*Cinna*	*latifolia*	CINLAT	(Trevir.) Griseb.
94	*Cirsium*	*arvense*	CIRARV	(L.) Scop.
95	*Cirsium*	spp.	CIRSPP	Miller
96	*Cirsium*	*vulgare*	CIRVUL	(Savi) Tenore.
97	*Cladium*	*mariscoides*	CLASPP	(Muhl.) Torr.
98	*Clematis*	*virginiana*	CLEVIR	L.
99	*Clintonia*	*borealis*	CLIBOR	(Aiton) Raf.
100	*Comandra*	*umbellata*	COMUMB	(L.) Nutt.
101	*Coptis*	*trifolia*	COPTRI	(L.) Salisb.
102	*Corallorhiza*	*trifida*	CORTRI	Chatel.

Table 6. Summary list of taxa encountered in all the types of wetland sampling throughout the 2003-2005 field seasons. The primary authority is Gleason and Cronquist (1991).

	Genus	Species	Notation[1]	Author[2]
103	*Cornus*	*canadensis*	CORCAN	L.
104	*Cornus*	*sericea*	CORSER	L.
105	*Cyperaceae*	spp.	CYPSPP	
106	*Cypripedium*	*acaule*	CYPACA	Aiton.
107	*Danthonia*	*spicata*	DANSPI	(L.) F. Beauv.
108	*Deschampsia*	*flexuosa*	DESFLE	(L.) Trin.
109	*Diervilla*	*lonicera*	DIELON	Miller.
110	*Drosera*	*anglica*	DROANG	Hudson.
111	*Drosera*	*intermedia*	DROINT	Hayne.
112	*Drosera*	*linearis*	DROLIN	Goldie.
113	*Drosera*	*rotundifolia*	DROROT	L.
114	*Dryopteris*	*carthusiana*	DRYCAR	(Villars) H.P. Fuchs.
115	*Dryopteris*	*cristata*	DRYCRI	(L.) A. Gray.
116	*Dryopteris*	*intermedia*	DRYINT	(Muhl.) A. Gray.
117	*Dryopteris*	spp.	DRYSPP	Adans., nom. conserv.
118	*Dulichium*	*arundinaceum*	DULARU	(L.) Britton.
119	*Elatine*	sp.	ELATSP	L.
120	*Eleocharis*	*acicularis*	ELEACI	(L.) Roemer & Schultes.
121	*Eleocharis*	*ovata*	ELEOVA	(Roth) Roemer & Schultes
122	*Eleocharis*	*palustris*	ELEPAL	L.
123	*Eleocharis*	*pauciflora*	ELEPAU	(Lightf.) Link.
124	*Eleocharis*	spp.	ELESPP	R. Br.
125	*Eleocharis*	*tenuis var. borealis*	ELETEN	(Svenson) Gleason
126	*Elodea*	*canadensis*	ELOCAN	Michx.
127	*Elymus*	*canadensis*	ELYCAN	L.
128	*Elymus*	*trachycaulus*	ELYTRA	(Link) Gould
129	*Epilobium*	*angustifolium*	EPIANG	L.
130	*Epilobium*	*ciliatum*	EPICIL	Raf.
131	*Epilobium*	*leptophyllum*	EPILEP	Raf.
132	*Epilobium*	spp.	EPISPP	L.
133	*Epilobium*	spp. *(ciliatum or coloratum)*	EPISCC	Raf. or Biehler
134	*Equisetum*	*arvense*	EQUARV	L.
135	*Equisetum*	*fluviatile*	EQUFLU	L.
136	*Equisetum*	*palustre*	EQUPAL	L.
137	*Equisetum*	*scirpoides*	EQUSCI	Michx.
138	*Equisetum*	spp.	EQUSPP	L.
139	*Equisetum*	*sylvaticum*	EQUSYL	L.
140	*Eriocaulon*	*aquaticum*	ERIAQU	(Hill) Druce.
141	*Eriophorum*	*gracile*	ERIGRA	Koch.
142	*Eriophorum*	spp.	ERISPP	L.
143	*Eriophorum*	*tenellum*	ERITEN	Nutt.
144	*Eriophorum*	*vaginatum*	ERIVAG	L.
145	*Eriophorum*	*viridicarinatum*	ERIVIR	(Engelm.) Fernald.
146	*Eupatorium*	*maculatum*	EUPMAC	L.
147	*Euthamia*	*graminifolia*	EUTGRA	(L.) Nutt
148	*Fragaria*	*virginiana*	FRAVIR	Duchesne.
149	*Fraxinus*	*nigra*	FRANIG	Marshall.
150	*Galium*	*asperellum*	GALASP	Michx.
151	*Galium*	spp.	GALSPP	L.
152	*Galium*	spp. *(tinctorium/trifidum)*	GALSTT	L.
153	*Galium*	*tinctorium*	GALTIN	L.

Table 6. Summary list of taxa encountered in all the types of wetland sampling throughout the 2003-2005 field seasons. The primary authority is Gleason and Cronquist (1991).

	Genus	Species	Notation[1]	Author[2]
154	*Galium*	*triflorum*	GALTRI	Michx.
155	*Gaultheria*	*hispidula*	GAUHIS	(L.) Muhl.
156	*Gentiana*	*rubricaulis*	GENRUB	Schwein.
157	*Geocaulon*	*lividum*	GEOLIV	(Richardson) Fern.
158	*Glyceria*	*borealis*	GLYBOR	(Nash) Batchelder.
159	*Glyceria*	*canadensis*	GLYCAN	(Michx.) Trin.
160	*Glyceria*	*grandis*	GLYGRA	S. Wats.
161	*Glyceria*	spp.	GLYSPP	R.Br., nom. conserv.
162	*Glyceria*	*striata*	GLYSTR	(Lam.) A. Hitchc.
163	*Gymnocarpium*	*dryopteris*	GYMDRY	(L.) Newman.
164	*Habenaria*	*clavellata*	HABCLA	(Michx.) Sprengel.
165	*Habenaria*	*dilatata*	HABDIL	(Pursh) Hook.
166	*Habenaria*	*hyperborea*	HABHYP	(L.) R. Br.
167	*Habenaria*	*psycodes*	HABPSY	(L.) Sprengel.
168	*Habenaria*	spp.	HABSPP	Willd.
169	*Habenaria*	*viridis*	HABVIR	(L.) R. Br.
170	*Halenia*	*deflexa*	HALDEF	(J. E. Smith) Griseb.
171	*Heracleum*	*lanatum*	HERLAN	Michx.
172	*Hieracium*	*aurantiacum*	HIEAUR	L.
173	*Hieracium*	*kalmii*	HIEKAL	L.
174	*Hieracium*	*pilosella*	HIEPIL	L.
175	*Hieracium*	spp.	HIESPP	L.
176	*Hippurus*	*vulgaris*	HIPVUL	L.
177	*Hypericum*	*boreale*	HYPBOR	(Britton) E. Bickn.
178	*Hypericum*	*canadense*	HYPCAN	L.
179	*Hypericum*	*majus*	HYPMAJ	(A. Gray) Britton.
180	*Huperzia*	*selago*	HUPSEL	(L.) Bernhardi ex Schrank & Martius
181	*Hypericum*	*majus*	HYPMAJ	(A. Gray) Britton
182	*Hypericum*	spp.	HYPSPP	L.
183	*Impatiens*	*capensis*	IMPCAP	Meerb.
184	*Iris*	*versicolor*	IRIVER	L.
185	*Isoetes*	*echinospora*	ISOECH	Durieu.
186	*Isoetes*	*lacustris*	ISOLAC	L.
187	*Isoetes*	spp.	ISOSPP	L.
188	*Juncus*	*brevicaudatus*	JUNBRE	(Engelm.) Fern.
189	*Juncus*	*effusus*	JUNEFF	L.
190	*Juncus*	*nodosus*	JUNNOD	L.
191	*Juncus*	*pelocarpus*	JUNPEL	E. Meyer
192	*Juncus*	spp.	JUNSPP	
193	*Juncus*	*stygius var. americanus*	JUNSTY	Buchenau
194	*Juncus*	*tenuis*	JUNTEN	Willd.
195	*Juncus*	*tenuis var. dudleyi*	JUNDUD	(Wieg.) F. J. Herm.
196	*Juniperus*	*communis*	JUNCOM	L.
197	*Kalmia*	*polifolia*	KALPOL	Wangenh.
198	*Lactuca*	*biennis*	LACBIE	(Moench) Fern.
199	*Lactuca*	*canadensis*	LACCAN	L.
200	*Lactuca*	spp.	LATSPP	L.
201	*Lamiaceae*	spp.	LAMSPP	
202	*Larix*	*laricina*	LARLAR	(Duroi) K. Koch.
203	*Lathyrus*	*ochroleucus*	LATOCH	Hook.
204	*Ledum*	*groenlandicum*	LEDGRO	Oeder.

Table 6. Summary list of taxa encountered in all the types of wetland sampling throughout the 2003-2005 field seasons. The primary authority is Gleason and Cronquist (1991).

	Genus	Species	Notation[1]	Author[2]
205	*Leersia*	*oryzoides*	LEEORY	(L.) Swartz.
206	*Lemna*	*trisulca*	LEMTRI	L.
207	*Liliaceae*	spp.	LILSPP	
208	*Lilium*	*philadelphicum*	LILPHI	L.
209	*Linnaea*	*borealis*	LINBOR	L.
210	*Liparis*	*loeselii*	LIPLOE	(L.) Rich.
211	*Lobelia*	*dortmanna*	LOBDOR	L.
212	*Lonicera*	*caerulea*	LONCAE	L.
213	*Lonicera*	*canadensis*	LONCAN	Marshall.
214	*Lonicera*	*dioica*	LONDIO	L.
215	*Lonicera*	spp.	LONSPP	L.
216	*Lycopodium*	*clavatum*	LYCCLA	L.
217	*Lycopodium*	*inundatum*	LYCINU	L.
218	*Lycopodium*	*lucidulum*	LYCLUC	Michx.
219	*Lycopodium*	*obscurum*	LYCOBS	L.
220	*Lycopus*	*americanus*	LYCAME	Muhl.
221	*Lycopus*	*uniflorus*	LYCUNI	Michx.
222	*Lysimachia*	spp.	LYSSPP	L.
223	*Lysimachia*	*terrestris*	LYSTER	(L.) BSP.
224	*Lysimachia*	*thyrsiflora*	LYSTHY	L.
225	*Maianthemum*	*canadense*	MAICAN	Desf.
226	*Melampyrum*	*lineare*	MELLIN	Desr.
227	*Mentha*	*arvensis*	MENARV	L.
228	*Menyanthes*	*trifoliata*	MENTRI	L.
229	*Mitella*	*nuda*	MITNUD	L.
230	*Moneses*	*uniflora*	MONUNI	(L.) A. Gray.
231	*moss*	spp.	MOSSPP	
232	*moss*	spp. (aquatic)	MOSSAQ	
233	*Myrica*	*gale*	MYRGAL	L.
234	*Myriophyllum*	*alterniflorum*	MYRALT	DC.
235	*Myriophyllum*	*farwellii*	MYRFAR	Morong.
236	*Myriophyllum*	*heterophyllum*	MYRHET	Michx.
237	*Myriophyllum*	*sibiricum*	MYRSIB	Komarov.
238	*Myriophyllum*	spp.	MYRSPP	L.
239	*Myriophyllum*	*tenellum*	MYRTEN	Bigelow.
240	*Myriophyllum*	*verticillatum*	MYRVER	L.
241	*Najas*	*flexilis*	NAJFLE	(Willd.) Rostkov. & Schmidt.
242	*Nitella*	spp.	NITSPP	
243	*Nuphar*	*variegata*	NUPVAR	Durand.
244	*Nymphaea*	*odorata*	NYMODO	Aiton.
245	*Nymphaea*	*tetragona*	NYMTET	Georgi.
246	*Onoclea*	*sensibilis*	ONOSEN	L.
247	*Ophioglossum*	*vulgatum var. pseudopodum*	OPHVUL	(S. F. Blake) Farw.
248	*Orchidaceae*	spp.	ORCSPP	
249	*Orchis*	*rotundifolia*	ORCROT	Banks.
250	*Osmunda*	*regalis*	OSMREG	L.
251	*Parnassia*	*palustris*	PARPAL	L.
252	*Phalaris*	*arundinacea*	PHAARU	L.
253	*Phleum*	*pratense*	PHLPRA	L.
254	*Phragmites*	*australis*	PHRAUS	(Cav.) Trin.
255	*Physocarpus*	*opulifolius*	PHYOPU	(L.) Maxim.

Table 6. Summary list of taxa encountered in all the types of wetland sampling throughout the 2003-2005 field seasons. The primary authority is Gleason and Cronquist (1991).

	Genus	Species	Notation[1]	Author[2]
256	*Picea*	*glauca*	PICGLA	(Moench) Voss.
257	*Picea*	*mariana*	PICMAR	(Miller) BSP.
258	*Picea*	spp.	PICSPP	A. Dietr.
259	*Pinguicula*	*vulgaris*	PINVUL	L.
260	*Poa*	*alpina*	POAALP	L.
261	*Poa*	*palustris*	POAPAL	L.
262	*Poa*	spp.	POASPP	L.
263	*Poaceae*	spp.	POACSP	
264	*Pogonia*	*ophioglossoides*	POGOPH	(L.) Ker Gawler.
265	*Polygala*	*paucifolia*	POLPAU	Willd.
266	*Polygonum*	*amphibium*	POLAMP	L.
267	*Polygonum*	*sagittatum*	POLSAG	L.
268	*Polygonum*	spp.	POLSPP	L.
269	*Populus*	*tremuloides*	POPTRE	Michx.
270	*Potamogeton*	*alpinus*	POTALP	Balbis.
271	*Potamogeton*	*amplifolius*	POTAMP	Tuckerman.
272	*Potamogeton*	*epihydrus*	POTEPI	Raf.
273	*Potamogeton*	*filiformis*	POTFIL	Pers.
274	*Potamogeton*	*foliosus*	POTFOL	Raf.
275	*Potamogeton*	*gramineus*	POTGRA	L.
276	*Potamogeton*	*natans*	POTNAT	L.
277	*Potamogeton*	*obtusifolius*	POTOBT	Mert. & Koch.
278	*Potamogeton*	*praelongus*	POTPRA	Wulfen.
279	*Potamogeton*	*pusillus*	POTPUS	L.
280	*Potamogeton*	*richardsonii*	POTRIC	(Ar. Bennett) Rydb.
281	*Potamogeton*	*robbinsii*	POTROB	Oakes.
282	*Potamogeton*	*spirillus*	POTSPI	Tuckerman.
283	*Potamogeton*	spp.	POTSPP	L.
284	*Potamogeton*	*zosteriformis*	POTZOS	Fern.
285	*Potentilla*	*anserina*	POTANS	L.
286	*Potentilla*	*fruticosa*	POTFRU	L.
287	*Potentilla*	*norvegica*	POTNOR	L.
288	*Potentilla*	*palustris*	POTPAL	(L.) Scop.
289	*Potentilla*	spp.	PTNSPP	L.
290	*Prenanthes*	*alba*	PREALB	L.
291	*Prenanthes*	spp.	PRESPP	L.
292	*Prunus*	*virginiana*	PRUVIR	L.
293	*Pteridium*	*aquilinum*	PTEAQU	(L.) Kuhn.
294	*Pyrola*	*elliptica*	PYRELL	Nutt.
295	*Pyrola*	*secunda*	PYRSEC	L.
296	*Pyrola*	spp.	PYRSPP	L.
297	*Ranunculus*	*abortivus*	RANARB	L.
298	*Ranunculus*	*flammula*	RANFLA	L.
299	*Ranunculus*	*hispidus*	RANHIS	Michx.
300	*Ranunculus*	*longirostris*	RANLON	Godron.
301	*Ranunculus*	*macounii*	RANMAC	Britton.
302	*Ranunculus*	*pennsylvanicus*	RANPEN	L.f.
303	*Ranunculus*	spp.	RANSPP	L.
304	*Rhamnus*	*alnifolia*	RHAALN	L'Her.
305	*Rhynchospora*	*alba*	RHYALB	(L.) Vahl.
306	*Rhynchospora*	*fusca*	RHYFUS	(L.) Aiton f.

Table 6. Summary list of taxa encountered in all the types of wetland sampling throughout the 2003-2005 field seasons. The primary authority is Gleason and Cronquist (1991).

	Genus	Species	Notation[1]	Author[2]
307	*Ribes*	*triste*	RIBTRI	Pallas.
308	*Riccia*	*fluitans*	RICFLU	L.
309	*Rubus*	*idaeus*	RUBIDA	L.
310	*Rubus*	*pubescens*	RUBPUB	Raf.
311	*Rubus*	spp.	RUBSPP	L.
312	*Rubus*	spp. (dewberry)	RUBDEW	L.
313	*Rumex*	*crispus*	RUMCRI	L.
314	*Rumex*	spp.	RUMSPP	L.
315	*Sagittaria*	*cuneata/ graminea rosette*	SAGROS	Sheldon/ Michx.
316	*Sagittaria*	*graminea*	SAGGRA	Michx.
317	*Sagittaria*	*latifolia*	SAGLAT	Willd.
318	*Sagittaria*	*rigida*	SAGRIG	Pursh.
319	*Sagittaria*	spp.	SAGSPP	L.
320	*Salix*	*discolor*	SALDIS	Muhl.
321	*Salix*	*pedicellaris*	SALPED	Pursh.
322	*Salix*	*petiolaris*	SALPET	J. E. Smith
323	*Salix*	spp.	SALSPP	L.
324	*Sambucus*	*racemosa*	SAMRAC	L.
325	*Sarracenia*	*purpurea*	SARPUR	L.
326	*Scheuchzeria*	*palustris*	SCHPAL	L.
327	*Scirpus*	*acutus*	SCIACU	Muhl.
328	*Scirpus*	*atrovirens*	SCIATR	Willd.
329	*Scirpus*	*cespitosus*	SCICES	L.
330	*Scirpus*	*cyperinus*	SCICYP	(L.) Kunth.
331	*Scirpus*	*hudsonianus*	SCIHUD	(Michx.) Fern.
332	*Scirpus*	*microcarpus*	SCIMIC	C. Presl.
333	*Scirpus*	*pungens*	SCIPUN	Vahl.
334	*Scirpus*	spp.	SCISPP	L.
335	*Scirpus*	*subterminalis*	SCISUB	Torr.
336	*Scirpus*	*validus*	SCIVAL	Vahl.
337	*Scutellaria*	*galericulata*	SCUGAL	Pursh.
338	*Scutellaria*	*lateriflora*	SCULAT	L.
339	*Sium*	*suave*	SIUSUA	Walter.
340	*Smilacina*	*trifolia*	SMITRI	(L.) Desf.
341	*Solidago*	*canadensis*	SOLCAN	L.
342	*Solidago*	spp. (red stem)	SOLRED	L.
343	*Solidago*	spp. (umbel)	SOLUMB	
344	*Solidago*	*uliginosa*	SOLULI	Nutt.
345	*Sonchus*	spp.	SONSPP	L.
346	*Sorbus*	*decora*	SORDEC	(Sarg.) C.K. Schneider.
347	*Sparganium*	*americanum*	SPAAME	Nutt.
348	*Sparganium*	*angustifolium*	SPAANG	Michx.
349	*Sparganium*	*chlorocarpum*	SPACHL	Rydb.
350	*Sparganium*	*emersum*	SPAEME	Rehmann.
351	*Sparganium*	*eurycarpum*	SPAEUR	Engelm.
352	*Sparganium*	*fluctuans*	SPAFLU	(Morong) Robinson.
353	*Sparganium*	spp.	SPASPP	L.
354	*Sparganium*	spp. (2 ranked)	SPASP2	L.
355	*Sparganium*	spp. (floating leaves)	SPASPF	L.
356	*Sparganium*	spp. (rosette)	SPASPR	L.
357	*Sparganium*	*minimum*	SPAMIN	(Hartman) Fries.

Table 6. Summary list of taxa encountered in all the types of wetland sampling throughout the 2003-2005 field seasons. The primary authority is Gleason and Cronquist (1991).

	Genus	Species	Notation[1]	Author[2]
358	*Sphagnum*	*spp.*	SPHSPP	L.
359	*Spiraea*	*alba*	SPIALB	Duroi.
360	*Spiranthes*	*cernua*	SPICER	(L.) Rich.
361	*Spiranthes*	spp.	SPISPP	Rich.
362	*Streptopus*	*amplexifolius*	STRAMP	(L.) DC.
363	*Streptopus*	*roseus*	STRROS	Michx.
364	*Subularia*	*aquatica*	SUBAQU	L.
365	*Symplocarpus*	*foetidus*	SYMFOE	(L.) Nutt.
366	*Taraxacum*	*officinale*	TAROFF	Weber ex Wiggers.
367	*Taxus*	*canadensis*	TAXCAN	Marshall.
368	*Thalictrum*	*dasycarpum*	THADAS	Fischer & Ave-Lall.
369	*Thalictrum*	spp.	THASPP	L.
370	*Thelypteris*	*palustris*	THEPAL	Scholt.
371	*Thelypteris*	*phegopteris*	THEPHE	(L.) Slosson.
372	*Thuja*	*occidentalis*	THUOCC	L.
373	*Tofieldia*	*glutinosa*	TOFGLU	(Michx.) Pers.
374	*Triadenum*	*fraseri*	TRIFRA	(Spach) Gleason.
375	*Trientalis*	*borealis*	TRIBOR	Raf.
376	*Trifolium*	*pratense*	TRIPRA	L.
377	*Triglochin*	*maritimum*	TRIMAR	L.
378	*Trillium*	*cernuum*	TRICER	L.
379	*Trisetum*	*spicatum*	TRISPI	(L.) K. Richter.
380	*Typha*	*angustifolia*	TYPANG	L.
381	*Typha*	*latifolia*	TYPLAT	L.
382	*Typha*	spp.	TYPSPP	L.
383	*unknown*	spp. (herbaceous)	UNKHER	
384	*Utricularia*	*cornuta*	UTRCOR	Michx.
385	*Utricularia*	*gibba*	UTRGIB	L.
386	*Utricularia*	*intermedia*	UTRINT	Hayne.
387	*Utricularia*	*minor*	UTRMIN	L.
388	*Utricularia*	*vulgaris*	UTRVUL	L.
389	*Vaccinium*	*angustifolium*	VACANG	Aiton.
390	*Vaccinium*	*macrocarpon*	VACMAC	Aiton.
391	*Vaccinium*	*myrtilloides*	VACMYR	Michx.
392	*Vaccinium*	*oxycoccos*	VACOXY	L.
393	*Vaccinium*	spp.	VACSPP	L.
394	*Vaccinium*	spp. (cranberry)	VACCRA	L.
395	*Vallisneria*	*americana*	VALAME	L.
396	*Viburnum*	*edule*	VIBEDU	(Michx.) Raf.
397	*Viburnum*	*opulus*	VIBOPU	L.
398	*Viola*	*blanda*	VIOBLA	Willd.
399	*Viola*	*macloskeyi*	VIOMAC	F. Lloyd
400	*Viola*	spp.	VIOSPP	L.
401	*Xyris*	*montana*	XYRMON	H. Ries.
402	*Zosterella*	*dubia*	ZOSDUB	(Jacg.) Small

[1] Abbreviations used in ordination analyses files.

[2] The primary authority for this list is Gleason and Cronquist's Manual of Vascular Plants of Northeastern United States and Adjacent Canada (1991), except for non-vascular taxa that are referenced in Crow and Hellquist's Aquatic and Wetland Plants of North Eastern North America (2000).

Table 7A. Summary of plant richness over 168 **aquatic segments**, Isle Royale 2003-2005.

Mean richness per segment (n=168)	16.88
Standard Error	0.47
Richness range for all 168 segments	2 to 41
Richness range for 95% of the segments (omitting the lowest four and the highest four segments)	4 to 26

Table 7B. Twelve most abundant plant taxa in **aquatic segments** by cover; all taxa with greater than 2.0% cover per segment are listed. Frequency of occurrence over 168 segments is also indicated as well as characteristic growth form.

		Growth Form	Total Cover	Frequency of occurrence	% Cover per Segment
1	*Eleocharis palustris*	Emergent	1280.7	98	9.86
2	*Potamogeton gramineus*	Floating	1116.9	141	8.60
3	*Carex lasiocarpa*	Emergent	1088.8	62	8.39
4	*Equisetum fluviatile*	Emergent	900.0	122	6.93
5	*Najas flexilis*	Submerged	848.4	80	6.53
6	*Sparganium fluctuans*	Floating	809.4	54	6.23
7	*Isoetes* spp.	Submerged	569.2	126	4.38
8	*Chara* spp.	Submerged	552.8	90	4.26
9	*Potamogeton amplifolius*	Submerged	473.2	80	3.64
10	*Potamogeton richardsonii*	Submerged	398.1	91	3.07
11	*Scirpus subterminalis*	Submerged	397.5	33	3.06
12	*Potamogeton foliosus*	Submerged	365.8	33	2.82

Table 8. Twenty-two taxa found in greater than 50% of the **aquatic segments** in at least one of the segment categories: Inland lakes greater than 20 ha, inland lakes less than 20 ha, and Lake Superior bays and coves.

		Inland Lakes greater than 20 ha		Inland Lakes less than 20 ha		Lake Superior Bays and Coves	
		Frequency of occurrence in 84 segments	% Frequency	Frequency of occurrence in 44 segments	% Frequency	Frequency of occurrence in 40 segments	% Frequency
1	*Bidens beckii*	28	33.3	27	61.4	2	5.0
2	*Carex aquatilis*	1	1.2	5	11.4	24	60.0
3	*Carex lasiocarpa*	26	31.0	28	63.6	8	20.0
4	*Chara* spp.	61	72.6	22	50.0	7	17.5
5	*Dulichium arundinaceum*	11	13.1	28	63.6	5	12.5
6	*Eleocharis acicularis*	34	40.5	22	50.0	33	82.5
7	*Eleocharis palustris*	53	63.1	26	59.1	19	47.5
8	*Equisetum fluviatile*	67	79.8	36	81.8	19	47.5
9	*Glyceria borealis*	26	31.0	24	54.5	17	42.5
10	*Isoetes* spp.	66	78.6	26	59.1	34	85.0
11	*Juncus brevicaudatus*	2	2.4	12	27.3	20	50.0
12	*Myriophyllum verticillatum*	26	31.0	12	27.3	26	65.0
13	*Najas flexilis*	64	76.2	16	36.4	0	0.0
14	*Nuphar variegata*	46	54.8	43	97.7	10	25.0
15	*Potamogeton amplifolius*	48	57.1	29	65.9	3	7.5
16	*Potamogeton gramineus*	80	95.2	40	90.9	21	52.5
17	*Potamogeton richardsonii*	59	70.2	6	13.6	26	65.0
18	*Ranunculus longirostris*	27	32.1	18	40.9	30	75.0
19	*Sagittaria latifolia*	36	42.9	28	63.6	16	40.0
20	*Sium suave*	8	9.5	25	56.8	16	40.0
21	*Sparganium fluctuans*	25	29.8	26	59.1	3	7.5
22	*Utricularia vulgaris*	18	21.4	34	77.3	9	22.5

Table 9. Twenty-one taxa occurring in 50% or more of the segments in either the Lake Superior bays and coves or the inland lakes along all **shoreline segments** (72 segments). A comparison of mean percent cover between the two habitat groups is also indicated. Bolded taxa indicate those occurring at a frequency greater than 50% in both habitat types.

	Taxa	**Bays and Coves** 31 segments % Frequency	**Inland Lakes** 41 segments % Frequency
1	*Agrostis hyemalis*	80.6	31.7
2	*Aster puniceus*	61.3	14.6
3	***Calamagrostis canadensis***	51.6	92.7
4	*Campanula aparinoides*	45.2	53.7
5	*Carex aquatilis*	54.8	17.1
6	*Carex hystericina*	51.6	7.3
7	*Carex lasiocarpa*	19.4	73.2
8	*Dulichium arundinaceum*	16.1	73.2
9	*Epilobium* spp.	61.3	4.9
10	***Eupatorium maculatum***	83.9	61.0
11	*Impatiens capensis*	64.5	12.2
12	*Juncus brevicaudatus*	64.5	39.0
13	*Iris versicolor*	48.4	70.7
14	***Lycopus americanus***	51.6	56.1
15	*Lysimachia terrestris*	35.5	58.5
16	*Mentha arvensis*	51.6	36.6
17	*Myrica gale*	35.5	63.4
18	*Phalaris arundinacea*	87.1	2.4
19	*Thalictrum dasycarpum*	51.6	19.5
20	*Sium suave*	45.2	51.2
21	*Triadenum fraseri*	12.9	51.2
	mean percent cover per segment (all taxa)	16.31	34.83

Table 10A. Mean plant richness assessed at 64 peatland sites, each with progressively increasing plot size:1 m x 1 m, 5 m x 5 m, and 10 m x 10 m. The richness range including 95% of the plots disregards the two highest and two lowest values.

Plot Size	Mean Richness per plot	Richness Range of all plots	Richness Range-95% of plots	Standard Error
1 m x 1 m	10.4	3 to 24	4 to 18	0.53
5 m x 5 m	19.0	5 to 41	10 to 35	0.92
10 m x 10 m	25.2	9 to 54	13 to 44	1.14

Table 10B. All taxa in peatland plots with greater than 2.0% cover per 10 m x 10 m plot. Columns indicate total cover per taxa over all 64 plots, mean cover per plot, % cover relative to all taxa, cumulative relative cover for these 27 taxa, and frequency of occurrence.

Taxa	Total cover over all 64 plots	Mean cover per plot	Relative cover	Cumulative relative cover	Frequency of occurrence (n=64)
Carex lasiocarpa	1941.2	30.33	12.84	12.84	40
Sphagnum spp.	1074.0	16.78	7.10	19.94	21
Myrica gale	988.1	15.44	6.53	26.47	28
Chamaedaphne calyculata	872.5	13.63	5.77	32.24	32
Menyanthes trifoliata	791.3	12.36	5.23	37.48	27
Calamagrostis canadensis	787.5	12.30	5.21	42.69	42
Sarracenia purpurea	426.7	6.67	2.82	45.51	19
Equisetum fluviatile	376.0	5.88	2.49	47.99	37
Carex stricta	368.5	5.76	2.44	50.43	17
Iris versicolor	301.2	4.71	1.99	52.42	47
Vaccinium oxycoccos	291.3	4.55	1.93	54.35	18
Potentilla palustris	275.8	4.31	1.82	56.17	31
Alnus incana	269.1	4.20	1.78	57.95	28
Carex livida	241.5	3.77	1.60	59.55	14
Andromeda glaucophylla	238.6	3.73	1.58	61.13	23
Scirpus hudsonianus	238.2	3.72	1.58	62.70	10
Scutellaria galericulata	229.3	3.58	1.52	64.22	19
Carex exilis	194.0	3.03	1.28	65.50	5
Kalmia polifolia	193.3	3.02	1.28	66.78	12
Campanula aparinoides	190.7	2.98	1.26	68.04	33
Utricularia intermedia	188.3	2.94	1.25	69.29	28
Thalictrum dasycarpum	173.6	2.71	1.15	70.43	12
Symplocarpus foetidus	171.7	2.68	1.14	71.57	16
Aster umbellatus	157.7	2.46	1.04	72.61	16
Drosera anglica	156.1	2.44	1.03	73.65	5
Carex limosa	139.6	2.18	0.92	74.57	12
Dulichium arundinaceum	138.1	2.16	0.91	75.48	25

Table 11. Summary of occurrences of *Typha* spp. and *Phragmites australis* on inland lakes and Lake Superior bays, Isle Royale 2003-2006.

Location	*Typha latifolia* [1]			*Typha* x *glauca* or *T. angustifolia*			*Phragmites australis*		
	Points	**Beds**	**All**	**Points**	**Beds**	**All**	**Points**	**Beds**	**All**
1 Ahmik Lake	2	1	3						
2 Amygdaloid Lake									
3 Angleworm Lake	1		1					2	2
4 Beaver Lake	5		5						
5 Benson Lake	6		6					2	2
6 Brady Cove	19	1	20	2	2	4	1	3	4
7 Chickenbone Lake								1	1
8 Chippewa Harbor	2		2						
9 Desor Lake	26	3	29					1	1
10 Duncan Bay	8		8					2	2
11 Dustin Lake	1		1						
12 Eva Lake	2		2						
13 Eva Pond	5		5						
14 Feldtmann Lake									
15 Five Finger Bay	1		1						
16 Forbes Lake	1		1						
17 Halloran Lake	11	4	15						
18 Harvey Lake	3		3						
19 Hatchet Lake	2		2					3	3
20 Hidden Lake									
21 Intermediate Lake	3	1	4				2		2
22 Lane Cove	8	1	9						
23 LeSage Lake	2	2	4				1	1	2
24 Lily Lake									
25 Linklater Lake	5	3	8						
26 Livermore Lake	6		6						
27 McCargoe Cove	12	1	13	2		2			
28 McDonald Lake	3	2	5						
29 Moose Lake	1		1						
30 Moskey Basin	2		2						
31 Mud Lake									
32 Ojibway Lake	5	2	7						
33 Otter Lake	1	2	3						
34 Patterson Lake	2	1	3						
35 Pickerel Cove	2		2						
36 Richie Lake	5	3	8					1	1
37 Robinson Bay									

Location	*Typha latifolia* [1]			*Typha* x *glauca* or *T. angustifolia*			*Phragmites australis*		
	Points	**Beds**	**All**	**Points**	**Beds**	**All**	**Points**	**Beds**	**All**
38 Sargent Lake	40	4	44	1		1	1	1	2
39 Scholts Lake	1		1						
40 Shesheeb Lake		1	1						
41 Siskiwit Lake	19	2	21						
42 Stickleback Lake									
43 Stockly Bay	4		4						
44 Sumner Lake	1		1						
45 Tobin Harbor									
46 Wagejo Lake							1	7	8
47 Washington Harbor	5	3	8						
48 Whittlesey Lake	1		1				1		1
49 Wood Lake	1	4	5						
Totals	**224**	**41**	**265**	**5**	**2**	**7**	**7**	**24**	**31**

[1] Includes occurrences of sterile individuals presumed to be *T. latifolia*

Table 12. Details of aggressive taxa beds, including GPS coordinates and general descriptions.

					Start		End		
Location	*Species*	Stems	Description	Size*	Easting	Northing	Easting	Northing	Length (m)
Ahmik Lake	*Typha latifolia*	150	6m wide bed	bed	385752	5334271	385790	5334262	37.977
Ahmik Lake	*Typha latifolia*	10		point	385272	5333720			
Ahmik Lake	*Typha sp.***	8	In peat plot 1	point	385333.45	5334001.504			
Ahmik Lake	*Typha sp.*	10	On sedge mat	point	385401	5334042			
Angleworm Lake	*Phragmites australis*		Dense Phragmites bed	bed	375829	5326193	375857	5326210	31.575
Angleworm Lake	*Phragmites australis*		Dense bed, in water to 5m shore, 50-75%	bed	376375	5326528	376392	5326537	18.506
Angleworm Lake	*Typha latifolia*	2		point	376896	5326847			
Beaver Lake	*Typha latifolia*	4		point	369096.15	5326935.776			
Beaver Lake	*Typha latifolia*	22		point	369110.42	5326748.851			
Beaver Lake	*Typha latifolia*	12		point	369217.23	5326782.4			
Beaver Lake	*Typha latifolia*	12		point	369361.13	5326725.442			
Beaver Lake	*Typha latifolia*	2		point	369595.27	5326898.545			
Benson Lake	*Phragmites australis*		Medium dense Phragmites bed	bed	378857	5327488	378875	5327506	25.086
Benson Lake	*Phragmites australis*		Medium dense Phragmites bed	bed	378888	5327520	378999	5327640	165.501
Benson Lake	*Typha latifolia*	30	On sedge mat	point	377907	5327007			
Benson Lake	*Typha latifolia*	12	On sedge mat	point	377908	5327020			
Benson Lake	*Typha latifolia*	25	On sedge mat	point	377914	5327028			
Benson Lake	*Typha latifolia*	20	On sedge mat	point	378989	5327718			
Benson Lake	*Typha sp.*	2		point	379078	5327747			
Benson Lake	*Typha latifolia*	50	On an old beaver dam	point	379097	5327743			
Brady Cove	*Typha x glauca*	>1000	Specimen #2, some *Typha x glauca*	bed	374973.61	5329854.8	375019.38	5329736.32	212.841
Brady Cove	*Typha x glauca*	>1000	Specimen #1, some *Typha x glauca*	bed	374977.64	5329856.82	374986.73	5329860.18	9.754
Brady Cove	*Phragmites australis*	30		bed	375457.000	5329983.000	375446.000	5329987.000	12.942
Brady Cove	*Phragmites australis*	>500		bed	375230.000	5330059.000	375235.000	5330030.000	30.048
Brady Cove	*Phragmites australis*	>500		bed	375245.000	5330005.000	375279.000	5329996.000	36.489
Brady Cove	*Typha latifolia*	80		bed	375681.000	5329952.000	375684.000	5329962.000	10.181
Brady Cove	*Typha latifolia*	2		point	374562.57	5330136.89			
Brady Cove	*Typha latifolia*	5		point	374862.74	5330106.45			
Brady Cove	*Typha latifolia*	7		point	375002.23	5330129.45			
Brady Cove	*Typha x glauca*	15	Very Tall, likely *Typha x glauca*	point	375036	5329896			
Brady Cove	*Typha latifolia*	15		point	375040	5329746			
Brady Cove	*Typha latifolia*	16		point	375109.26	5330129			
Brady Cove	*Typha latifolia*	5		point	375118.23	5330115			
Brady Cove	*Typha latifolia*	2		point	375188	5329957			
Brady Cove	*Typha latifolia*	7		point	375220.53	5330075.43			
Brady Cove	*Typha latifolia*	2		point	375230	5330067			
Brady Cove	*Typha latifolia*	15		point	375241	5330044			
Brady Cove	*Typha latifolia*	2		point	375242	5330030			
Brady Cove	*Typha latifolia*	7		point	375242	5330038			
Brady Cove	*Phragmites australis*	3		point	375431.99	5329994.67			
Brady Cove	*Typha angustifolia*	5		point	375516.58	5329978.12			
Brady Cove	*Typha latifolia*	3		point	375634.52	5329995.06			
Brady Cove	*Typha latifolia*	3		point	375641.61	5329992.38			

Table 12. Details of aggressive taxa beds, including GPS coordinates and general descriptions.

					Start		End		
Location	*Species*	Stems	Description	Size*	Easting	Northing	Easting	Northing	Length (m)
Brady Cove	*Typha latifolia*	3		point	375648.62	5329987			
Brady Cove	*Typha latifolia*	32		point	375664.55	5329984.06			
Brady Cove	*Typha latifolia*	15		point	375681.75	5329921.39			
Brady Cove	*Typha latifolia*	7		point	375686.18	5329944.55			
Brady Cove	*Typha latifolia*	3		point	375696.24	5329980.8			
Chickenbone Lake	*Phragmites australis*	100	Scattered Phragmites	bed	373532.64	5326202.191	373496.343	5326186.606	37.611
Chickenbone Lake	*Phalaris arundinacea*	12	2 clumps, 6 stems each	point	372352.8	5325340.339			
Chippewa Harbor	*Phalaris arundinacea*		no stem count, trace in aquatic segment 4	point	376015.87	5320622.406			
Chippewa Harbor	*Typha latifolia*		no stem count, trace found in segment 2	point	376200.39	5320355.494			
Chippewa Harbor	*Typha latifolia*		no stem count, trace found in segment	point	376299.53	5320275.407			
Desor Lake	*Typha latifolia*	10	Over 10m length	bed	349784.31	5315811.5	349805.1	5315805.29	21.847
Desor Lake	*Phragmites australis*	1500	Sparse but continuous patch	bed	350348.68	5314701.09	350395.62	5314783.08	100.14
Desor Lake	*Typha latifolia*	1000	Greater than 1000 stems, no gaps some fr	bed	352090.73	5316318.21	352086.75	5316281.69	38.105
Desor Lake	*Typha latifolia*	27		bed	353146.37	5316092.45	353180.19	5316089.94	34.126
Desor Lake	*Typha sp.*	2	narrow leaves, could be T. x glauca	point	349660	5315774			
Desor Lake	*Typha latifolia*	4		point	349704	5315792			
Desor Lake	*Typha latifolia*	6		point	349715.98	5315796.78			
Desor Lake	*Typha latifolia*	7		point	349927.08	5315821.282			
Desor Lake	*Typha latifolia*	1		point	349929	5315801			
Desor Lake	*Typha sp.*	3	narrow leaves	point	349957	5315347			
Desor Lake	*Typha latifolia*	25		point	350192	5315909			
Desor Lake	*Typha sp.*	12	very narrow leaves	point	350994	5315008			
Desor Lake	*Typha sp.*	2		point	351007	5314947			
Desor Lake	*Typha sp.*	8	narrow leaves	point	351469	5315042			
Desor Lake	*Typha sp.*	2		point	351484	5315060			
Desor Lake	*Typha sp.*	4	narrow leaves	point	351564	5315019			
Desor Lake	*Typha sp.*	3		point	351612	5315008			
Desor Lake	*Typha sp.*	5		point	351723	5315023			
Desor Lake	*Typha sp.*	13		point	351818	5315064			
Desor Lake	*Typha latifolia*	10		point	351972	5316189			
Desor Lake	*Typha latifolia*	6		point	352098.65	5316329.056			
Desor Lake	*Typha latifolia*	9		point	352487	5315949			
Desor Lake	*Typha sp.*	3		point	353108	5316054			
Desor Lake	*Typha sp.*	6		point	353111	5315995			
Desor Lake	*Typha sp.*	1		point	353126	5316084			
Desor Lake	*Typha sp.*	1	very narrow leaves	point	353428	5315986			
Desor Lake	*Typha latifolia*	9	Specimen collected	point	353432	5316137			
Desor Lake	*Typha sp.*	3		point	353568	5316212			
Desor Lake	*Typha sp.*	1	narrow leaves	point	353604	5316006			
Desor Lake	*Typha sp.*	9	narrow leaves	point	353681	5315999			
Duncan Bay	*Phragmites australis*		No stem or density information available	bed	387892	5335166	387910	5335187	27.016
Duncan Bay	*Phragmites australis*		No stem or density information available	bed	387985	5335221	388071	5335247	98.475
Duncan Bay	*Typha latifolia*	8	Along shore and in water	point	386288	5334014			

Table 12. Details of aggressive taxa beds, including GPS coordinates and general descriptions.

					Start		End		
Location	*Species*	Stems	Description	Size*	Easting	Northing	Easting	Northing	Length (m)
Duncan Bay	*Typha latifolia*	6	Along shore and in water	point	386309	5334046			
Duncan Bay	*Typha sp.*	3	Growing in shallow water	point	386315	5333632			
Duncan Bay	*Typha latifolia*	45		point	386367	5334086			
Duncan Bay	*Typha sp.*	4		point	386391	5333616			
Duncan Bay	*Typha sp.*	2		point	386398	5333614			
Duncan Bay	*Typha sp.*	15		point	386681	5334043			
Duncan Bay	*Typha sp.*	6		point	389218	5336238			
Dustin Lake	*Typha latifolia*		no stem count, found along shoreline	point	373189.97	5318159.225			
Eva Lake	*Typha latifolia*	5		point	377693	5331059			
Eva Lake	*Typha sp.*	3	no waypoint, Segment 6	point	378078.82	5331501.733			
Eva Pond	*Typha latifolia*	35		point	377814	5330902			
Eva Pond	*Typha latifolia*	50		point	377825	5331008			
Eva Pond	*Typha latifolia*	40		point	377828	5330902			
Eva Pond	*Typha latifolia*	12		point	377838	5330894			
Eva Pond	*Typha latifolia*	30		point	377840	5330998			
Five Finger Bay	*Typha sp.*	3	In 0.5 m of water	point	386943	5334899			
Forbes Lake	*Typha latifolia*	16		point	379366	5327213			
Halloran Lake	*Typha latifolia*	300	Bed on SW corner of lake	bed	348728	5303706	348738	5303696	17.18
Halloran Lake	*Typha latifolia*	500	Bed on NE corner of lake, close to 75 stem bed	bed	350342	5304592	350257	5304730	155.54
Halloran Lake	*Typha latifolia*	75		bed	350358	5304546	350350	5304586	44.81
Halloran Lake	*Typha latifolia*	13		bed	350365	5304494	350371	5304501	10.54
Halloran Lake	*Typha latifolia*	20		point	348664	5304176	6		
Halloran Lake	*Typha latifolia*	4		point	348727	5303713	7		
Halloran Lake	*Typha latifolia*	6		point	348744	5303688	10		
Halloran Lake	*Typha latifolia*	3		point	348752	5303683	11		
Halloran Lake	*Typha latifolia*	2		point	348877	5304241	5		
Halloran Lake	*Typha latifolia*	2		point	348979	5304267	3		
Halloran Lake	*Typha latifolia*	1		point	350144	5304709	24		
Halloran Lake	*Typha latifolia*	4		point	350211	5304747	23		
Halloran Lake	*Typha latifolia*	6		point	350235	5304741	22		
Halloran Lake	*Typha latifolia*	24		point	350376	5304509	16		
Halloran Lake	*Typha latifolia*	26		point	350380	5304499	15		
Harvey Lake	*Typha latifolia*	15		point	365939.44	5323457.745			
Harvey Lake	*Typha latifolia*	250		point	365999.45	5323538.932			
Harvey Lake	*Typha latifolia*	12		point	366083.28	5323377.089			
Hatchet Lake	*Phragmites australis*		Bed on west end of lake	bed	361375.85	5320232.728	361381.022	5320260.398	27.095
Hatchet Lake	*Phragmites australis*		Bed on NE end of lake	bed	362957.34	5321016.224	363053.998	5321037.286	98.452
Hatchet Lake	*Phragmites australis*		clone 7 x 3 m, also near Nymphaea tetragona	bed	363081.57	5321051.61	363072.609	5321046.491	10.353
Hatchet Lake	*Typha latifolia*	8		point	361736.63	5320285.18			
Hatchet Lake	*Typha sp.*	7		point	363090.57	5320922.81			
Intermediate Lake	*Typha latifolia*		T. latifolia, 20-30 meters long, half of bay	bed	370344.55	5320700.55	370337.67	5320727.198	29.123
Intermediate Lake	*Phragmites australis*		no stem count, patch of Phragmites	point	370837.7	5321297.093			
Intermediate Lake	*Phragmites australis*		no stem count, patch of Phragmites	point	370879.22	5321307.158			

Table 12. Details of aggressive taxa beds, including GPS coordinates and general descriptions.

					Start		End		
Location	*Species*	Stems	Description	Size*	Easting	Northing	Easting	Northing	Length (m)
Intermediate Lake	*Typha latifolia*		no stem count, trace in segment 5 data	point	371577.71	5321614.97			
Intermediate Lake	*Typha latifolia*	50	across bay from AGH_439	point	371616.68	5321069.341			
Intermediate Lake	*Typha latifolia*	25	T.latifolia on opposite side of bay	point	371696	5321011			
Lane Cove	*Typha latifolia*	110	10 m long	bed	384118	5333474	384119	5333460	16.013
Lane Cove	*Typha sp.*	15	Widely scattered	point	383524	5333421			
Lane Cove	*Typha sp.*	3		point	383553	5333430			
Lane Cove	*Typha sp.*	1		point	383619	5333462			
Lane Cove	*Typha sp.*	12		point	384147	5333530			
Lane Cove	*Typha latifolia*	42		point	384153	5333516			
Lane Cove	*Typha latifolia*	10		point	384567	5334101			
Lane Cove	*Typha sp.*	7		point	384588	5333950			
Lane Cove	*Typha sp.*	3	Found in Segment 2	point	384588	5333950			
LeSage Lake	*Typha latifolia*		Strip of Typha latifolia, 20 to 30 meters long	bed	372334.97	5324106.458	372356.916	5324122.31	27.075
LeSage Lake	*Typha latifolia*		Strip of Typha latifolia	bed	372393.5	5324143.446	372456.499	5324168.241	69.537
LeSage Lake	*Phragmites australis*		Patch of Phragmites, to 1 m depth	bed	372912.9	5323941.568	372950.912	5323961.765	45.23
LeSage Lake	*Typha latifolia*	10	2 small patches with less than 10 stems	point	372554.51	5324220.079			
LeSage Lake	*Typha latifolia*		no stem count, some T. latifolia at head of bay	point	372981.81	5324075.201			
LeSage Lake	*Phragmites australis*		no stem count, patch of Phragmites	point	373005.78	5324032.636			
Linklater Lake	*Typha latifolia*	200	Several 100's of stem in 20 clumps	bed	377182.22	5329884.987	377289.592	5329817.678	355
Linklater Lake	*Typha latifolia*	23	10m section	bed	377449.23	5329886.02	377444.86	5329876.21	10.608
Linklater Lake	*Typha sp.*		Scattered 10-20%, no stem count	bed	378328.94	5330461.629	378420	5330422	128.295
Linklater Lake	*Typha sp.*	2		point	377330.62	5329952.827			
Linklater Lake	*Typha sp.*	8		point	378017.86	5330292.873			
Linklater Lake	*Typha sp.*	10	On a free-floating mat	point	378169.23	5330378.9			
Linklater Lake	*Typha sp.*	2		point	378193.96	5330389.129			
Linklater Lake	*Typha sp.*	2		point	378199.24	5330391.599			
Livermore Lake	*Typha latifolia*	35		point	372057.4	5324585.749			
Livermore Lake	*Typha latifolia*	12		point	372098.01	5324643.162			
Livermore Lake	*Typha latifolia*	25		point	372139.65	5324523.445			
Livermore Lake	*Typha latifolia*	40		point	372481.87	5324677.267			
Livermore Lake	*Typha latifolia*	8		point	372693.76	5324727.178			
Livermore Lake	*Typha latifolia*	40		point	372970.77	5325104.776			
McCargoe Cove	*Typha latifolia*	6	No fruit	bed	372755.07	5327150.13	372763.09	5327154.93	9.352
McCargoe Cove	*Typha latifolia*	2	no fruit	point	372658	5327163			
McCargoe Cove	*Typha latifolia*	10	no fruit	point	372658	5327140			
McCargoe Cove	*Typha latifolia*	1	no fruit	point	372752	5327146			
McCargoe Cove	*Typha latifolia*	6		point	372783	5327166			
McCargoe Cove	*Typha latifolia*	15	no fruit	point	372940	5327353			
McCargoe Cove	*Typha latifolia*	5	no fruit	point	372950	5327332			
McCargoe Cove	*Typha latifolia*	11		point	372952	5328154			
McCargoe Cove	*Typha latifolia*	30	Specimen collected #3	point	372973	5328201			
McCargoe Cove	*Typha latifolia*	15	Rocky Shoreline	point	373124	5327638			
McCargoe Cove	*Typha latifolia*	4	Rocky Shoreline	point	373957	5328797			

Table 12. Details of aggressive taxa beds, including GPS coordinates and general descriptions.

					Start		End		
Location	*Species*	Stems	Description	Size*	Easting	Northing	Easting	Northing	Length (m)
McCargoe Cove	*Typha latifolia*	8		point	374061	5329494			
McCargoe Cove	*Typha x glauca*	6	Narrow Leaves, possible Typha x glauca	point	374326	5329431			
McCargoe Cove	*Typha x glauca*	8	Rocky Shoreline, no fruit	point	374479	5329612			
McCargoe Cove	*Typha latifolia*	9	Rocky Shoreline	point	374492	5329765			
McDonald Lake	*Typha latifolia*	150		bed	370684.92	5327550.023	370663.694	5327542.402	23.471
McDonald Lake	*Typha latifolia*	75		bed	370928.25	5327667.029	370950.456	5327666.519	23.017
McDonald Lake	*Typha latifolia*	10		point	370632.69	5327529.624			
McDonald Lake	*Typha latifolia*	12		point	371231.58	5327630.418			
McDonald Lake	*Typha latifolia*	6		point	371367.22	5327799.979			
Minong Ridge	*Typha sp.*		near Minong Wetland Plot 5, no stem count	point	343966.7	5313001.334			
Minong Ridge	*Typha sp.*		within Minong Wetland Plot 3, no stem count	point	346883.84	5314028.648			
Moose Lake	*Typha latifolia*		no stem count; few widely scattered	point	387564.64	5333299.52			
Moskey Basin	*Phalaris arundinacea*		no stem count, by stream channel, beaver infl.	point	377310.59	5324801.023			
Moskey Basin	*Typha latifolia*		no stem count, trace amounts in segment 1	point	377488.84	5324817.32			
Moskey Basin	*Typha sp.*		no stem count, less than 20	point	379303.92	5325636.243			
Ojibway Lake	*Typha latifolia*	80	15 m long bed	bed	380366.03	5328922.578	380362.337	5328937.401	15.181
Ojibway Lake	*Typha latifolia*	80	10 m long	bed	380400.26	5328946.516	380394.454	5328955.572	10.565
Ojibway Lake	*Typha latifolia*	6		point	379846	5328636			
Ojibway Lake	*Typha latifolia*	2	On shore, near tree line	point	380319	5328977			
Ojibway Lake	*Typha latifolia*	35		point	380397	5328964			
Ojibway Lake	*Typha latifolia*	25	On peat mat	point	380508	5329081			
Ojibway Lake	*Typha sp.*	6	Several scattered throughout	point	380737.5	5329199.935			
Otter Lake	*Typha latifolia*	30	Along 12 m of shore	bed	369825.8	5326688.076	369817.555	5326696.612	12.02
Otter Lake	*Typha latifolia*	40	Along 15 m of shore	bed	370027.61	5326664.32	370029.05	5326648.61	16.454
Otter Lake	*Typha latifolia*	3		point	369732.49	5326644			
Patterson Lake	*Typha sp.*	50	On sedge mat in 3 clumps	bed	384885	5333524	384899	5333529	13.619
Patterson Lake	*Typha latifolia*	100	Further up inlet	point	383987	5333145			
Patterson Lake	*Typha latifolia*	25		point	384906	5333534			
Patterson Lake	*Typha latifolia*	30	Scattered on bog mat, toward Lk Ahmik	point	384947	5333538			
Pickerel Cove	*Typha sp.*	2		point	377344	5331544			
Pickerel Cove	*Typha sp.*	20	In segment 5	point	379312.16	5332421.279			
Richie Lake	*Typha latifolia*		no stem count, 6 meter patch of Typha latifolia	bed	372000.7	5322370.148	372006.828	5322370.403	6.145
Richie Lake	*Phragmites australis*		no stem count, 10 meter patch of Phragmites	bed	372708.24	5322538.802	372719.689	5322540.149	11.527
Richie Lake	*Typha latifolia*	50	Patch of Typha latifolia about 25 sq meters	bed	374073.85	5321256.088	374093.69	5321266.308	25.146
Richie Lake	*Typha latifolia*	35	Patch of Typha latifolia, 40 sq meters	bed	374210.82	5323206.221	374244.513	5323227.922	40.929
Richie Lake	*Typha latifolia*		no stem count	point	373355.17	5322586.805			
Richie Lake	*Typha latifolia*		no stem count	point	373694.23	5323146.428			
Richie Lake	*Typha latifolia*		no stem count, trace found in segment 7 data	point	373745.35	5321343.789			
Richie Lake	*Typha latifolia*		no stem count	point	373967.66	5323058.018			
Richie Lake	*Typha latifolia*		no stem count, found along stream	point	374114.5	5321255.935			
Sargent Lake	*Typha sp.*	7	7 stems scattered over 35 m	bed	375092.43	5327582.666			26.203
Sargent Lake	*Phragmites australis*	400		bed	375254.61	5327868.494	375164.702	5327892.177	92.113
Sargent Lake	*Phalaris arundinacea*	30		bed	375381.75	5327798.52	375402.34	5327828.456	33.924

Table 12. Details of aggressive taxa beds, including GPS coordinates and general descriptions.

					Start		End		
Location	*Species*	Stems	Description	Size*	Easting	Northing	Easting	Northing	Length (m)
Sargent Lake	*Typha sp.*	13	13 stems scattered over 35 m	bed	376062.06	5327537.002			31.672
Sargent Lake	*Typha sp.*	16	16 stems scattered over 14 m	bed	376659.76	5328487.388			14.003
Sargent Lake	*Typha latifolia*	50	Scattered, possible T. angustifolia, collected	bed	378235.51	5329161.532	378178.981	5329099.226	88.651
Sargent Lake	*Typha sp.*	6		point	374558.29	5327680.613			
Sargent Lake	*Typha sp.*	10		point	374872.06	5327576.04			
Sargent Lake	*Typha latifolia*	22		point	374944.48	5327570.992			
Sargent Lake	*Typha latifolia*	8		point	374976.1	5327601.19			
Sargent Lake	*Typha latifolia*	15		point	374981.35	5327468.093			
Sargent Lake	*Typha latifolia*	35	In three patches	point	375143.31	5327385.294			
Sargent Lake	*Phalaris arundinacea*	4	4 clumps	point	375191.25	5327377.856			
Sargent Lake	*Typha sp.*	6		point	375349.94	5327707.854			
Sargent Lake	*Typha sp.*	2		point	375382.1	5327434.975			
Sargent Lake	*Typha sp.*	12		point	375398.94	5327428.877			
Sargent Lake	*Typha sp.*	9		point	375400.58	5327944.345			
Sargent Lake	*Typha sp.*	1		point	375420.67	5327436.802			
Sargent Lake	*Typha sp.*	4		point	375430.92	5327957.908			
Sargent Lake	*Typha sp.*	12		point	375439.04	5327690.566			
Sargent Lake	*Phragmites australis*	75		point	375487.3	5327896.344			
Sargent Lake	*Phalaris arundinacea*	3		point	375639.28	5327409.798			
Sargent Lake	*Typha sp.*	14		point	375657.76	5328062.318			
Sargent Lake	*Typha sp.*	7		point	375669.52	5327413.113			
Sargent Lake	*Phalaris arundinacea*	20	2 clumps totalling 20 culms	point	375749.14	5327441.677			
Sargent Lake	*Typha latifolia*	100	dense clone	point	375844.2	5328031.927			
Sargent Lake	*Typha latifolia*	20		point	375858.12	5328013.023			
Sargent Lake	*Typha sp.*	2		point	375889.85	5327974.365			
Sargent Lake	*Typha sp.*	3		point	376135.53	5327560.581			
Sargent Lake	*Typha sp.*	8		point	376288.72	5327963.606			
Sargent Lake	*Typha sp.*	4		point	376305.66	5328033.673			
Sargent Lake	*Typha latifolia*	25		point	376379	5328162			
Sargent Lake	*Typha latifolia*	7		point	376569	5328196			
Sargent Lake	*Typha latifolia*	11		point	376650	5328261			
Sargent Lake	*Typha sp.*	15	sterile	point	376655.3	5327759.738			
Sargent Lake	*Typha latifolia*	28		point	376661	5328269			
Sargent Lake	*Typha latifolia*	40		point	376665.71	5328151.484			
Sargent Lake	*Typha sp.*	6		point	376908.14	5328644.1			
Sargent Lake	*Typha sp.*	5	sterile	point	376964.64	5328031.594			
Sargent Lake	*Typha latifolia*	2		point	377064.65	5328428.212			
Sargent Lake	*Typha latifolia*	2		point	377077.24	5328428.967			
Sargent Lake	*Typha latifolia*	1		point	377413.1	5328968.641			
Sargent Lake	*Typha latifolia*	12		point	377498.68	5328567.889			
Sargent Lake	*Typha latifolia*	40		point	377713.2	5328631.073			
Sargent Lake	*Typha latifolia*	25		point	378011.72	5328872.29			
Sargent Lake	*Typha latifolia*	1		point	378164.17	5329095.329			

Table 12. Details of aggressive taxa beds, including GPS coordinates and general descriptions.

					Start		End		
Location	*Species*	Stems	Description	Size*	Easting	Northing	Easting	Northing	Length (m)
Sargent Lake	*Typha angustifolia*		no stem count	point	378236.38	5329159.207			
Sargent Lake	*Typha latifolia*	1		point	378272.01	5328984.597			
Sargent Lake	*Typha latifolia*	50		point	378328.72	5328981.23			
Sargent Lake	*Typha latifolia*	3		point	378376.64	5329139.707			
Sargent Lake	*Typha latifolia*	1		point	378517.31	5329097.102			
Scholts Lake	*Typha latifolia*		no stem count, trace in wet meadow data	point	373803.27	5318617.87			
Shesheeb Lake	*Typha latifolia*	50		bed	377189.91	5329686.125	377266.074	5329691.912	74.628
Siskiwit Lake	*Typha latifolia*			bed	370175.71	5319115.16	370170.28	5319064.94	54.895
Siskiwit Lake	*Typha latifolia*			bed	370251.81	5318845	370287.41	5318816.2	46.545
Siskiwit Lake	*Typha sp.*	3	near peat plot trail	point	360138	5315012.991			
Siskiwit Lake	*Typha sp.*	2	no fruit	point	361487	5316312			
Siskiwit Lake	*Typha latifolia*	10	no fruit	point	361489	5315457			
Siskiwit Lake	*Typha sp.*	3	narrow leaves, no fruit	point	361876	5316748			
Siskiwit Lake	*Typha latifolia*	2	no fruit	point	364697	5316790			
Siskiwit Lake	*Typha latifolia*	3	no fruit	point	366232	5316896			
Siskiwit Lake	*Typha latifolia*	8	1 with fruit	point	366705	5317647			
Siskiwit Lake	*Typha latifolia*	4	no fruit	point	366719	5317638			
Siskiwit Lake	*Typha latifolia*	46	fruit present	point	368525	5318346			
Siskiwit Lake	*Typha latifolia*		no stem count, trace in segment 1 data	point	368926.29	5318281.821			
Siskiwit Lake	*Typha latifolia*	15	inflor from last year, no fruit	point	368948	5318419			
Siskiwit Lake	*Typha latifolia*	35	no fruit	point	368956	5318336			
Siskiwit Lake	*Typha sp.*	8	no fruit	point	369739	5320322			
Siskiwit Lake	*Typha sp.*	2	no fruit	point	369799	5319892			
Siskiwit Lake	*Typha sp.*	1	no fruit	point	369815	5319769			
Siskiwit Lake	*Typha sp.*	9	no fruit	point	369829	5319861			
Siskiwit Lake	*Typha sp.*	3	no fruit	point	370298	5318804			
Siskiwit Lake	*Typha sp.*	6	no fruit	point	370318	5318791			
Siskiwit Lake	*Typha latifolia*	30	specimen, fruit present	point	370340	5318784			
Stockly Bay	*Typha sp.*	12		point	384345	5333516			
Stockly Bay	*Typha latifolia*	2		point	384395	5333652			
Stockly Bay	*Typha latifolia*	8		point	384401	5333626			
Stockly Bay	*Typha sp.*	1		point	384682	5333888			
Sumner Lake	*Typha latifolia*	21		point	380166	5325602			
Tobin Harbor	*Phalaris arundinacea*	2	a few plants of Phalaris on shore	point	389449.91	5333775			
Wagejo Lake	*Phragmites australis*		Medium dense, irregular Phragmites bed	bed	377298	5327752	377318	5327763	21.298
Wagejo Lake	*Phragmites australis*		Medium dense Phragmites bed	bed	377464	5327845	377482	5327872	31.593
Wagejo Lake	*Phragmites australis*		Medium dense Phragmites bed	bed	377500.25	5327903.589	377488.588	5327896.423	13.617
Wagejo Lake	*Phragmites australis*		Dense Phragmites bed	bed	377513	5327919	377536	5327939	29.32
Wagejo Lake	*Phragmites australis*		Dense Phragmites bed	bed	377513.11	5327884.919	377499.801	5327875.633	16.096
Wagejo Lake	*Phragmites australis*		Medium dense Phragmites bed	bed	377618	5327890	377628	5327875	18.096
Wagejo Lake	*Phragmites australis*		Dense Phragmites bed	bed	377623	5327837	377627	5327821	16.053
Wagejo Lake	*Phragmites australis*	15		point	377614	5327902			
Washington Harbor	*Phalaris arundinacea*	14		bed	338554	5309391	338543	5309393	10.47

Table 12. Details of aggressive taxa beds, including GPS coordinates and general descriptions.

					Start		End		
Location	*Species*	Stems	Description	Size*	Easting	Northing	Easting	Northing	Length (m)
Washington Harbor	*Phalaris arundinacea*	35		bed	338846	5309230	338815	5309264	46.576
Washington Harbor	*Typha latifolia*	70	Up creek channel	bed	339019	5309336	339004	5309344	17.84
Washington Harbor	*Typha latifolia*	400	Up creek channel	bed	339092	5309338	339062	5309338	31.471
Washington Harbor	*Typha latifolia*	62	Up creek channel	bed	339122	5309341	339119	5309338	5.259
Washington Harbor	*Phalaris arundinacea*	2		point	337231	5308791			
Washington Harbor	*Phalaris arundinacea*	4		point	337838	5308800			
Washington Harbor	*Phalaris arundinacea*	4		point	338196	5309414			
Washington Harbor	*Typha latifolia*	30		point	338302	5309457			
Washington Harbor	*Phalaris arundinacea*	4		point	338772	5309370			
Washington Harbor	*Typha latifolia*	7	Creek mouth	point	338808	5309388			
Washington Harbor	*Typha latifolia*	6		point	338989.84	5309347.327			
Washington Harbor	*Typha latifolia*	30		point	339113.64	5309340.512			
Washington Harbor	*Typha latifolia*	1		point	339175	5309366			
Whittlesey Lake	*Typha sp.*		no stem count, trace in segment 4 data	point	371435.24	5317978.351			
Whittlesey Lake	*Phragmites australis*		no stem count, trace in segment 2 data	point	372058.39	5318356.693			
Wood Lake	*Typha latifolia*	150		bed	370291.41	5318720.24	370290.81	5318749.5	29.483
Wood Lake	*Typha latifolia*		Short, delineable stand	bed	370320.16	5318081.251	370326.788	5318079.041	6.988
Wood Lake	*Typha latifolia*		Short, delineable stand	bed	370337.84	5318425.09	370344.908	5318425.974	7.126
Wood Lake	*Typha latifolia*			bed	370389.94	5318721.19	370366.68	5318655.5	89.827

Table 13. Length (m) and percent of lake and bay shorelines occupied by *Typha* spp. and *Phragmites australis* , Isle Royale, 2003 - 2006.

Location	Lake Perimeter (km)	Total Length (meters)			% of Shoreline		
		Typha latifolia [1]	*Typha angustifolia* [2]	*Phragmites australis*	*Typha latifolia*	*Typha angustifolia*	*Phragmites australis*
Ahmik Lake	2.0137	43.0			2.134		
Amygdaloid Lake	3.0911						
Angleworm Lake	7.4302	2.5		50.08	0.034		0.674
Beaver Lake	3.1105	12.5			0.402		
Benson Lake	3.1298	15.0		190.59	0.479		6.089
Brady Cove	4.7830	57.7	227.60	81.98	1.206	4.758	1.714
Chickenbone Lake	8.2080			37.61			0.458
Chippewa Harbor	8.9460	5.0			0.056		
Desor Lake	15.5420	159.1		100.14	1.024		0.644
Duncan Bay	16.0067	20.0		125.49	0.125		0.784
Dustin Lake	1.3991	2.5			0.179		
Eva Lake	2.6128	5.0			0.191		
Eva Pond	0.4738	12.5			2.638		
Feldtmann Lake	6.6886						
Five Finger Bay	8.6433	2.5			0.029		
Forbes Lake	1.3843	2.5			0.181		
Halloran Lake	4.4700	255.6			5.717		
Halloran Bog Pond	0.6980						
Harvey Lake	5.9900	7.5			0.125		
Hatchet Lake	4.1535	5.0		135.90	0.120		3.272
Hidden Lake	0.4413						
Intermediate Lake	6.6172	36.6		5.00	0.553		0.076
Lane Cove	7.8038	36.0			0.461		
LeSage Lake	5.8986	101.6		47.73	1.723		0.809
Lily Lake	0.9689						
Linklater Lake	3.2691	506.4			15.491		
Livermore Lake	3.5238	15.0			0.426		
McCargoe	9.6090	39.4	5.00		0.410	0.052	
McDonald Lake	2.2766	54.0			2.371		
Moose Lake	0.9234	2.5			0.271		
Moskey Basin	12.3830	5.0			0.040		
Mud Lake	2.0868						
Ojibway Lake	3.4985	38.2			1.093		
Otter Lake	2.8589	31.0			1.083		
Patterson Lake	1.8690	18.6			0.996		
Pickerel Cove	8.5395	5.0			0.059		
Richie Lake	16.1369	84.7		11.53	0.525		0.071
Robinson Bay	16.2840						
Sargent Lake	16.1009	260.5	2.50	94.61	1.618	0.016	0.588
Scholts Lake	1.0843	2.5			0.231		
Shesheeb Lake	1.9659	74.6			3.796		
Siskiwit Lake	38.8654	148.9			0.383		
Stickleback Lake	1.1895						
Stockly Bay	5.5920	10.0			0.179		
Sumner Lake	1.7136	2.5			0.146		

Table 13. Length (m) and percent of lake and bay shorelines occupied by *Typha* spp. and *Phragmites australis* , Isle Royale, 2003 - 2006.

Location	Lake Perimeter (km)	Total Length (meters)			% of Shoreline		
		Typha latifolia [1]	*Typha angustifolia* [2]	*Phragmites australis*	*Typha latifolia*	*Typha angustifolia*	*Phragmites australis*
Tobin Harbor	8.4490						
Wagejo Lake	1.3232			148.57			11.228
Whittlesey Lake	8.8443	2.5		2.50	0.028		0.028
Wood Lake	4.9839	135.9			2.727		
Washington Harbor	4.1590	67.1			1.613		
Totals	308.0337	2219.4	235.0950	1031.7320	0.720	0.076	0.335
Overall length (m), all taxa			3486.2040				
Overall % occurrence, all taxa			1.1318				

[1] Includes many sterile individuals presumed to be *T. latifolia*

[2] Includes intermediate individuals presumed to be *T*. x *glauca*

Table 14. Isle Royale Wetland Sampling 2003 - 2005: New Taxa,
all coordinates are in UTM Zone 16, NAD 83

	Species	**Location**	**Easting****	**Northing**
1	*Armoracia lacustris* (A. Gray) Al-Shehbaz & V. Bates	Lake Ritchie. End of south bay at start of portage to Chippewa Harbor.	374102	5321240
2	*Ceratophyllum demersum* L.	Patterson Lake inlet on west end.	T66N, R34W, S1, NW1/4SE1/4	
3	*Glyceria grandis* S. Wats	Portage between Moskey Basin and Richie Lake.	377018	5324710
4	*Leersia oryzoides* (L.) Swartz.	Stream between Siskiwit Lake and Intermediate Lake	369943	5320510
5	*Malva moschata* L.	Portage between Moskey Basin and Richie Lake.	377018	5324710
6	*Myriophyllum farwellii* Morong.	West and east ends of Patterson Lake.	T66N, R34W, S1, E1/2	
7	*Myriophyllum heterophyllum* Michx.	North inlet at west end of Duncan Bay.	SW1/4SW1/4 and T66N, R33W, S6,	
8	*Ophioglossum vulgatum* var. *pseudopodum* (S. F. Blake) Farw.	Wetland along Minong Ridge.	346868	5313840
9	*Sagittaria rigida* Pursh.	West end of Linklater Lake.	378194	5330380
10	*Scirpus pungens* Vahl.	Bay on South side of Sargent Lake	376920	5328069
11	*Typha angustifolia* L.	Northeast end of Sargent Lake.	378236	5329159
12	*Xyris montana* H. Ries	Fen at Lily Lake.	T64N, R38W, S26, SW1/4	
13	*Zosterella dubia* (Jacq.) Small	East end of Richie Lake.	374430	5322440

* UMI = University of Michigan Herbarium, Ann Arbor, MI; NC = Northland College Herbarium, Ashland, WI

** Town, Range, Section information when no GPS Coordinates available

Table 14. Isle Royale Wetland Sampling 2003 - 2005: New Taxa,
all coordinates are in UTM Zone 16, NAD 83

	Synonym/ Voucher Name	Collected by	Voucher_ID	Date	Determined by	Voucher Location*
1	*Armoracia lacustris* (A. Gray) Al-Shehbaz & V. Bates	A.G. Harris, Jim Meeker	03-259	11-Aug-03	E.G. Voss	UMI
2	*Ceratophyllum demersum* L.	V. Hofman, J.K. Marr		7-Aug-04	E.G. Voss	UMI
3	*Glyceria grandis* S. Wats	A.G.Harris	03-261	11-Aug-03	E.G. Voss	UMI
4	*Leersia oryzoides* (L.) Swartz.	J. Marr, A.G.Harris	03-248	8-Aug-03	E.G. Voss	UMI
5	*Malva moschata* L.	A.G.Harris	03-258	10-Aug-03	E.G. Voss	UMI
6	*Myriophyllum farwellii* Morong.	V. Hofman, J. K. Marr		7-Aug-04	E.G. Voss	UMI
7	*Myriophyllum heterophyllum* Michx.	V. Hofman, J. K. Marr		8-Aug-04	E.G. Voss	UMI
8	*Ophioglossum vulgatum* var. *pseudopodum* (S. F. Blake) Farw.	J. Marr and V. Hofman	Marr 3123	16-Jul-04	J.K. Marr	UMI
9	*Sagittaria rigida* Pursh.	A.G.Harris, J. Meeker	04-084	12-Aug-04	E.G. Voss	UMI
10	*Scirpus pungens* Vahl.	A.G.Harris	04-082	10-Aug-04	E.G. Voss	UMI
11	*Typha angustifolia* L.	A.G.Harris, J. Meeker		9-Aug-04	J.E. Meeker	NC
12	*Xyris montana* H. Ries	V. Hofman		3-Jul-04	E.G. Voss	UMI
13	*Zosterella dubia* (Jacq.) Small	A.G.Harris, J. Elias, J. Meeker, Kate Thompson	03-256	10-Aug-03	E.G. Voss	UMI

* UMI = University of Michigan Herbarium, Ann Arbor, MI; NC = Northland College Herbarium, Ashland, WI

Table 14. Isle Royale Wetland Sampling 2003 - 2005: New Taxa,
all coordinates are in UTM Zone 16, NAD 83

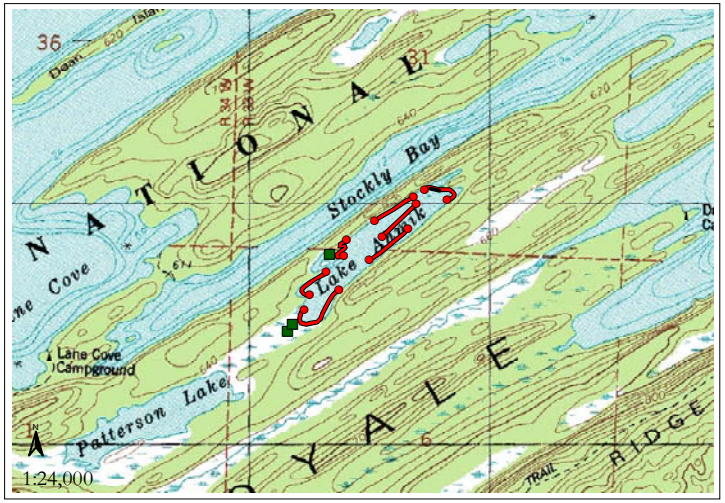
	Species	**Habitat**
1	*Armoracia lacustris* (A. Gray) Al-Shehbaz & V. Bates	Rooted in 25 cm of water in shallow sluggish stream. Silty substrate. With *Potamogeton gramineus.*
2	*Ceratophyllum demersum* L.	In inlet, growing in flocculent sediment. With *Bidens beckii, Myriophyllum* species, *Potamogeton natans, Hippuris vulgaris* , and *Sparganium minimum* . Common.
3	*Glyceria grandis* S. Wats	Rooted in middle of stream bed. 60 culms covering 3 m^2.
4	*Leersia oryzoides* (L.) Swartz.	Wet muck substrate in former stream channel. With *Eupatorium maculatum* , *Calamagrostis canadensis* . Several 100 culms covering 10 m^2 All apparently sterile.
5	*Malva moschata* L.	Dry ridge on portage trail.
6	*Myriophyllum farwellii* Morong.	Submergent.
7	*Myriophyllum heterophyllum* Michx.	Submergent.
8	*Ophioglossum vulgatum* var. *pseudopodum* (S. F. Blake) Farw.	In grass/sedge wet meadow; on hummock. Associated species: *Iris versicolor, Carex lasiocarpa, Campanula aparinoides* .
9	*Sagittaria rigida* Pursh.	Emergent in 60 cm of water, 100 culms.
10	*Scirpus pungens* Vahl.	Wet sand beach exposed by water level. With *Calamagrostis canadensis, Carex vesicaria, Juncus brevicaudatus* . 20 culms over 2m x 3m.
11	*Typha angustifolia* L.	Near bed of *Typha latifolia.*
12	*Xyris montana* H. Ries	Immature specimen, fen mat.
13	*Zosterella dubia* (Jacq.) Small	Submergent. Sand substrate in 2 m of water. Common.

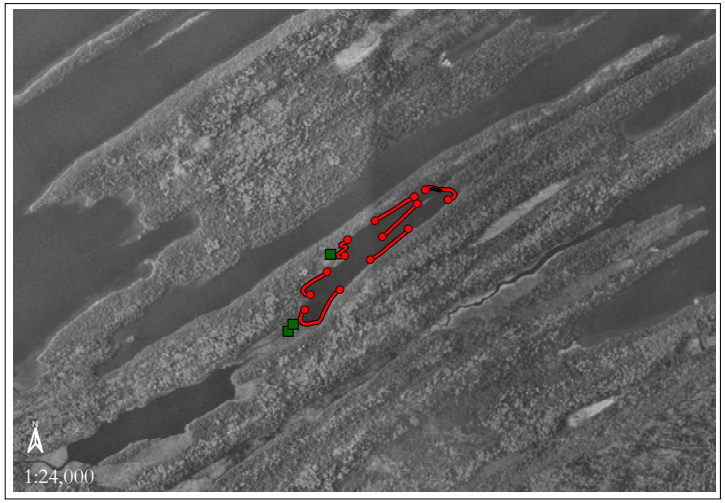
* UMI = University of Michigan Herbarium, Ann Arbor, MI; NC = Northland College Herbarium, Ashland, WI

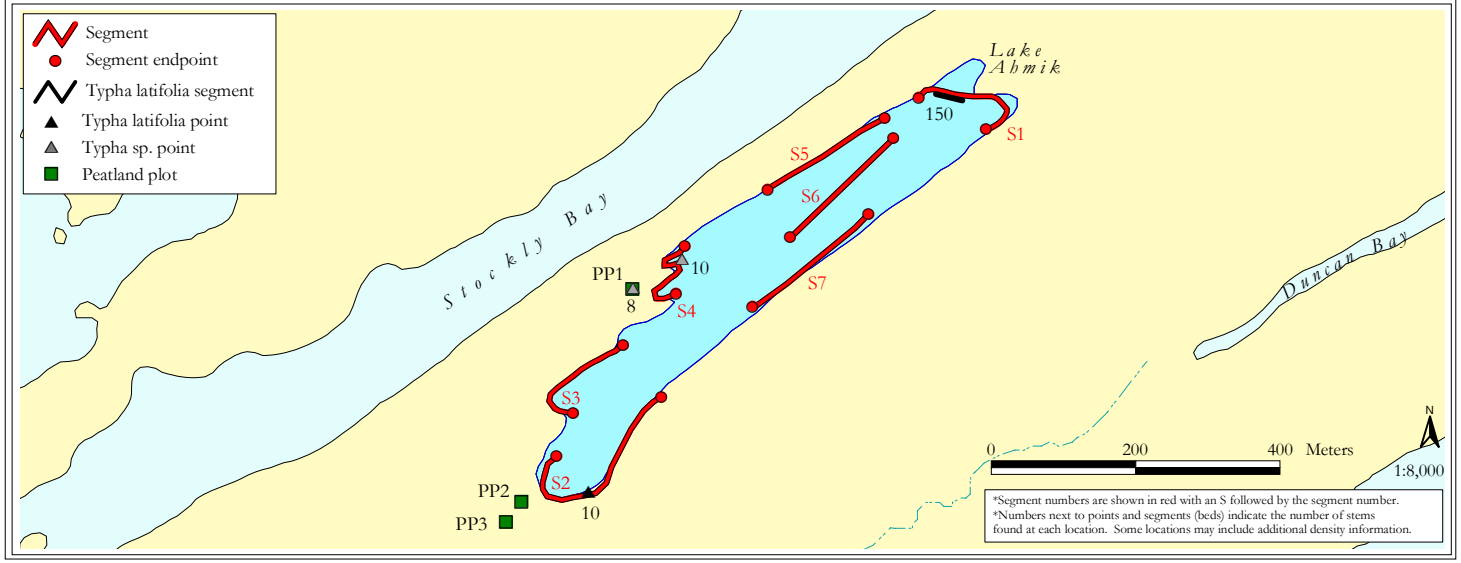
Appendix A – Wetland Sampling Sites

A1. Lake Ahmik 2004
A2. Amygdaloid Lake and Robinson Bay 2004
A3. Angleworm Lake, Lake Benson, and Forbes Lake 2004
A4. Beaver Wetland and SE Checker Point Peatland Plots 2004
A5. Beaver, McDonald and Otter Lakes 2004
A6. Brady Cove (2006) and McCargoe Cove (2005)
A7. Chickenbone Lake and Lake Livermore 2004
A8. Chippewa Harbor 2003
A9. Lake Desor 2005
A10. Duncan Bay and Five Finger Bay 2004
A11. Lakes Dustin, Scholts and Whittlesey 2003
A12. Eva Pond, Lake Eva and Pickerel Cove 2004
A13. Feldtmann Lake 2004
A14. Grace Creek and Huginnin Peatland Plots 2004
A15. Lake Harvey 2004
A16. Hatchet Lake 2004
A17. Hidden Lake 2003
A18. Intermediate Lake 2003
A19. Lane Cove, Patterson Lake and Stockly Bay 2004
A20. Lane Cove Trail Peatland Plots 2003
A21. Lake LeSage 2003
A22. Lily Lake 2004
A23. Linklater Lake and Lake Shesheeb 2004
A24. McCargoe Cove Peatland Plots 2005
A25. Minong Ridge Peatland Plots 2004
A26. Moose Lake and Tobin Harbor 2003
A27. Moskey Basin 2003
A28. Mud Lake 2005
A29. Lake Ojibway 2004
A30. Lake Richie 2003
A31. Sargent Lake and Lake Wagejo 2004
A32. Wood Lake (2003) and & East Siskiwit Lake (2005)
A33. West Siskiwit Lake 2005
A34. Stickleback Lake 2004 and Lake Halloran 2006
A35. Sumner Lake 2004
A36. Siskiwet Fen and Superior Shoreline Fen 1 Peatland Plots 2004
A37. Superior Shoreline Fens 2 & 3 Peatland Plots 2004
A38. Washington Harbor 2006

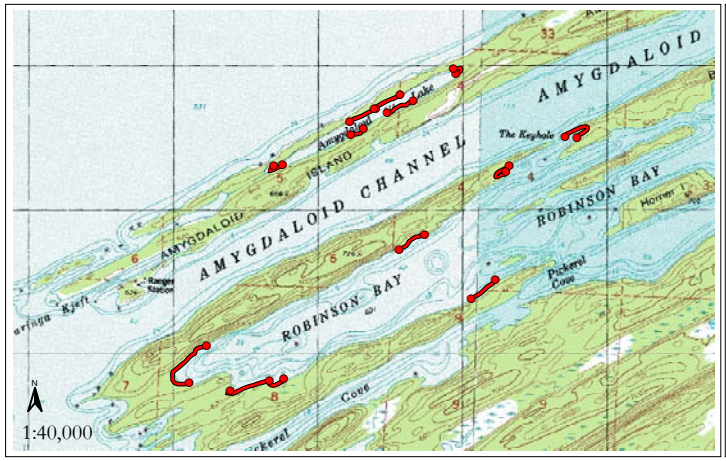
LAKE AHMIK 2004

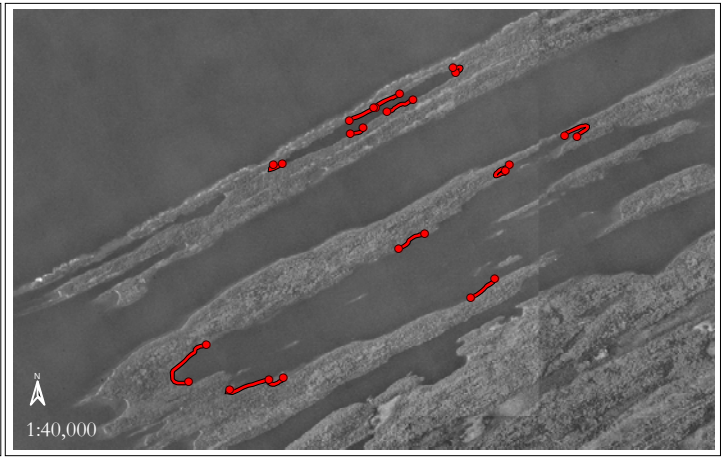


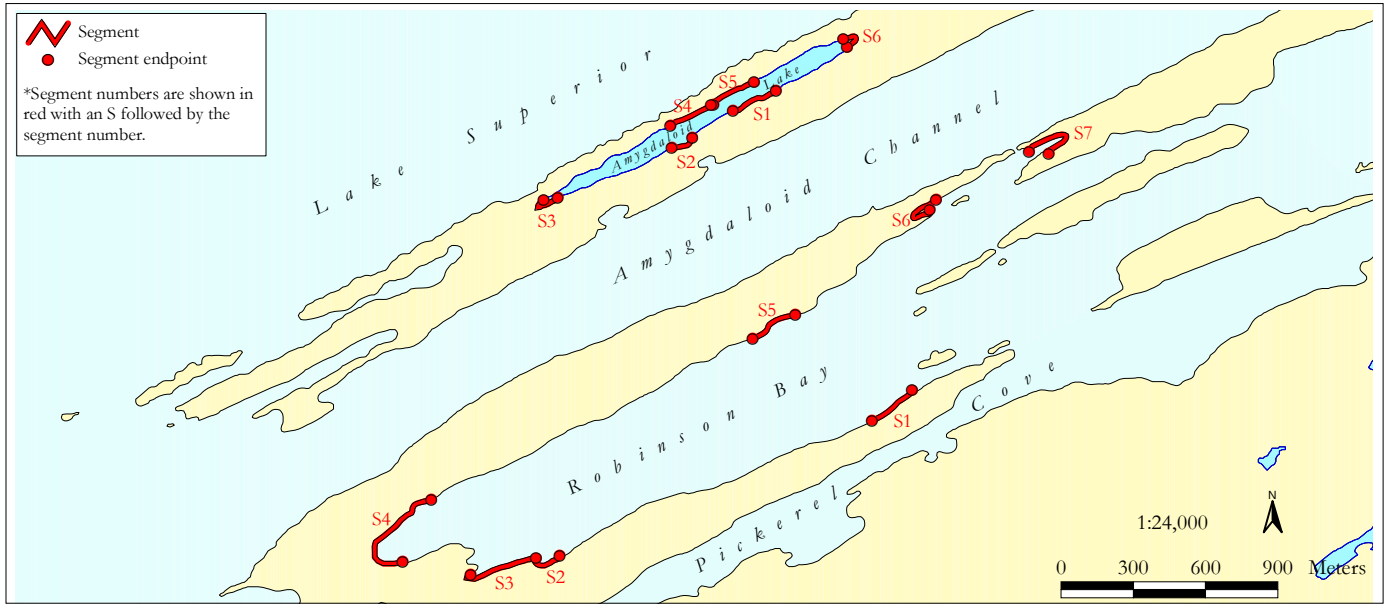




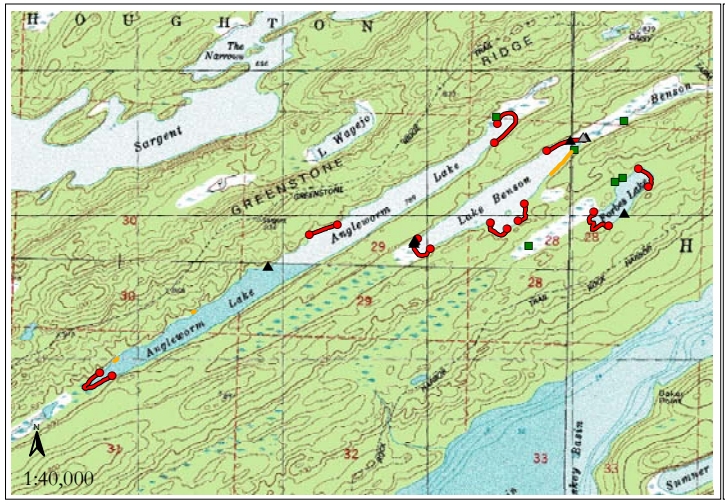
AMYGDALOID LAKE AND ROBINSON BAY 2004

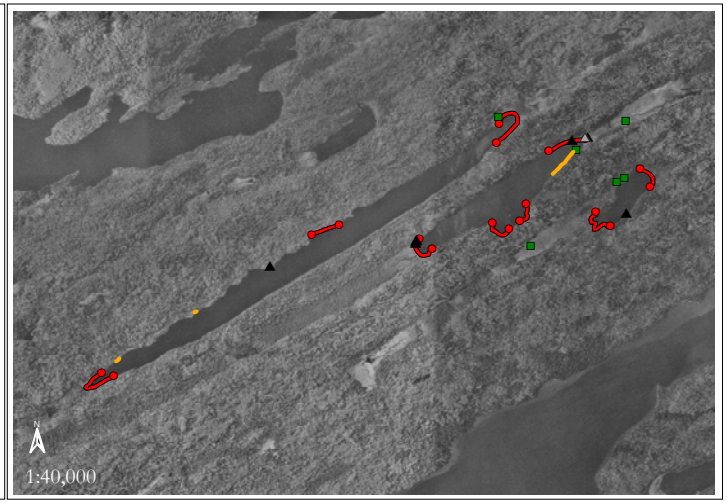


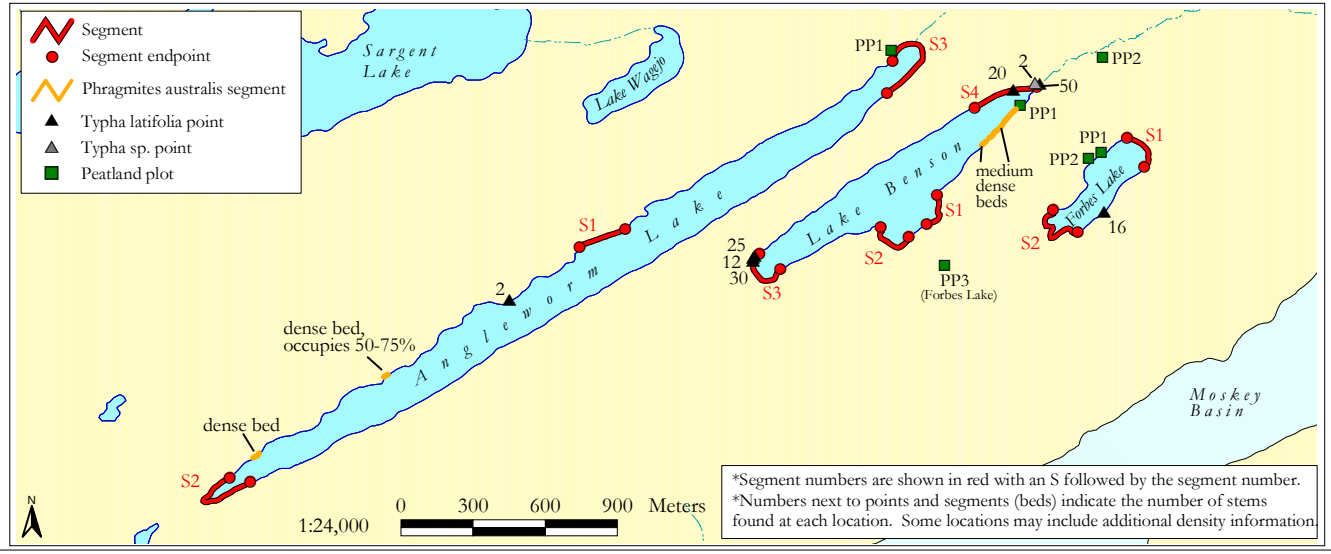




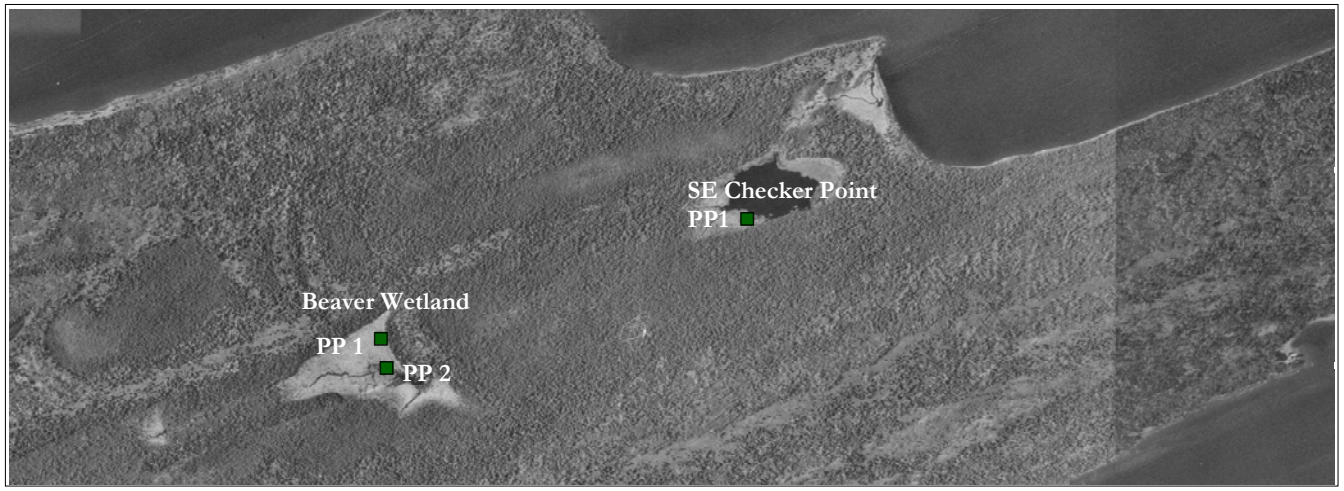
ANGLEWORM LAKE, LAKE BENSON AND FORBES LAKE 2004

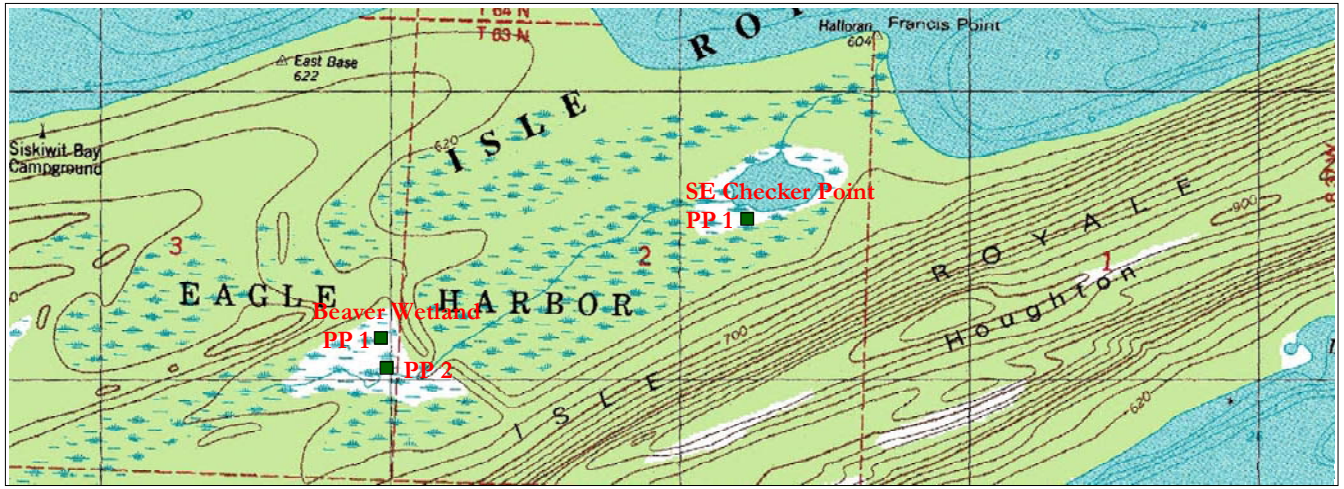




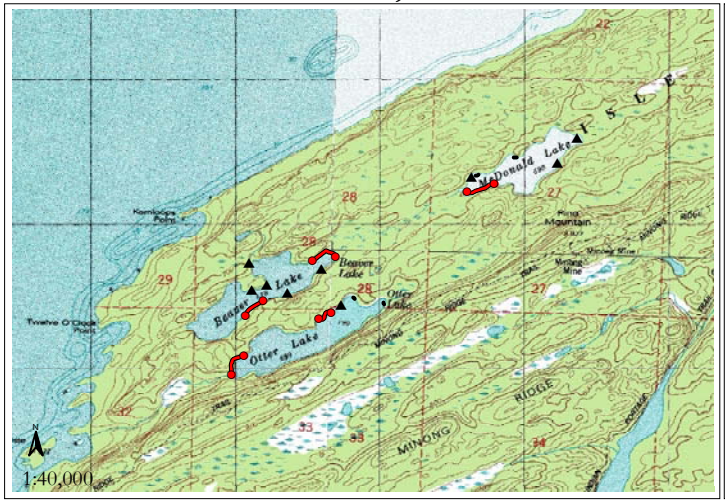


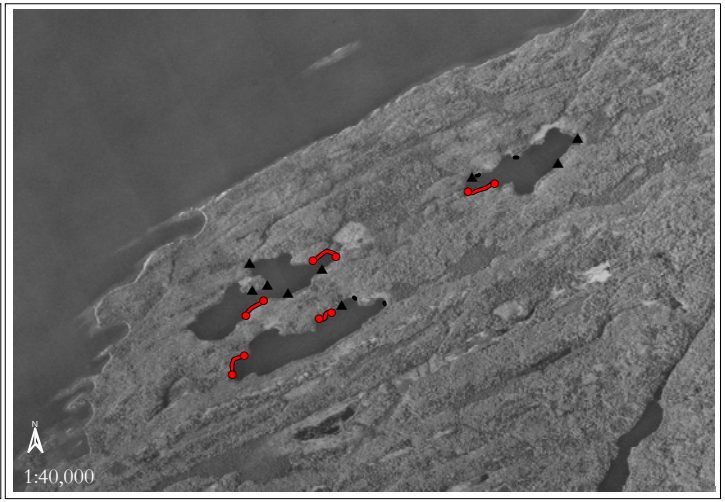
BEAVER WETLAND AND SE CHECKER POINT PEATLAND PLOTS 2004

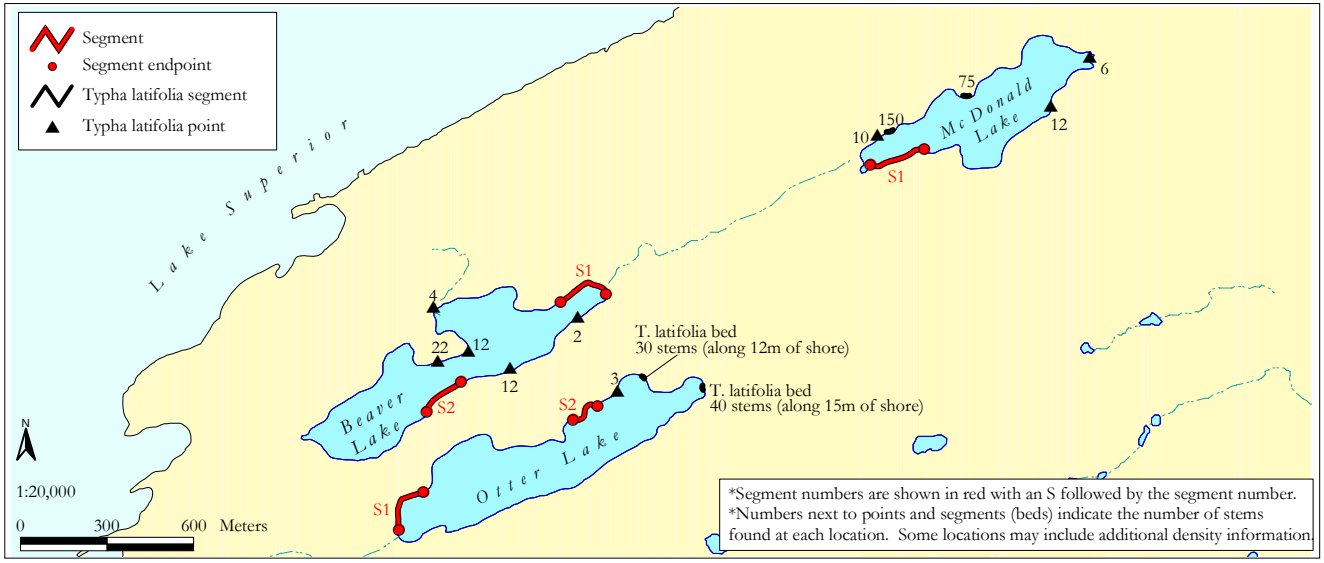




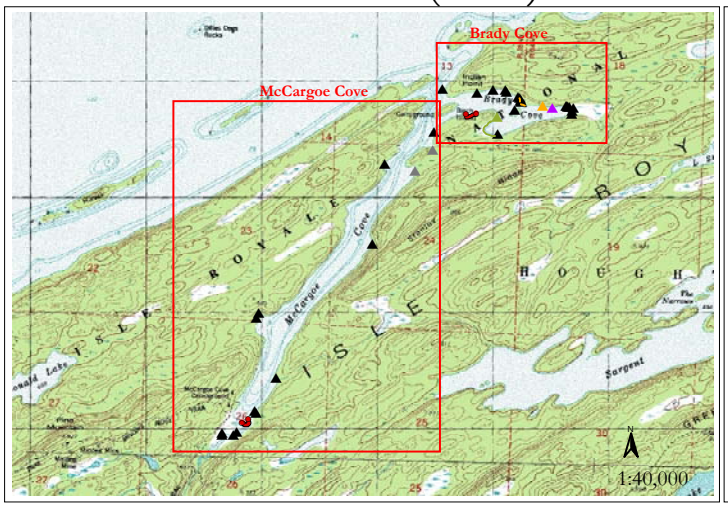
BEAVER, MCDONALD AND OTTER LAKES 2004

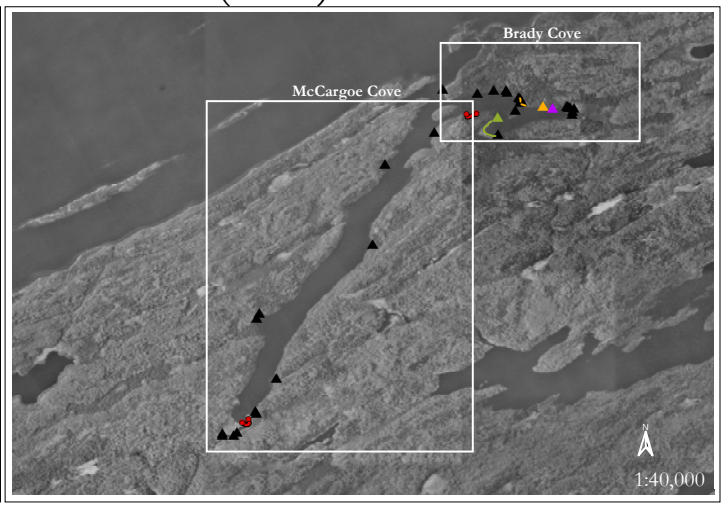




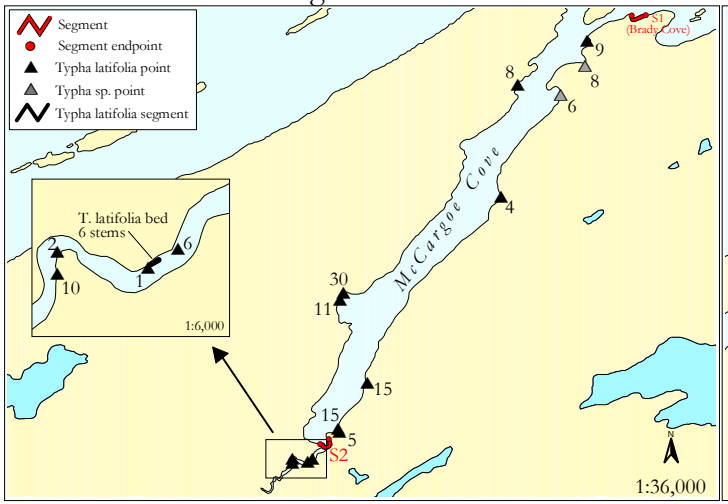


BRADY (2006) AND McCARGOE (2005) COVES

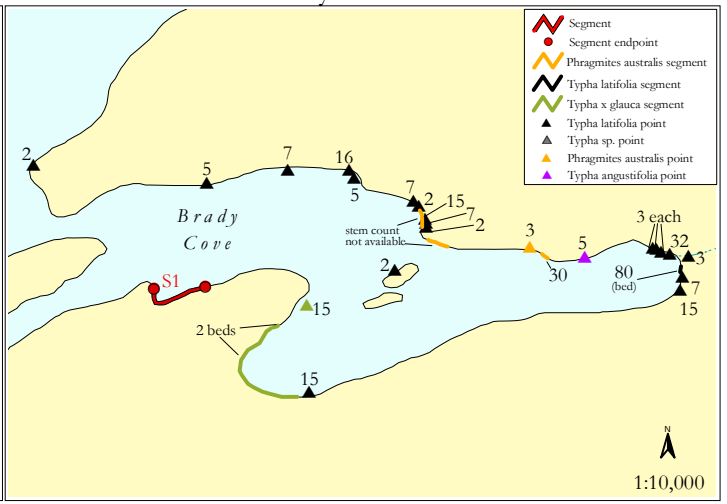




McCargoe Cove 2005

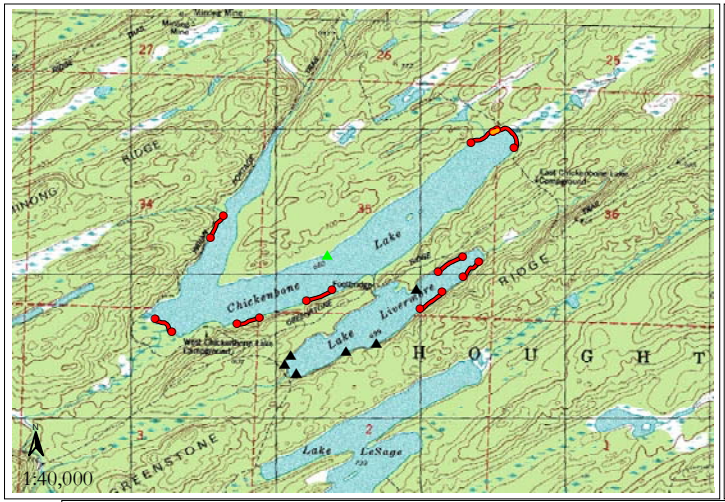


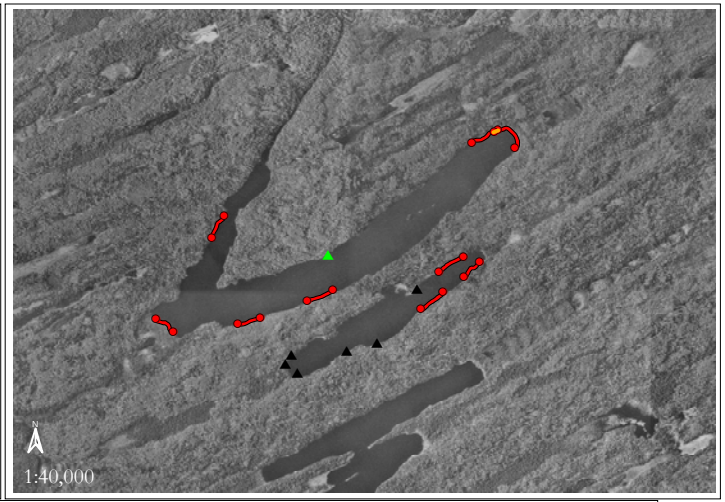
Brady Cove 2006

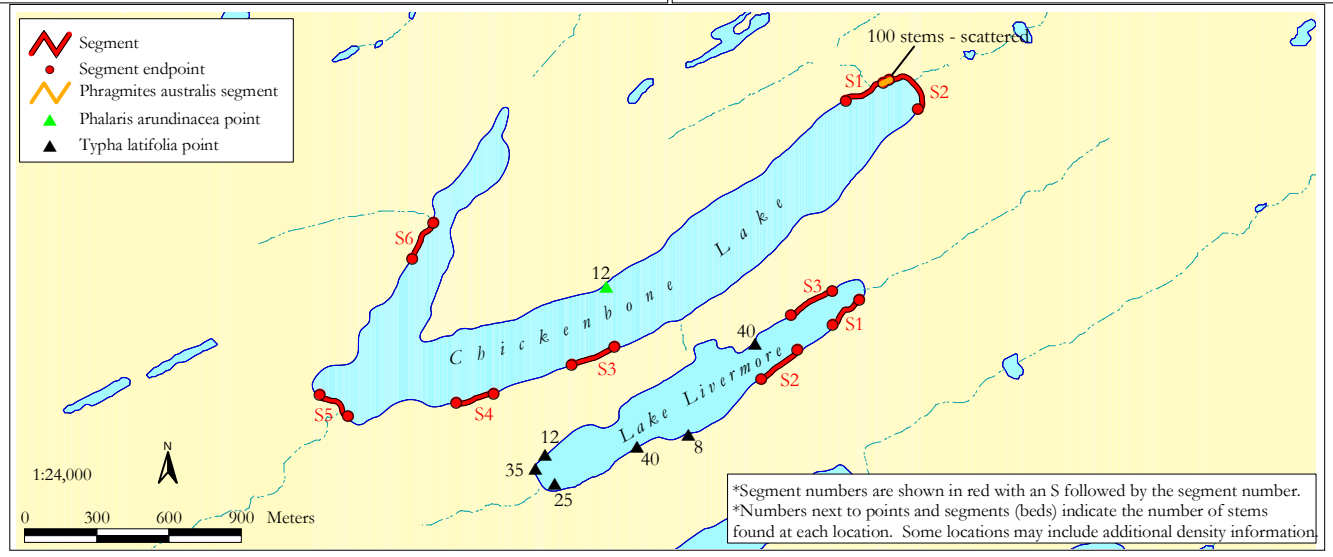


*Segment numbers are shown in red with an S followed by the segment number. *Numbers next to points and segments (beds) indicate the number of stems found at each location.

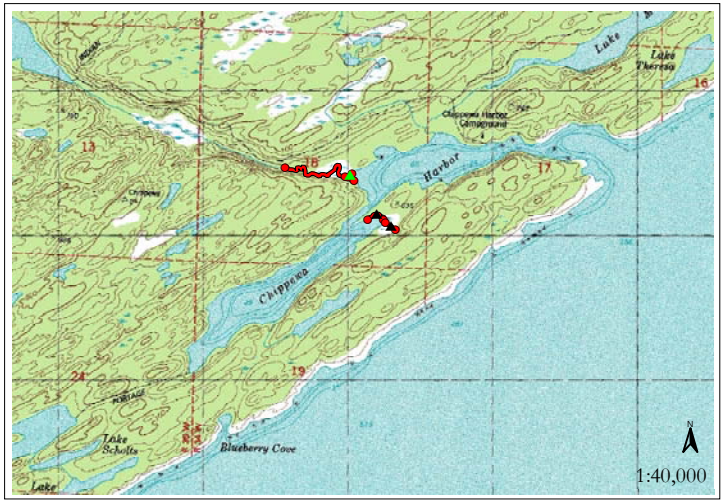
CHICKENBONE LAKE AND LAKE LIVERMORE 2004

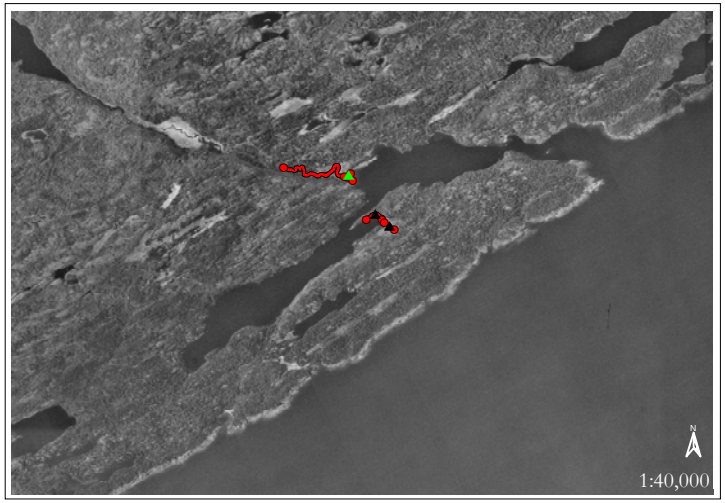


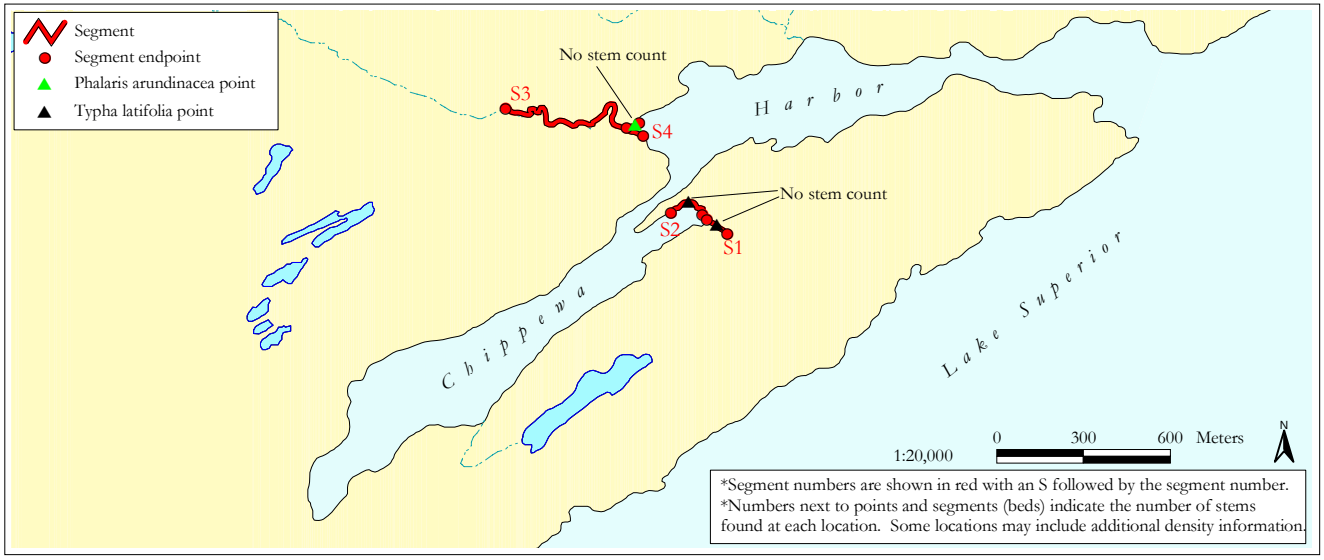




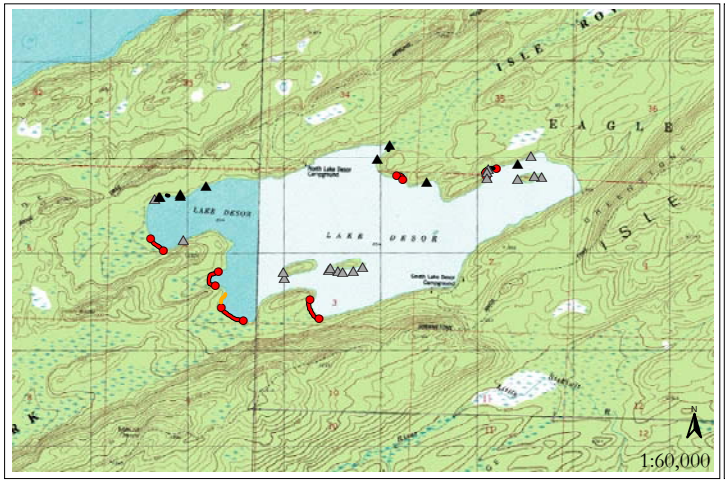
CHIPPEWA HARBOR 2003

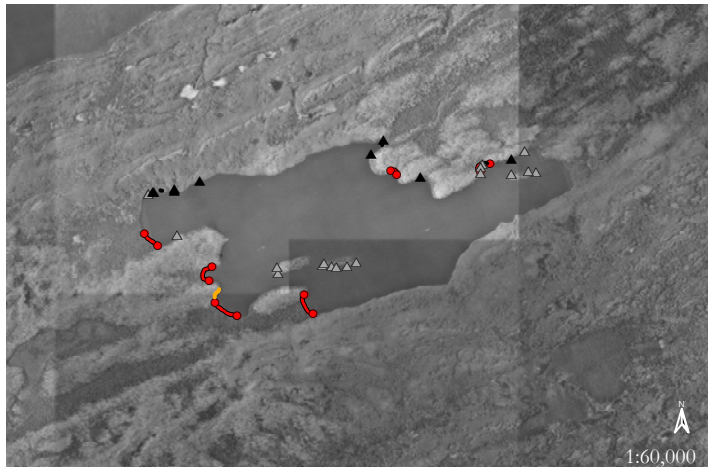


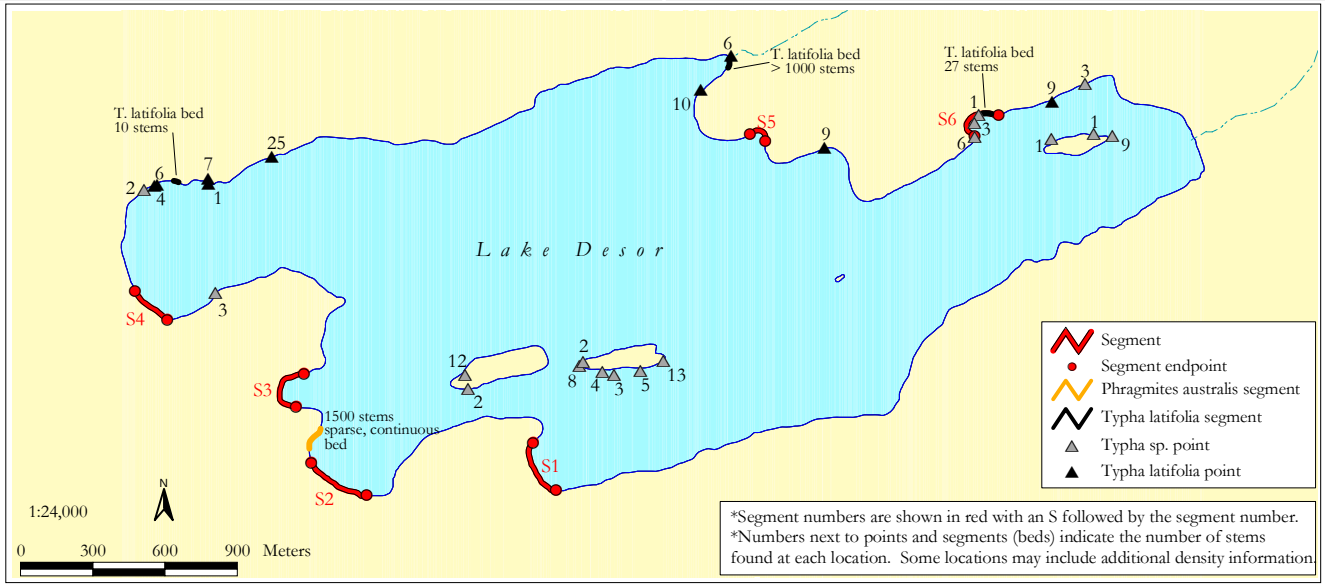




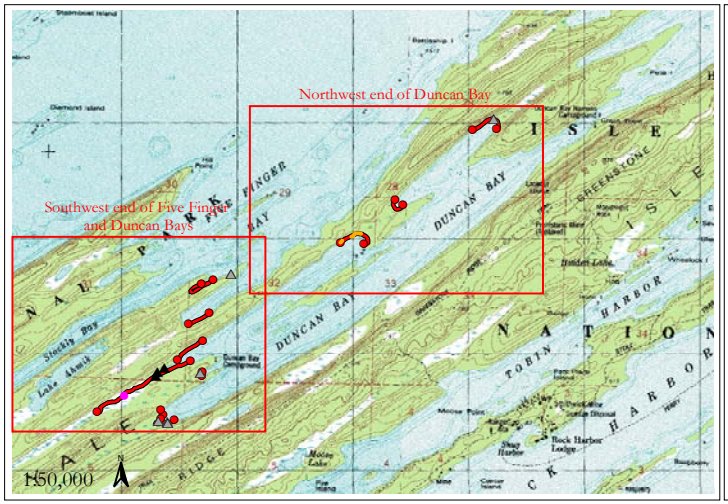
LAKE DESOR 2005

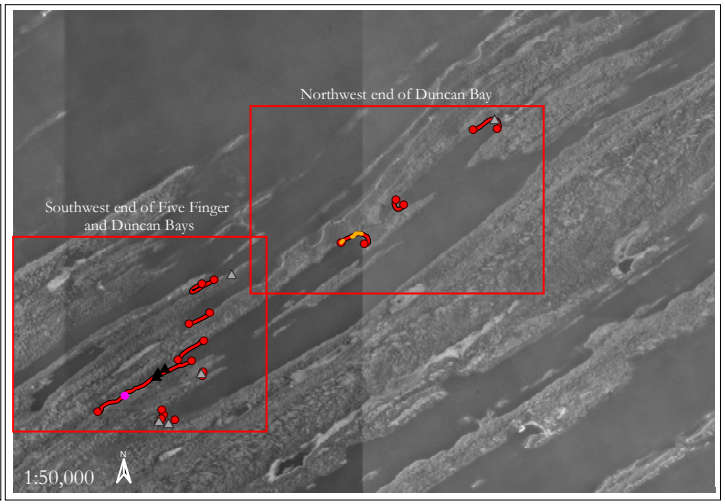




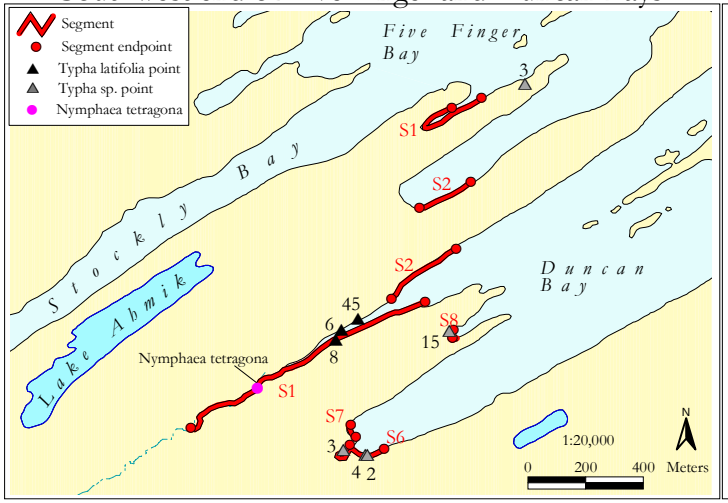


DUNCAN BAY AND FIVE FINGER BAY 2004

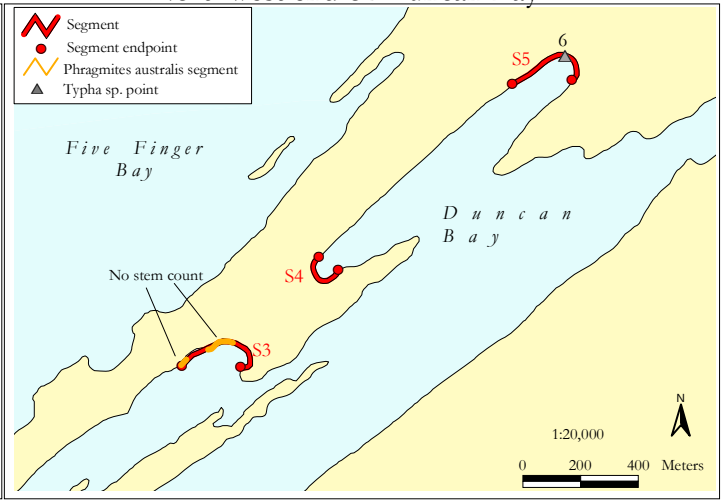




Southwest end of Five Finger and Duncan Bays

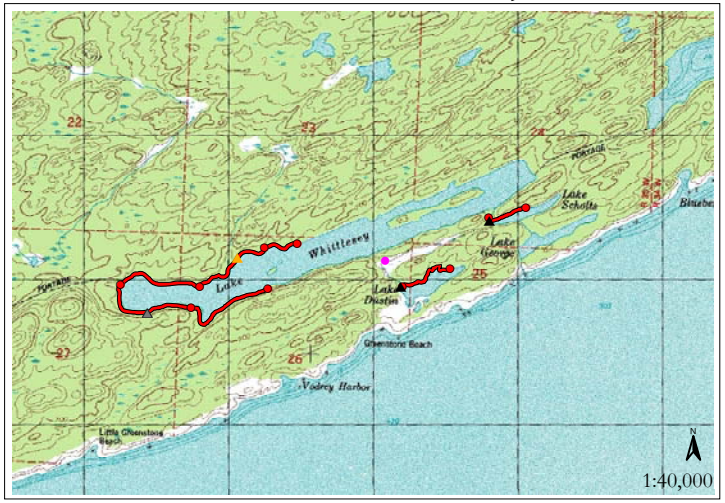


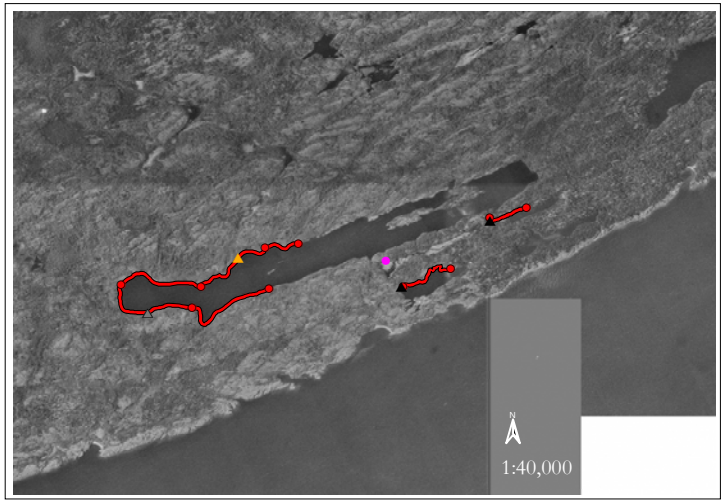
Northwest end of Duncan Bay

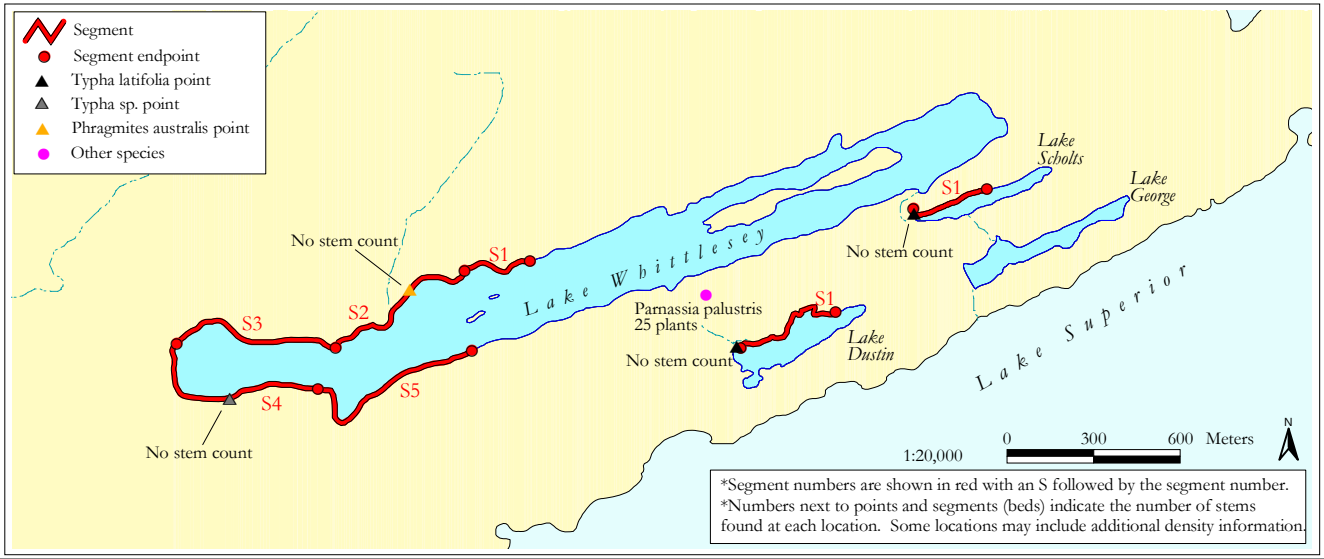


*Segment numbers are shown in red with an S followed by the segment number. *Numbers next to points and segments (beds) indicate the number of stems found at each location.

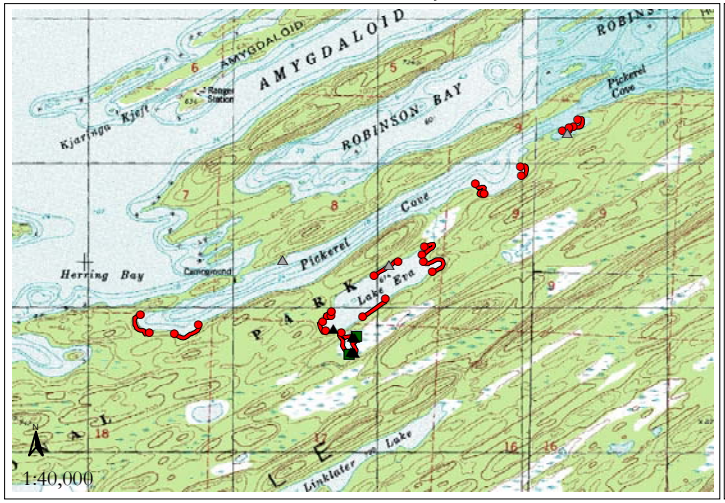
LAKES DUSTIN, SCHOLTS AND WHITTLESEY 2003

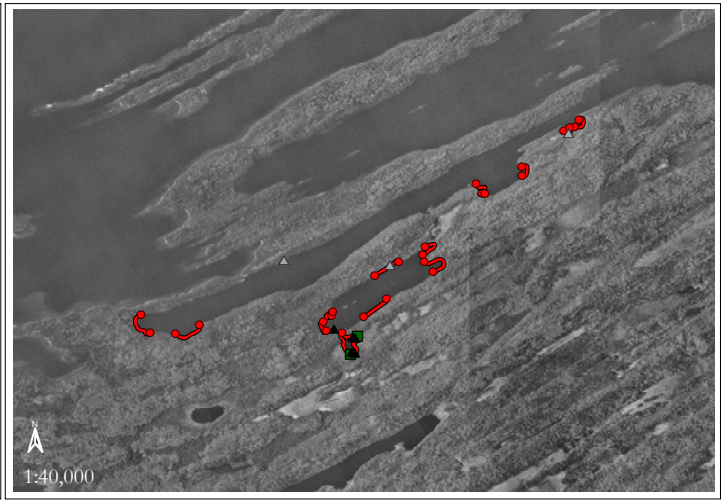


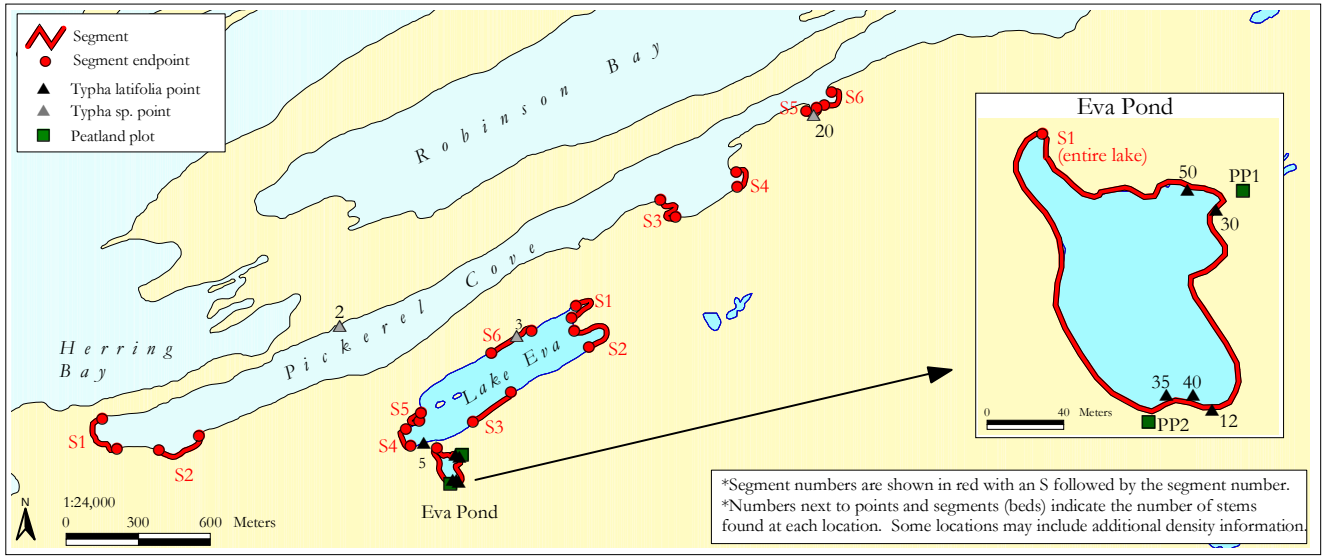




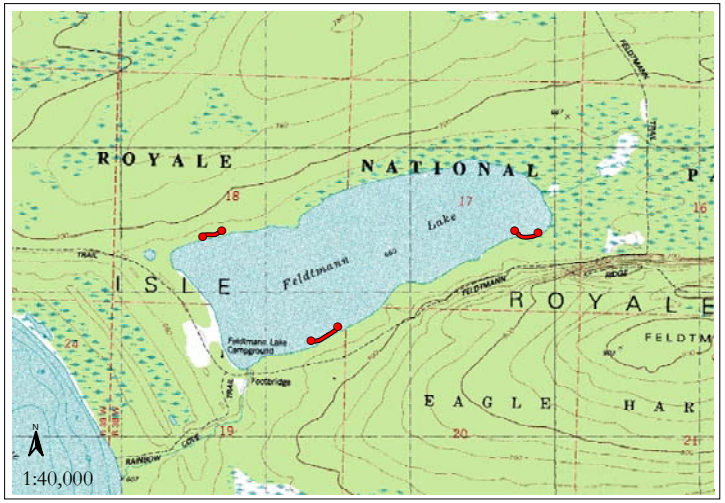
EVA POND, LAKE EVA AND PICKEREL COVE 2004

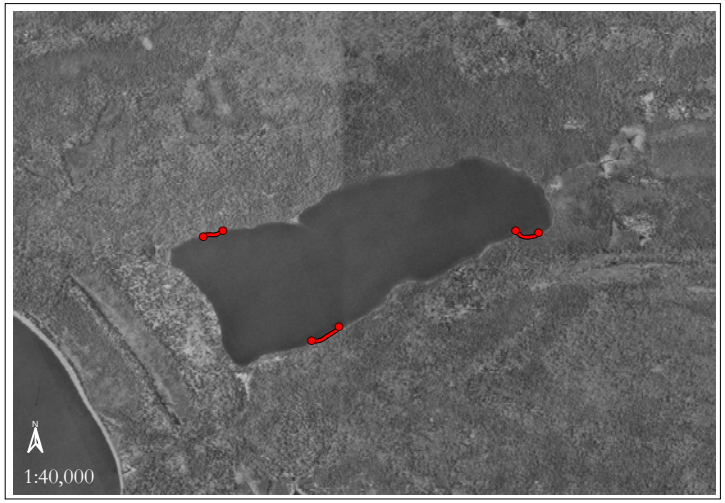


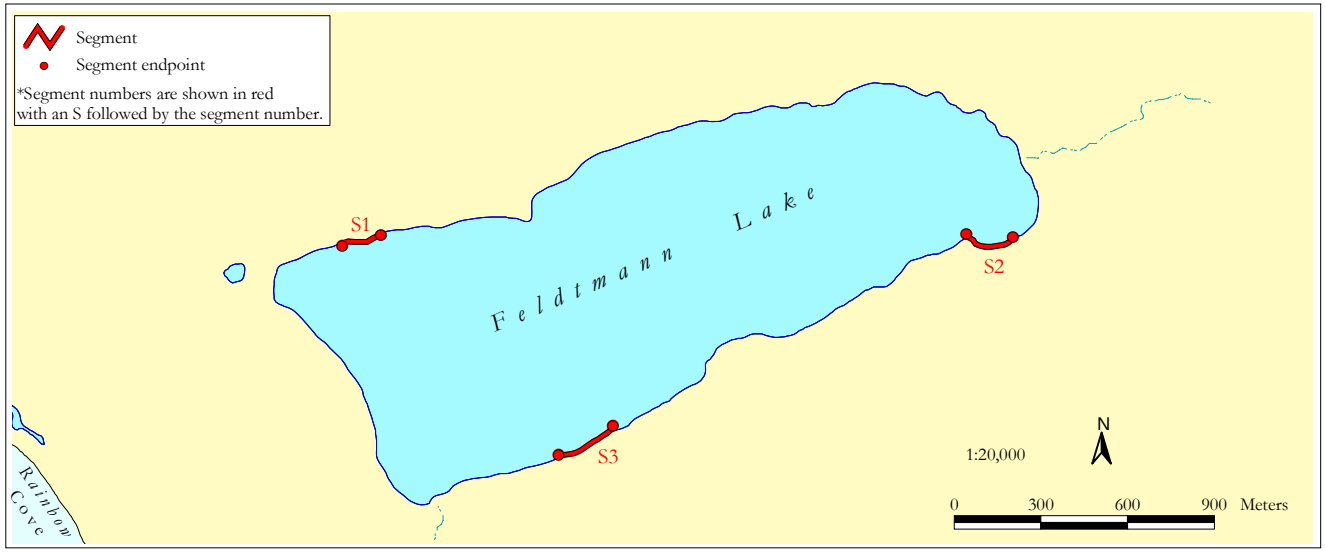




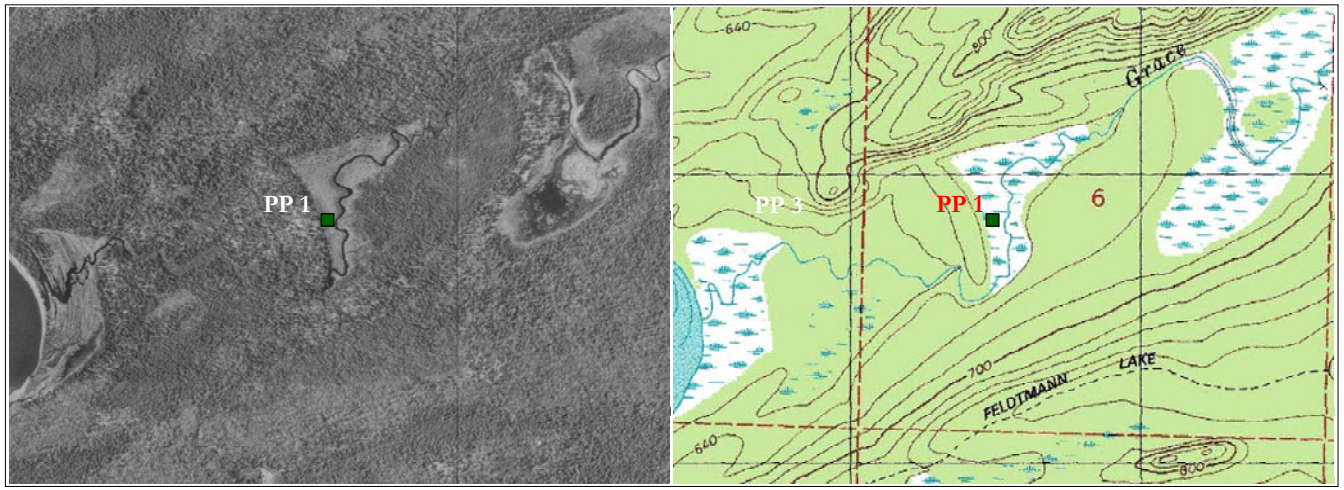
FELDTMANN LAKE 2004



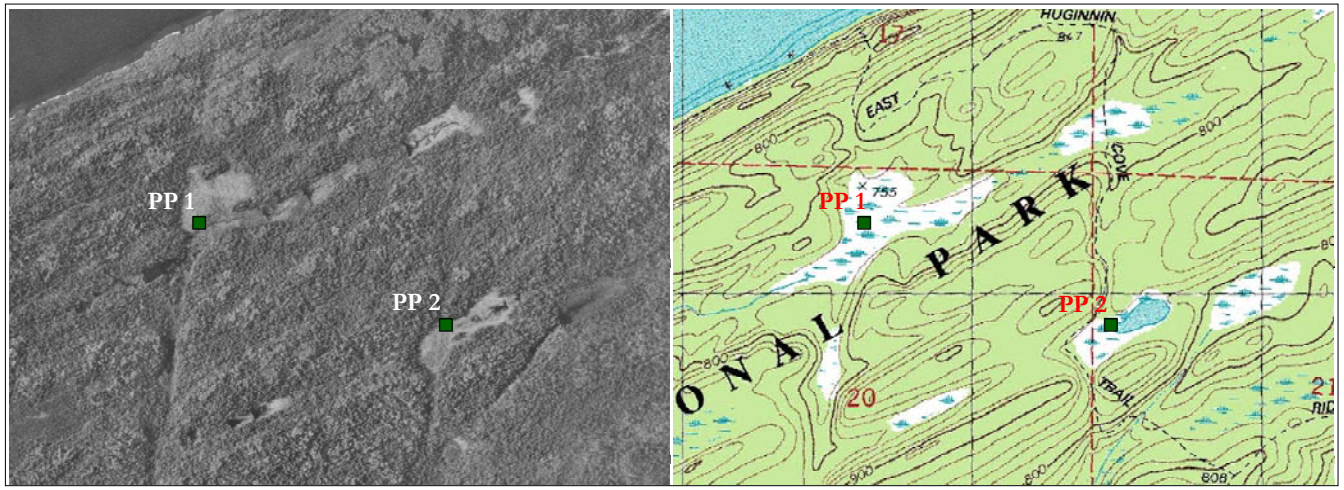




GRACE CREEK PEATLAND PLOTS 2004



HUGINNIN COVE PEATLAND PLOTS 2004

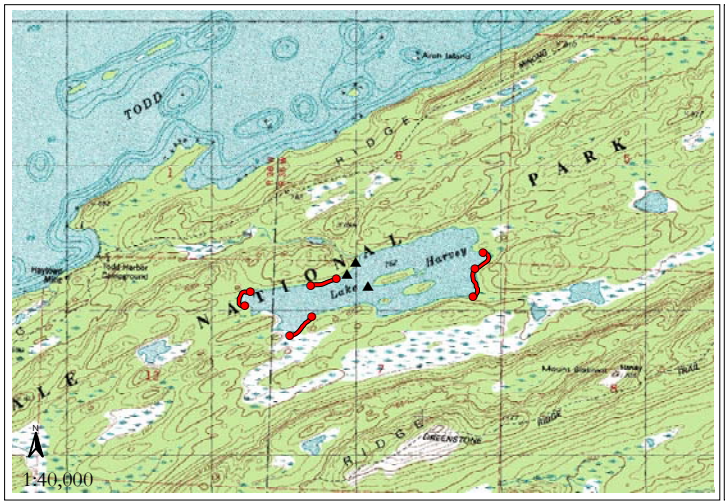


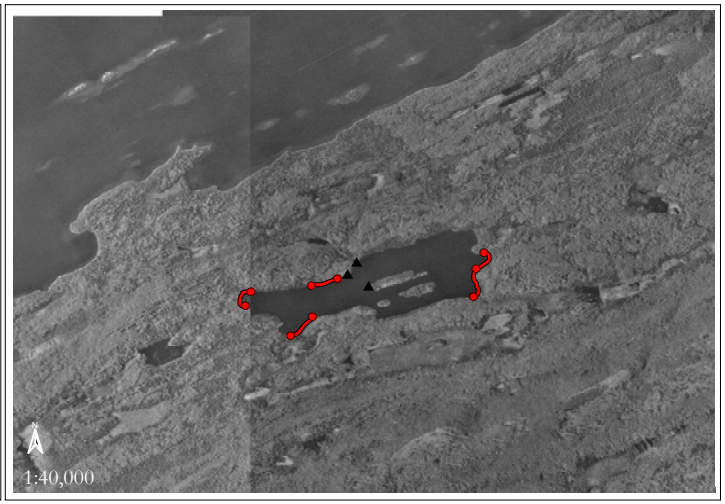
0 300 600 900 Meters

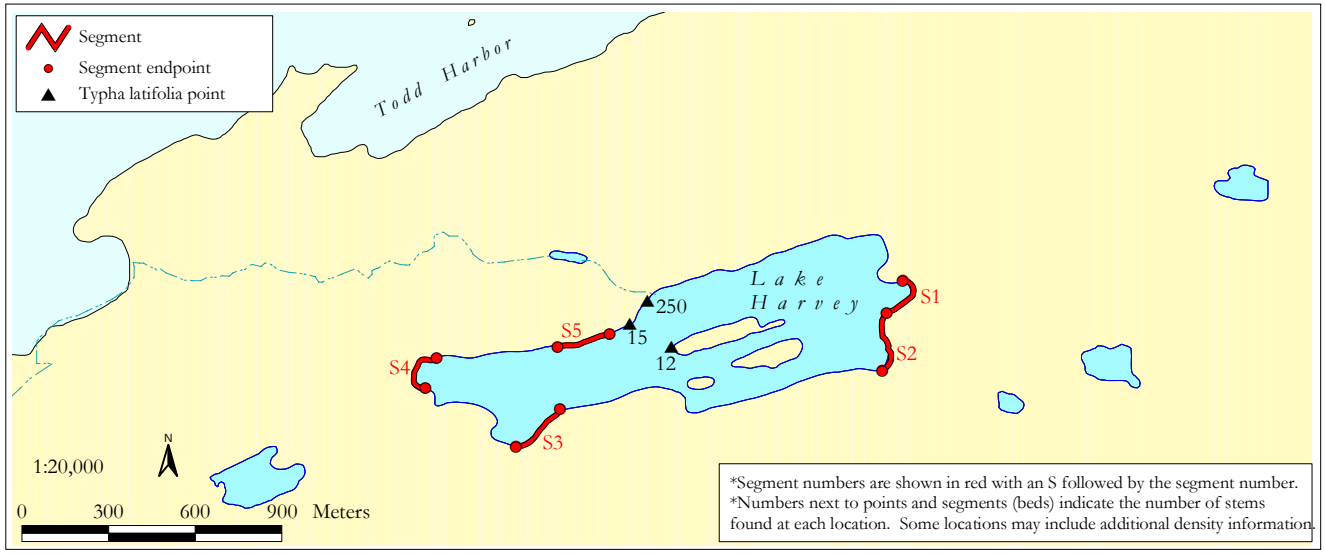
N

0 1000 2000 3000 Feet

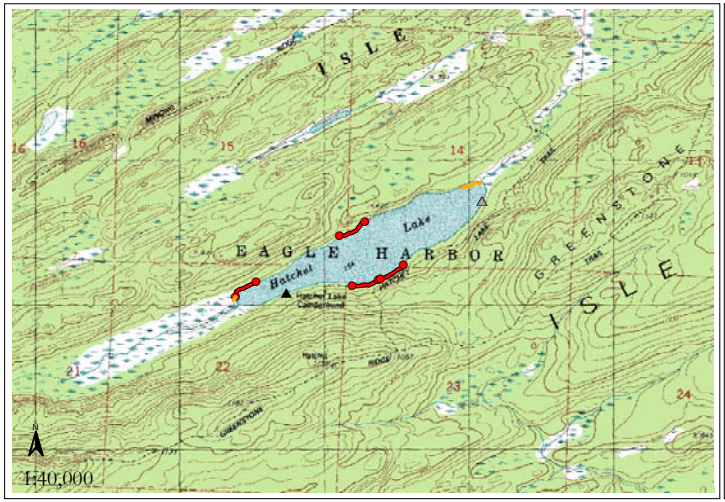
LAKE HARVEY 2004

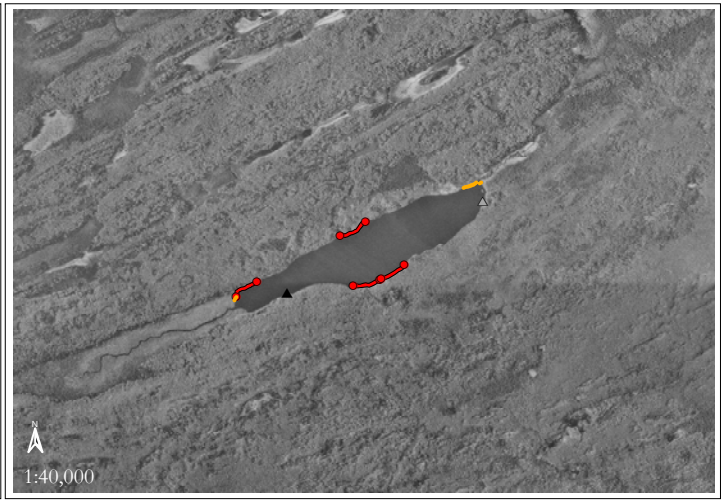


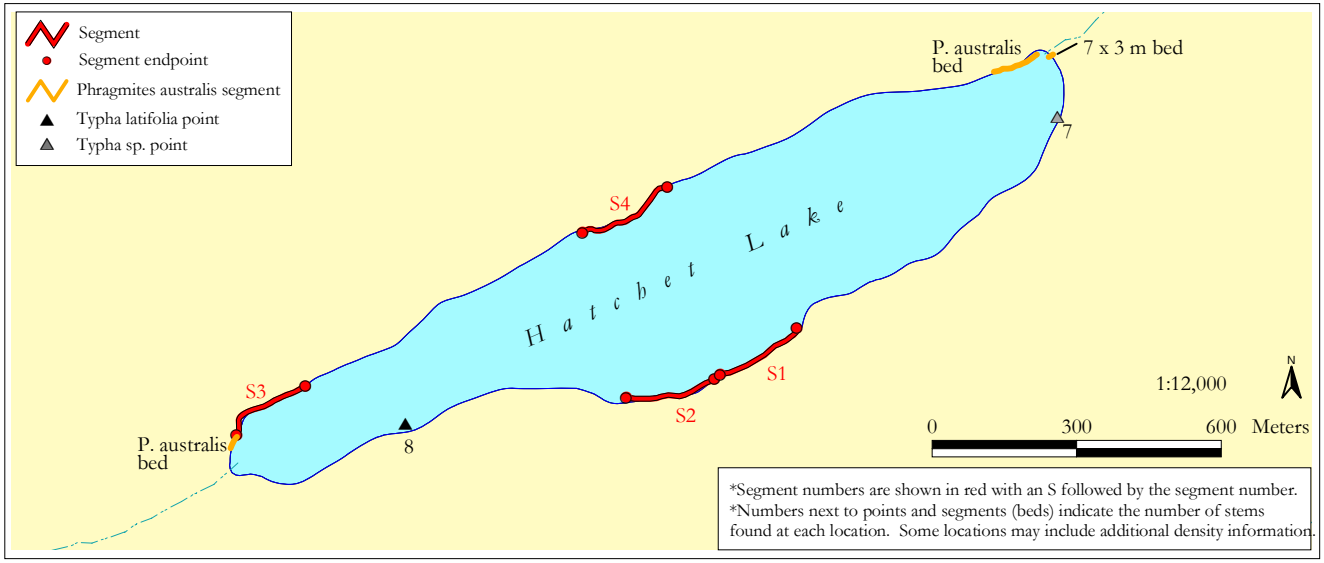




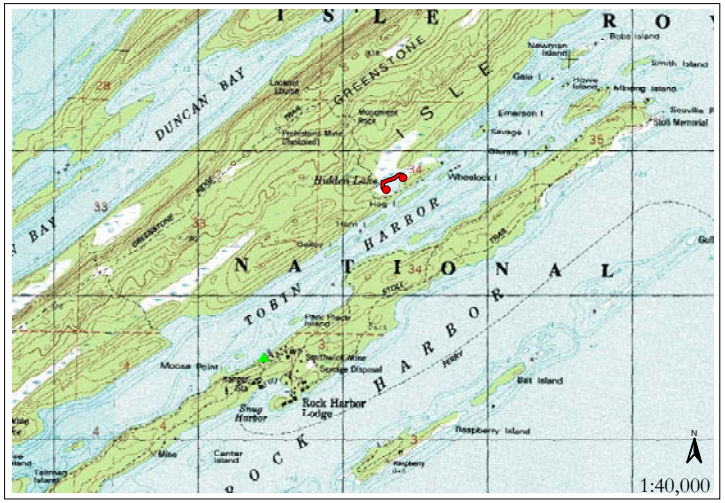
HATCHET LAKE 2004

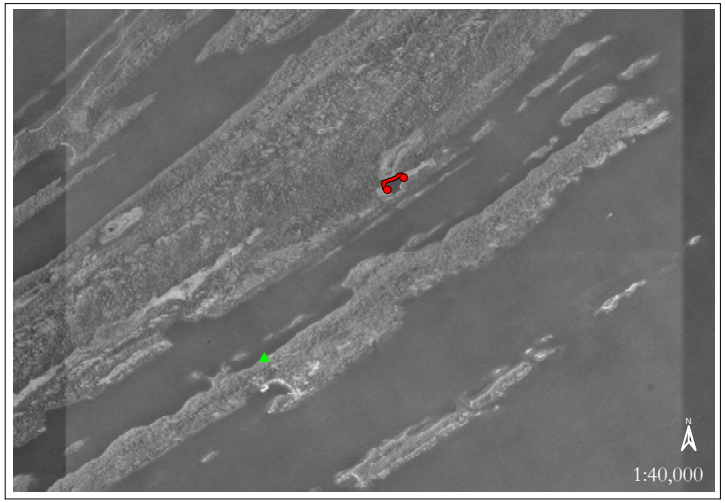


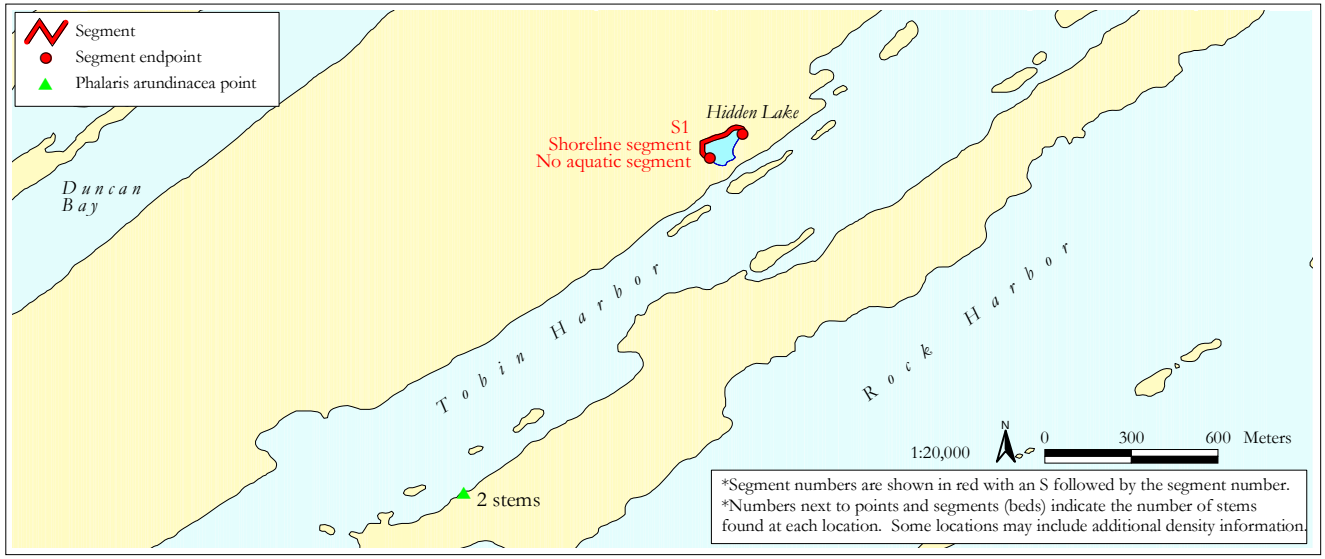




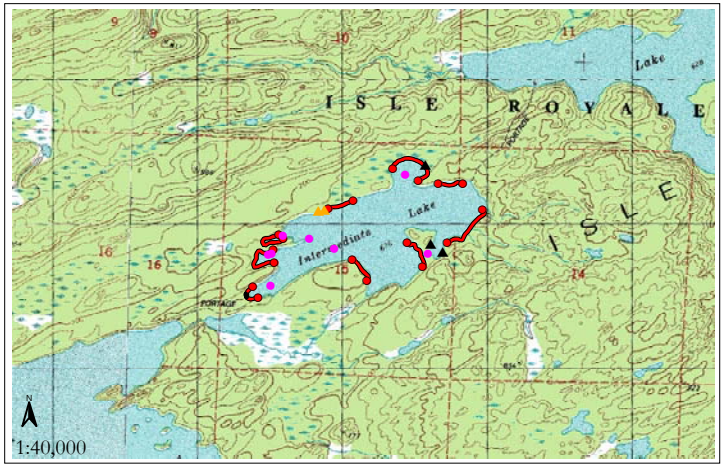
HIDDEN LAKE 2003

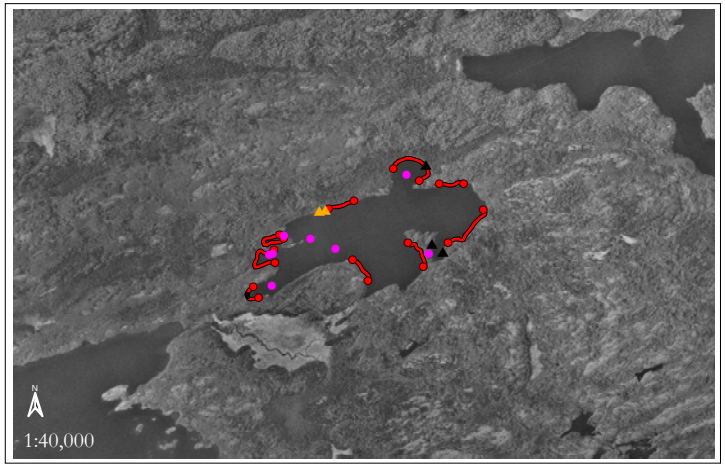


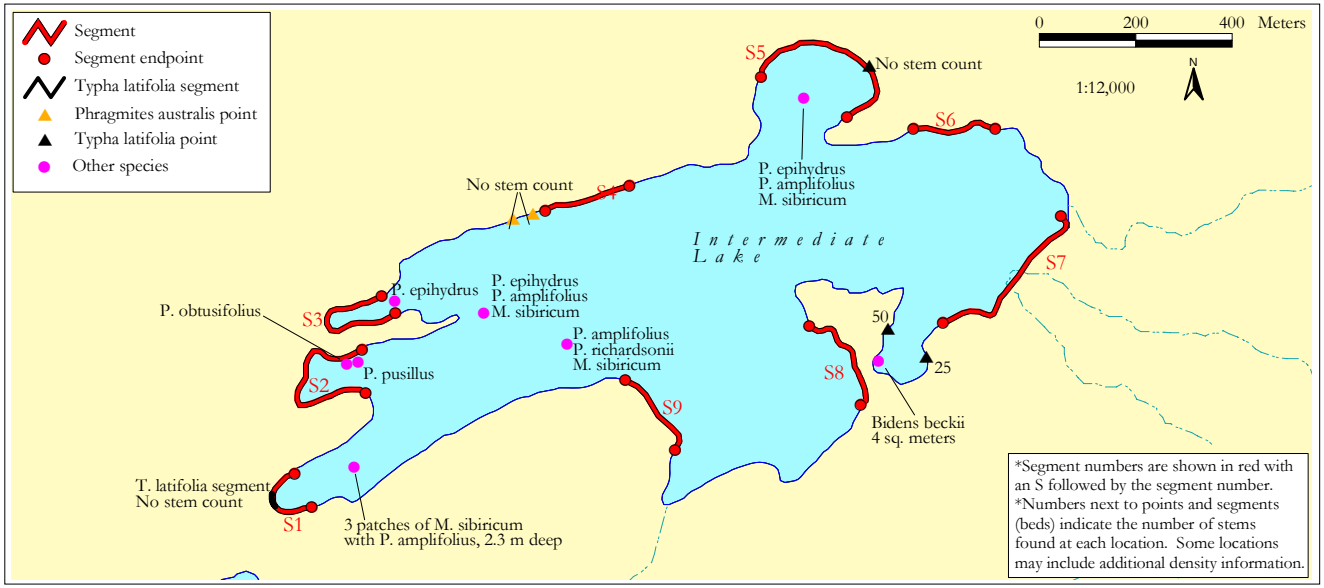




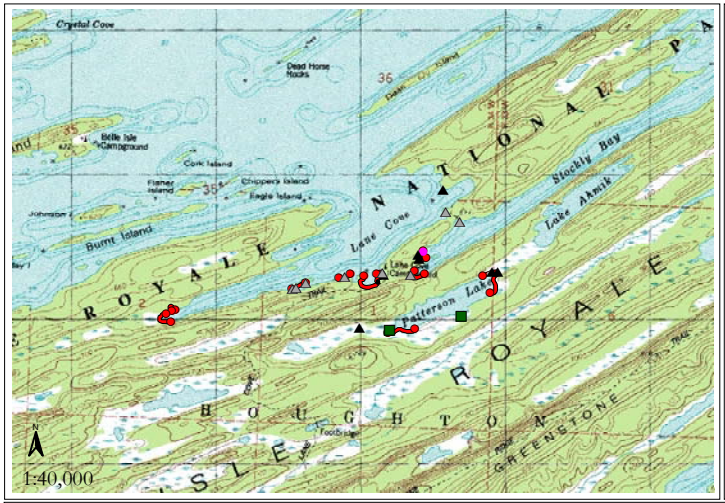
INTERMEDIATE LAKE 2003

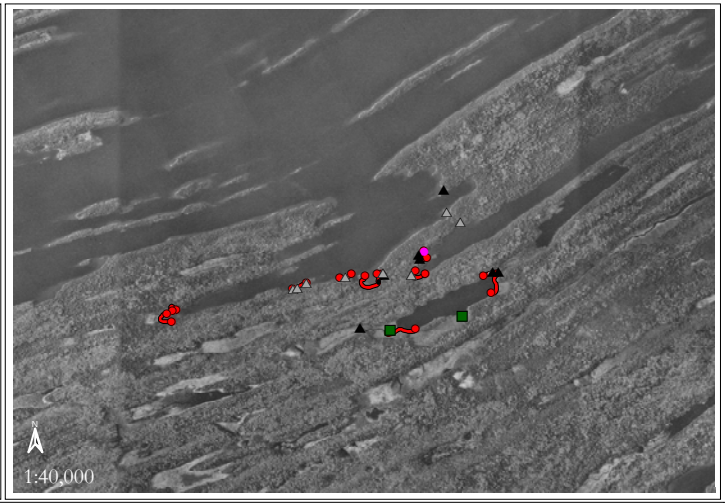


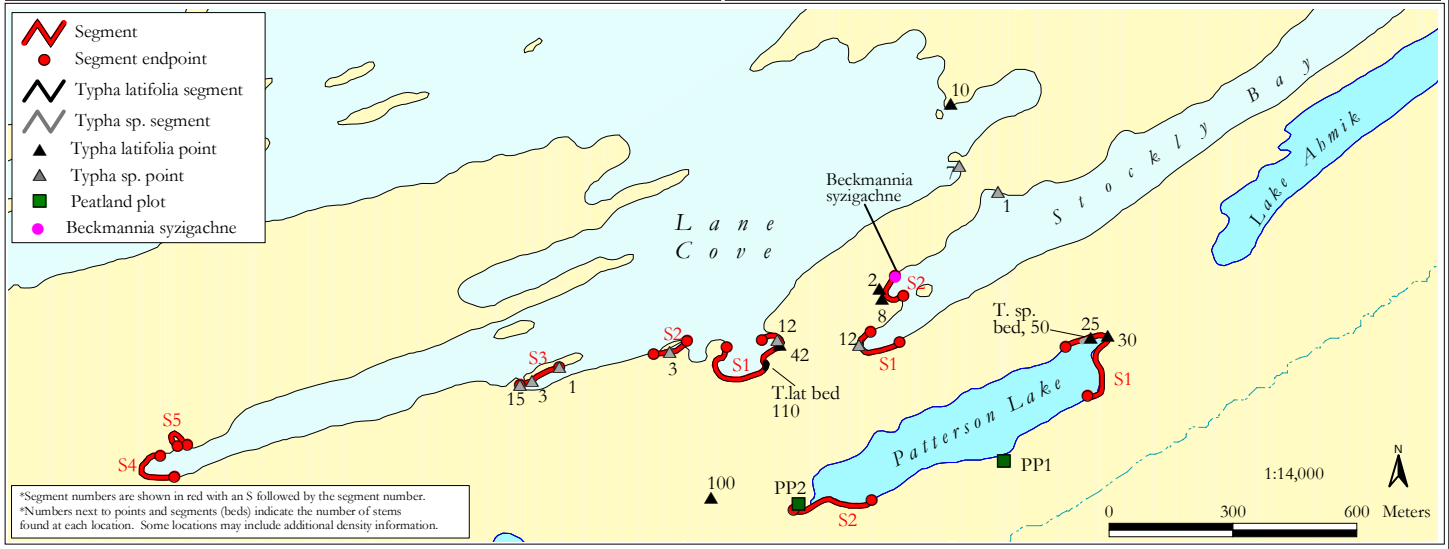




LANE COVE, PATTERSON LAKE AND STOCKLY BAY 2004







LANE COVE TRAIL PEATLAND PLOTS 2003

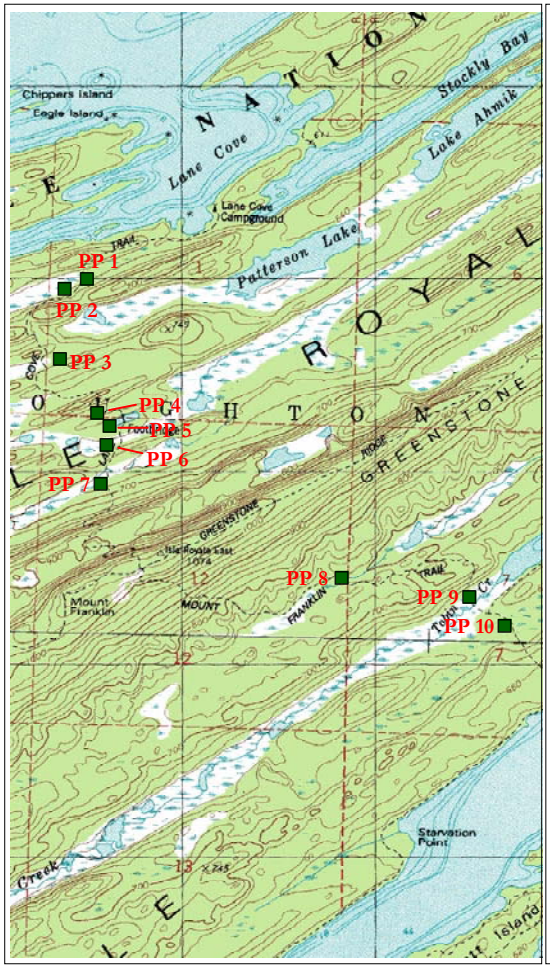
SITE DESCRIPTION

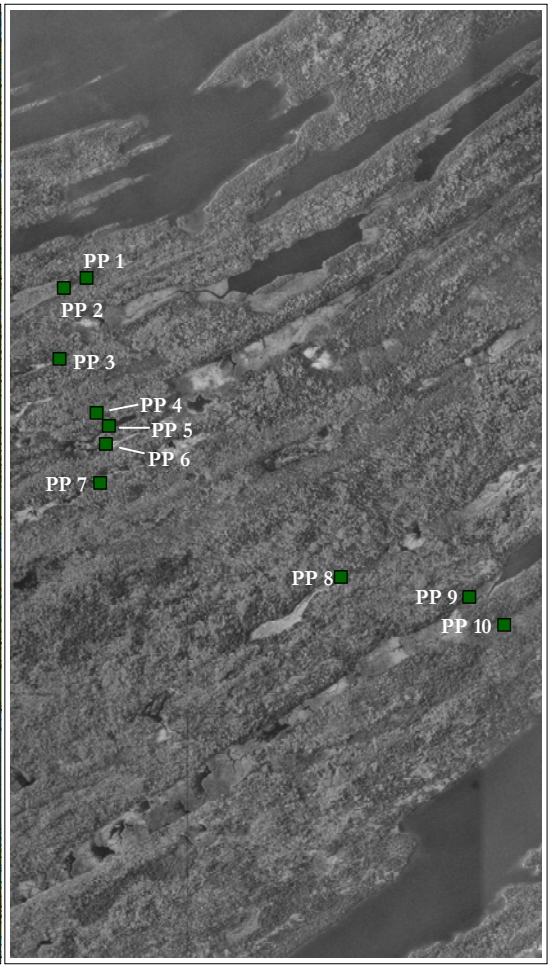
PP 1 - White Cedar Swamp
PP 2 - Boreal Rich Fen
PP 3 - Active Beaver Dam
PP 4 - Black Ash Swamp
PP 5 - Bluejoint Meadow (inactive beaver meadow)
PP 6 - Bluejoint Meadow (inactive beaver meadow)
PP 7 - Bluejoint Meadow/ Alder Thicket
PP 8 - Bluejoint Meadow (below recently active beaver dam)
PP 9 - Alder Thicket along creek
PP 10 - Alder Thicket/Open Black Ash-Conifer Swamp

N

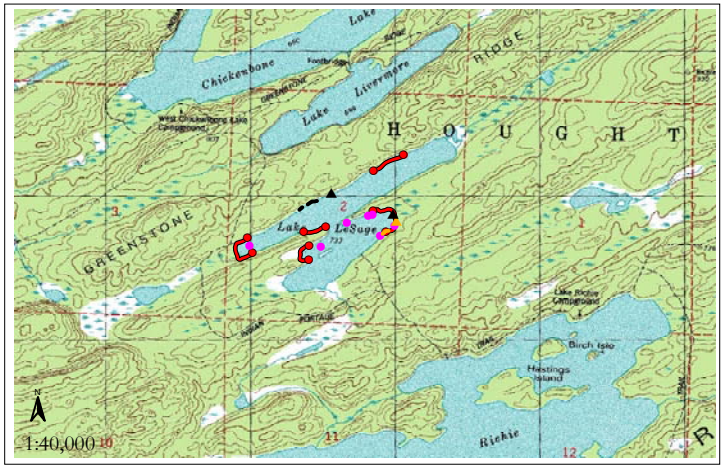
0 500 1000 Meters

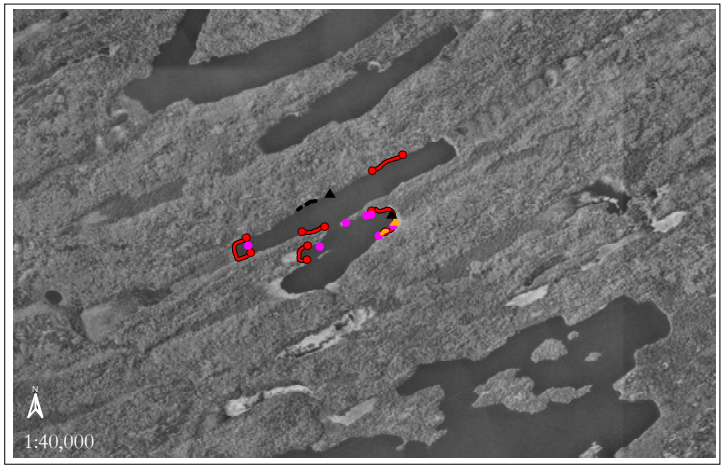
0 500 1000 Meters

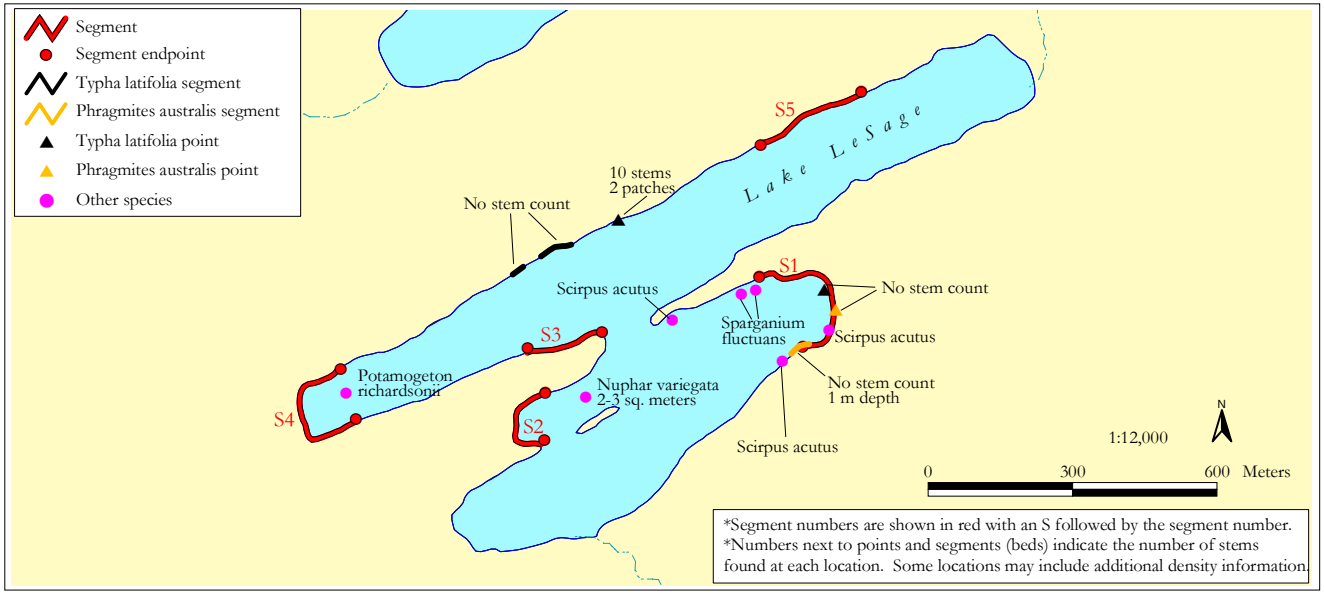




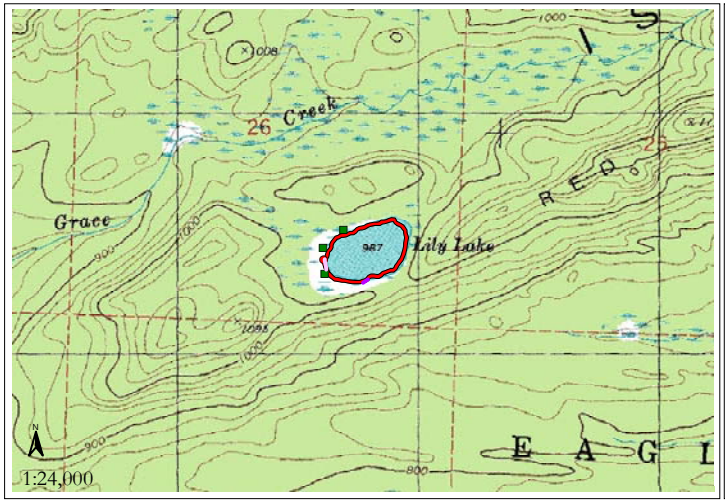
LAKE LESAGE 2003

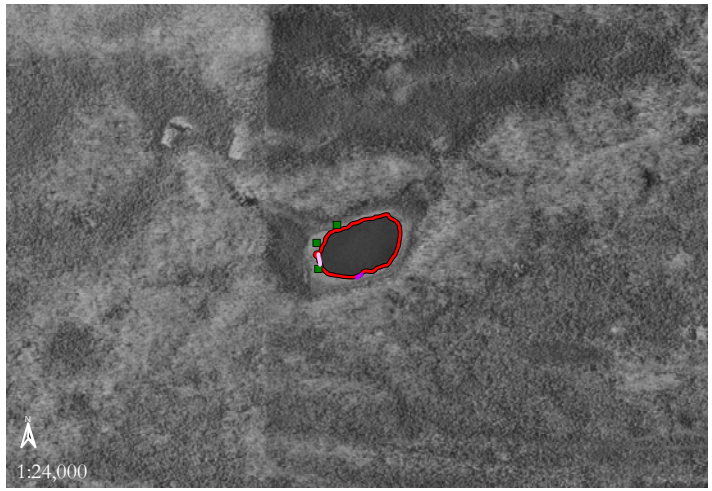


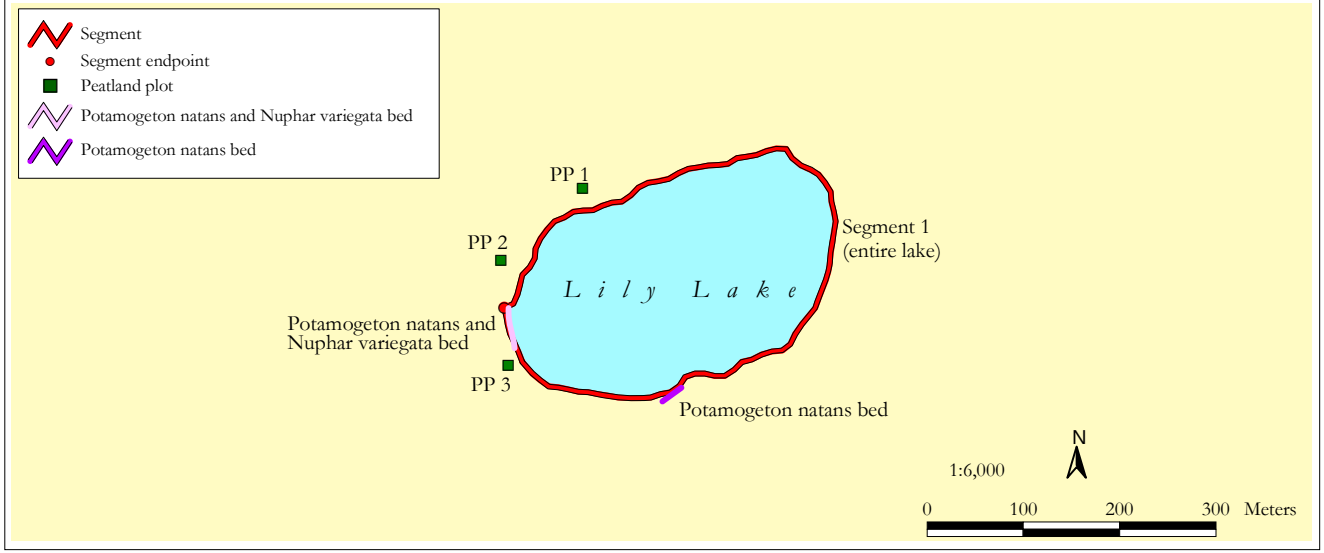




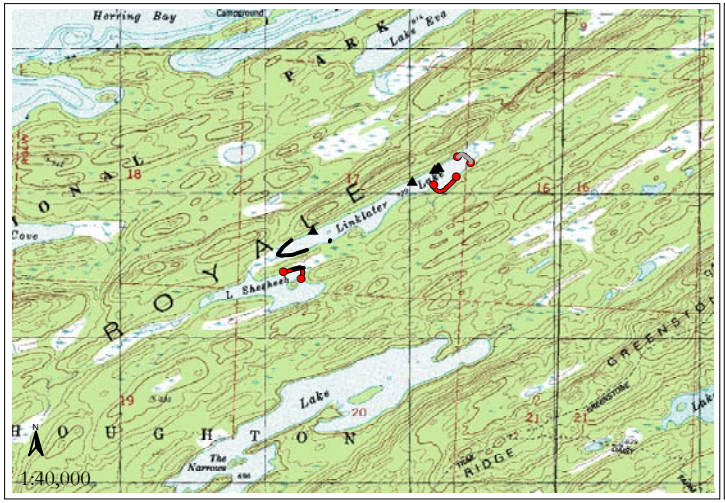
LILY LAKE 2004

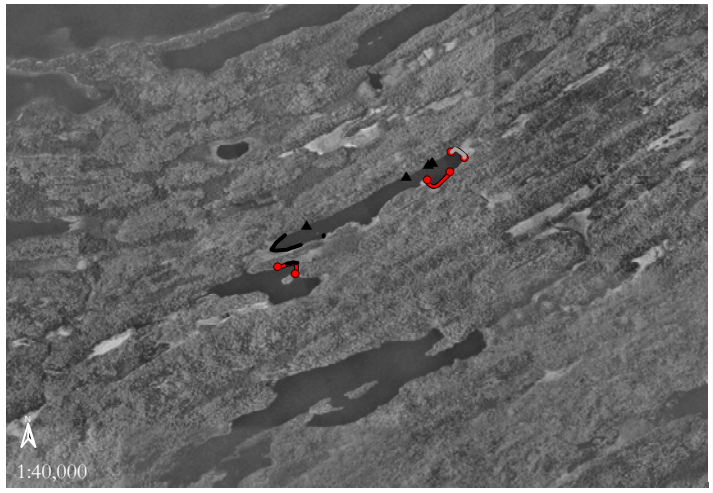


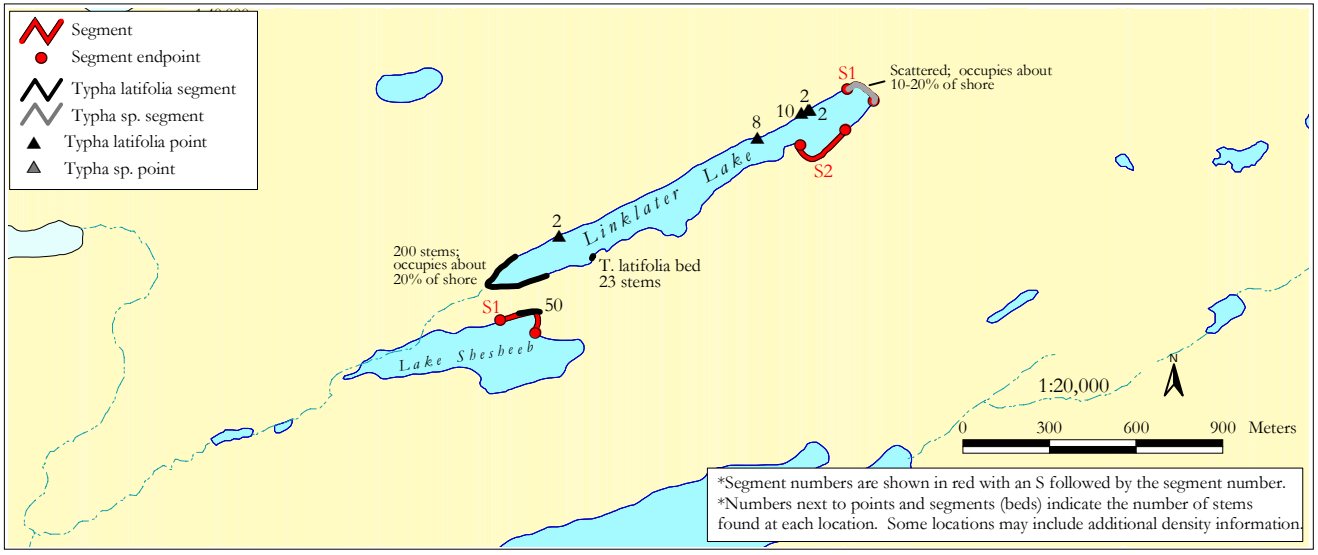




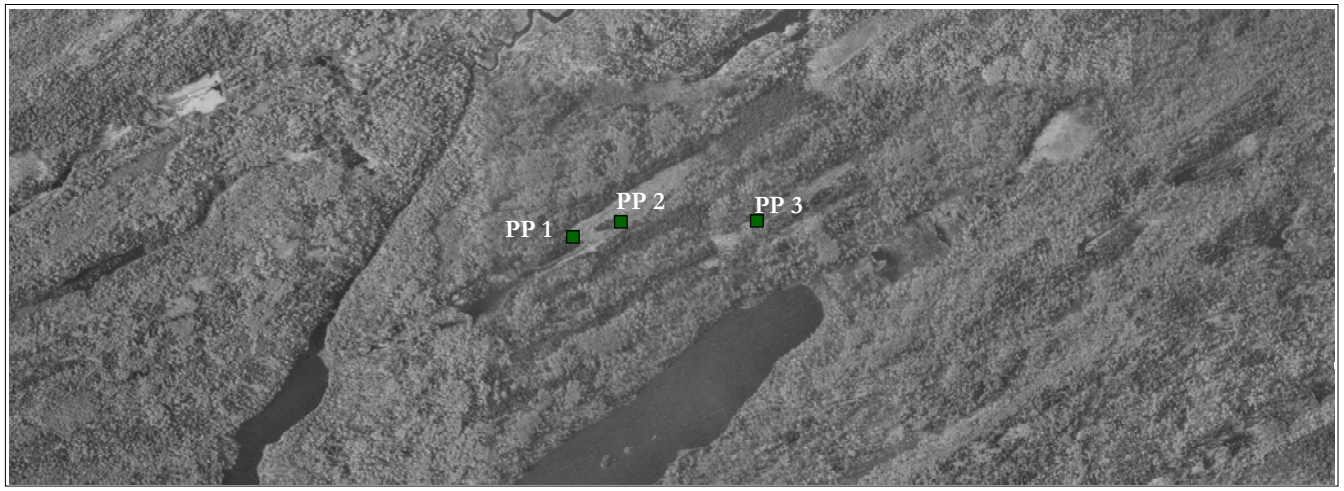
LINKLATER LAKE AND LAKE SHESHEEB 2004

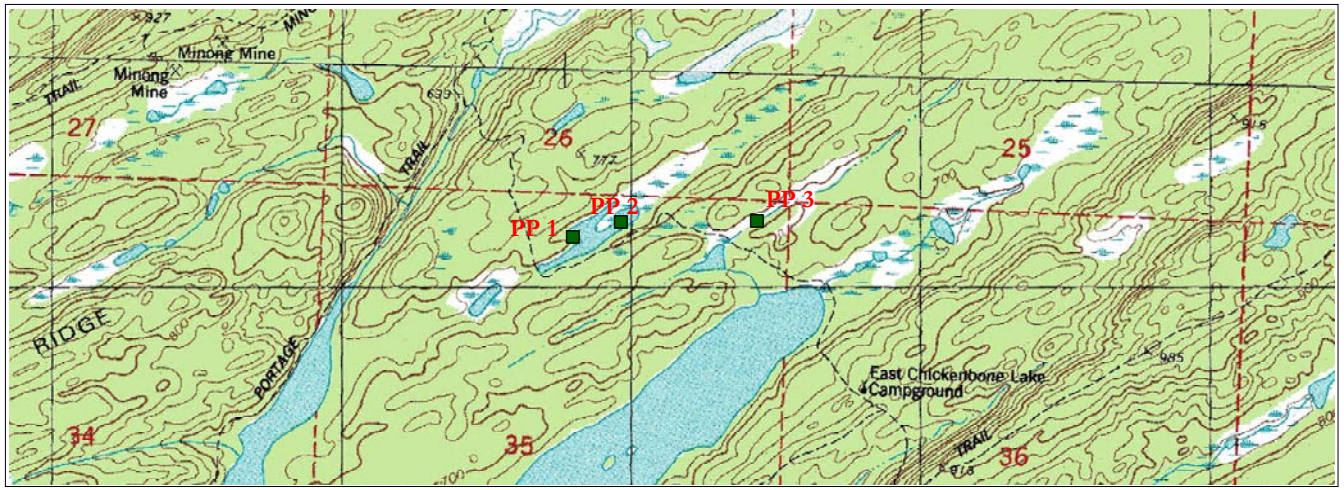




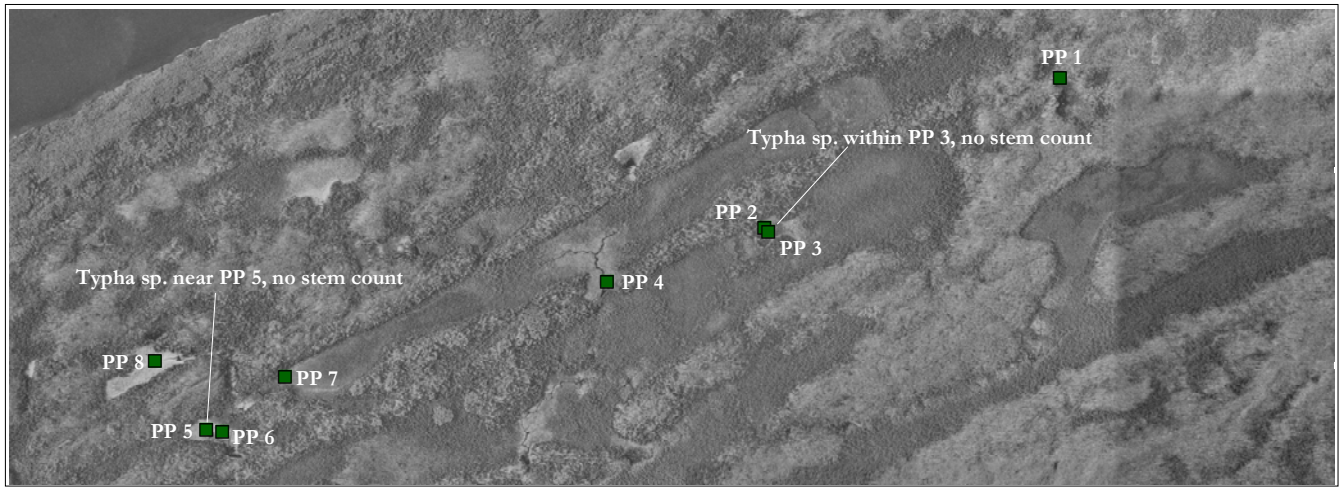


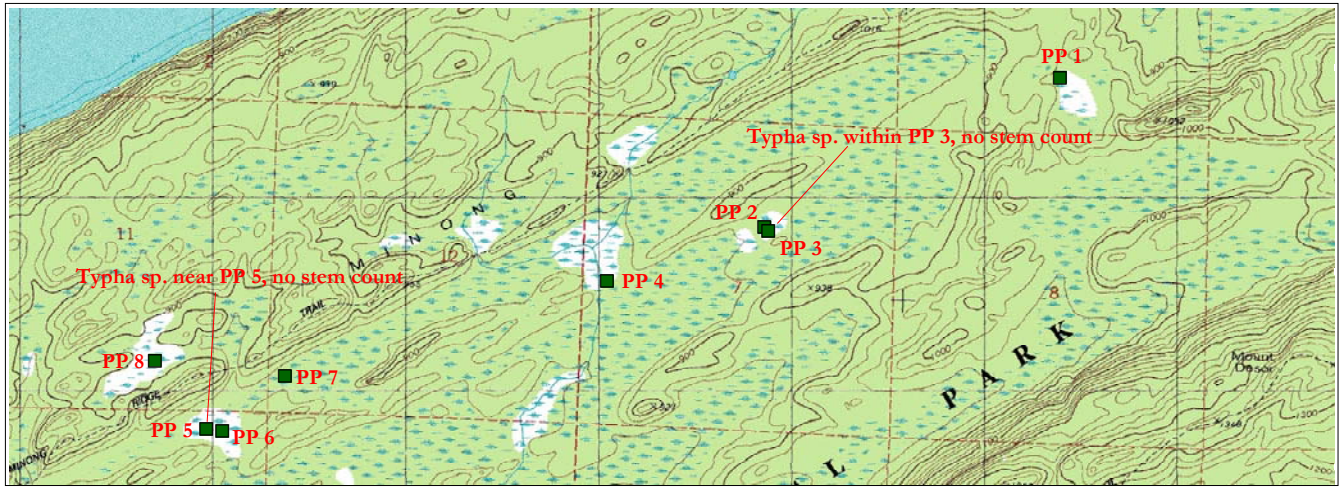
McCARGOE COVE PEATLAND PLOTS 2005



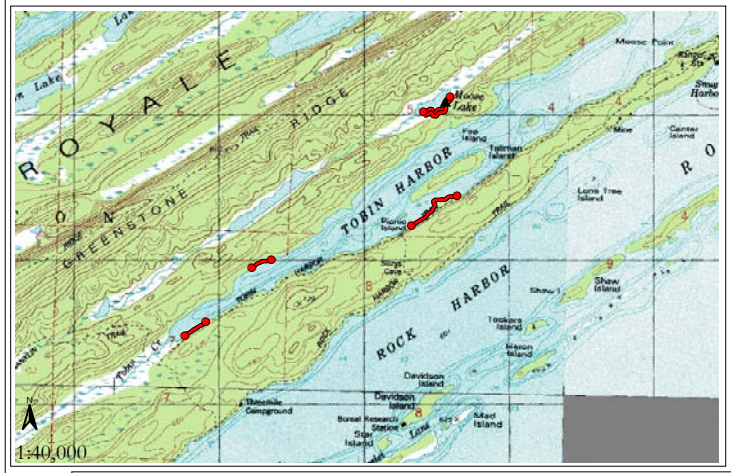


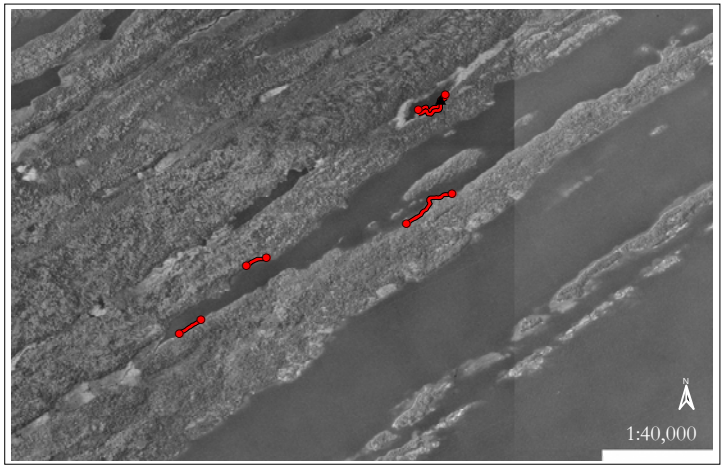
MINONG RIDGE PEATLAND PLOTS 2004

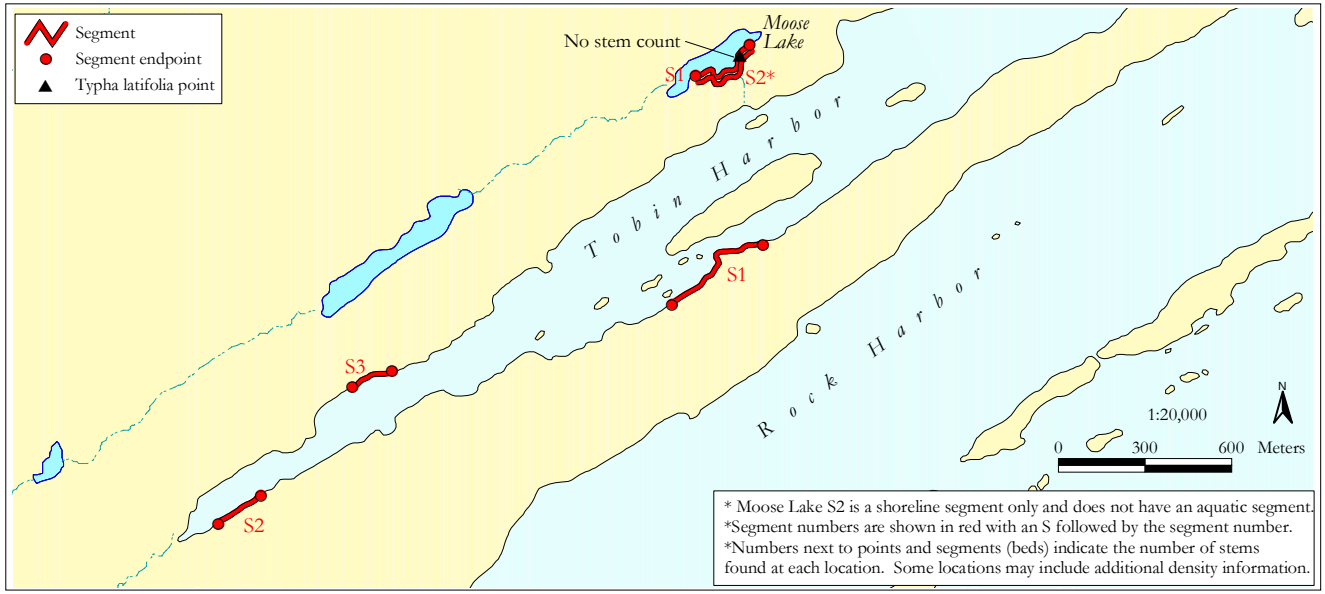




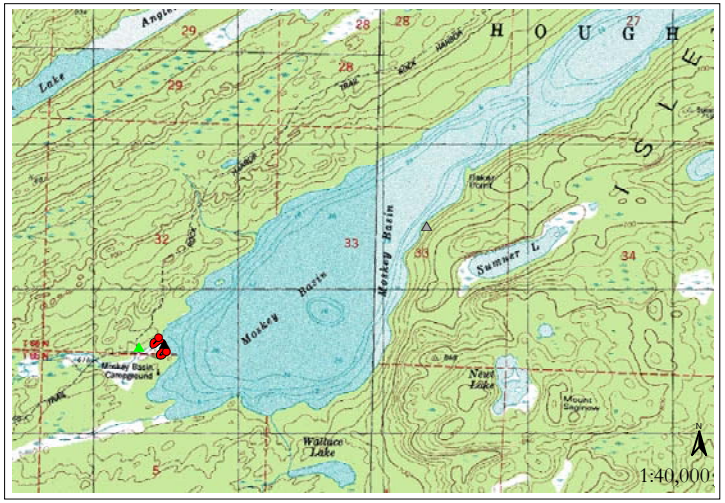
MOOSE LAKE AND TOBIN HARBOR 2003

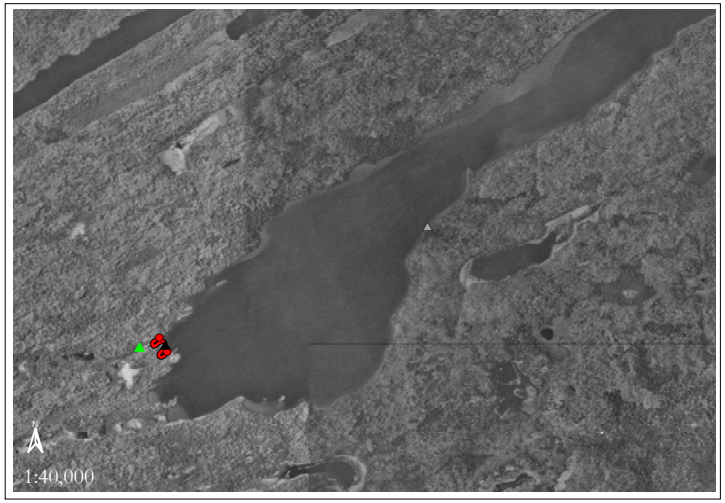


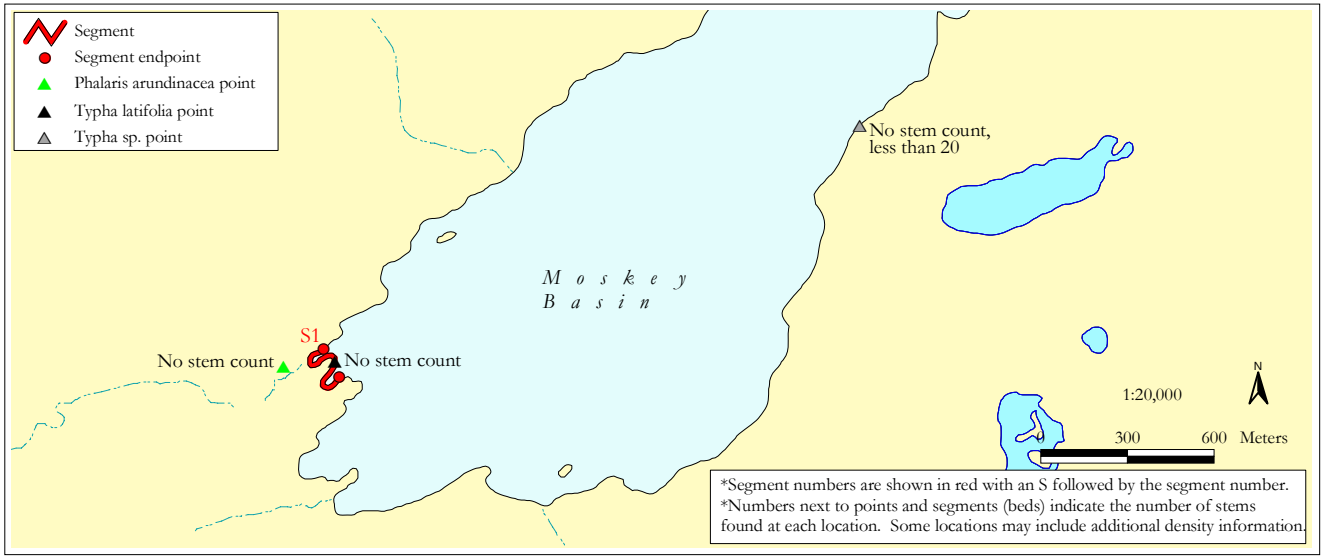




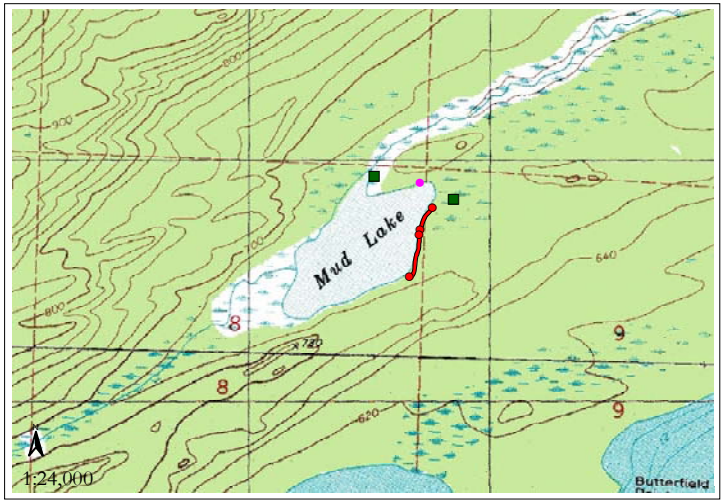
MOSKEY BASIN 2003



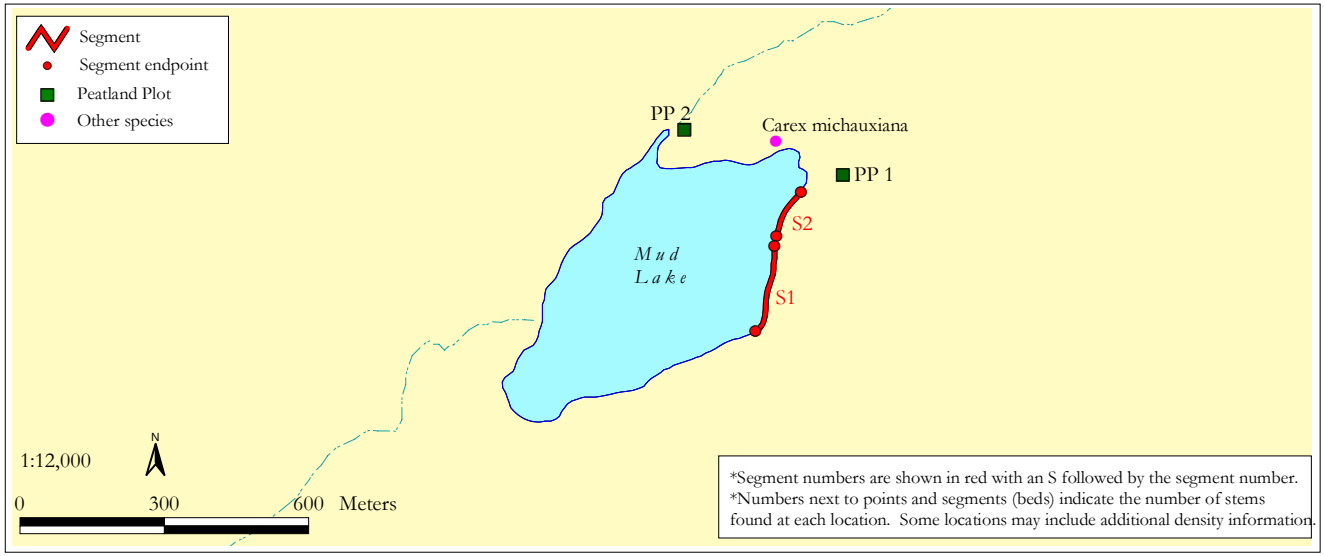




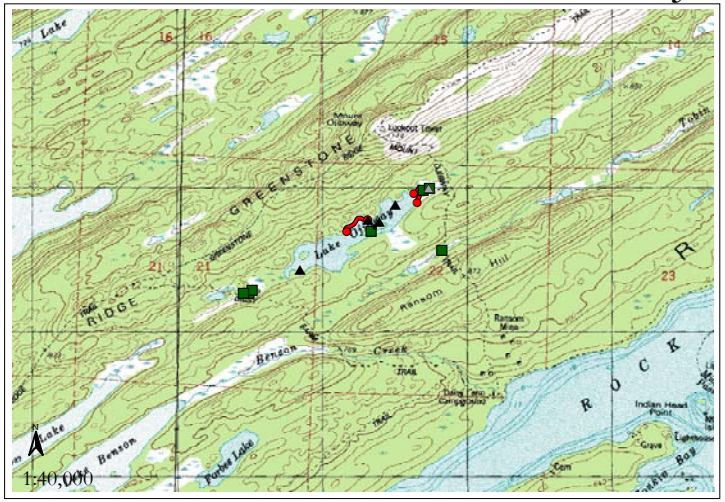
MUD LAKE 2005

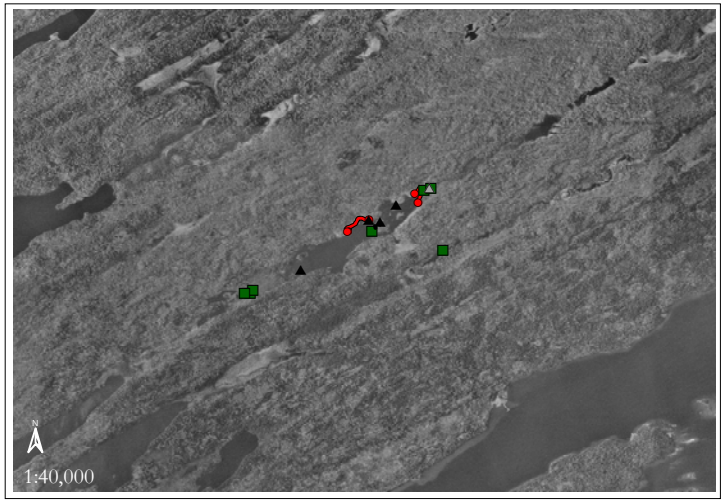


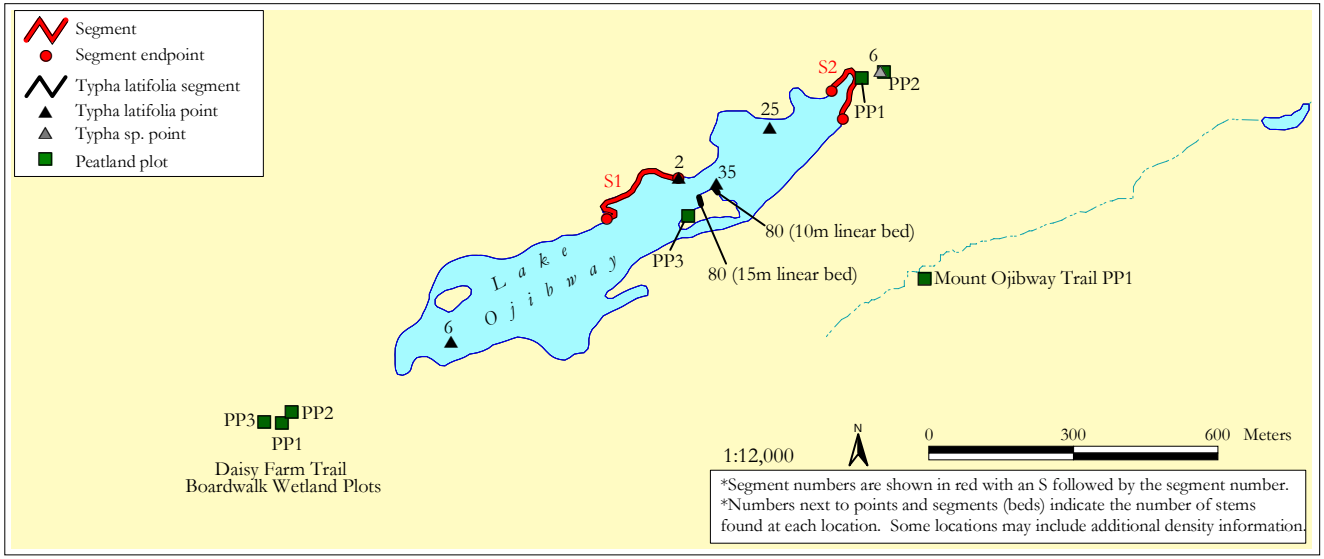




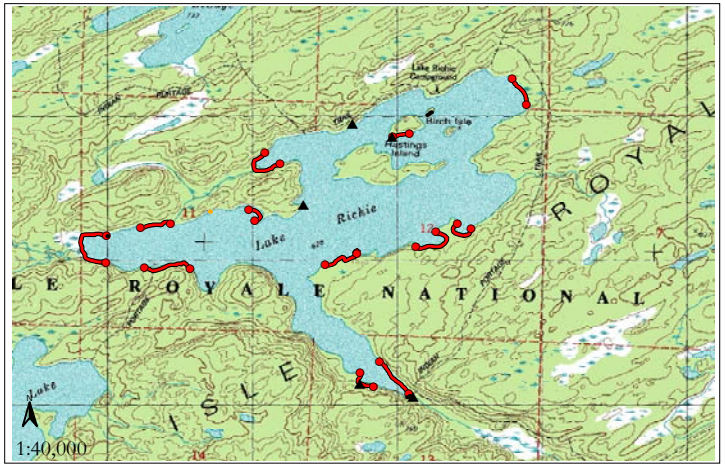
LAKE OJIBWAY 2004

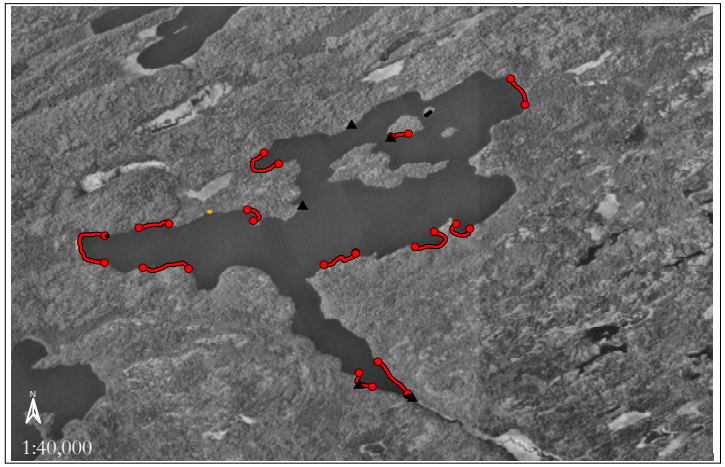


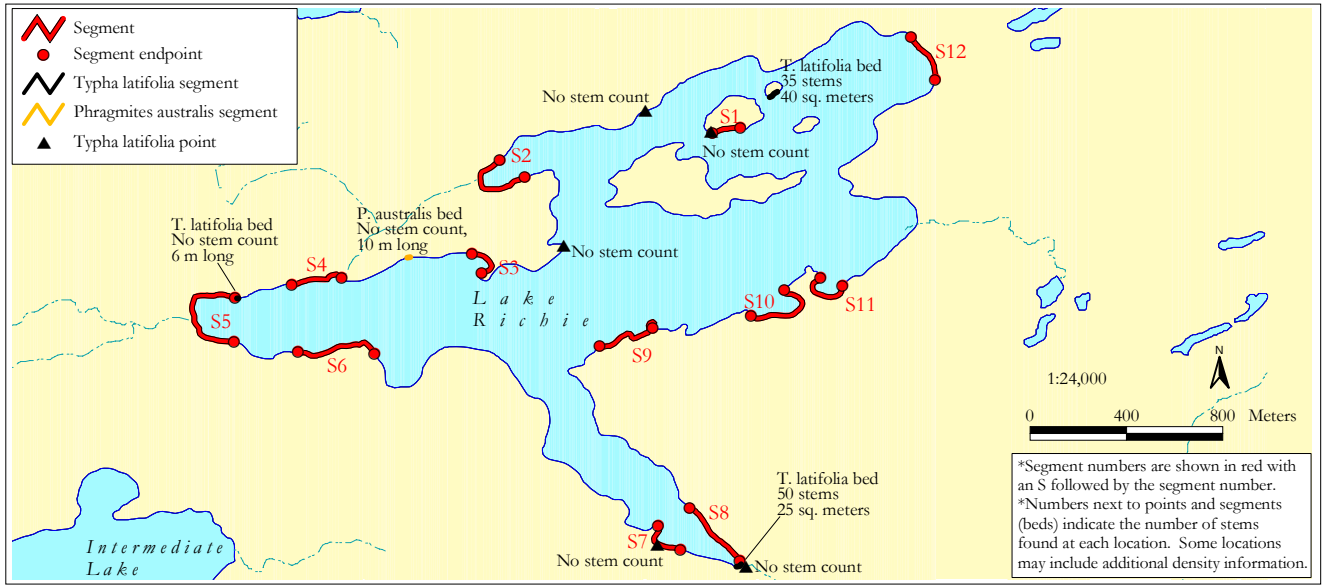




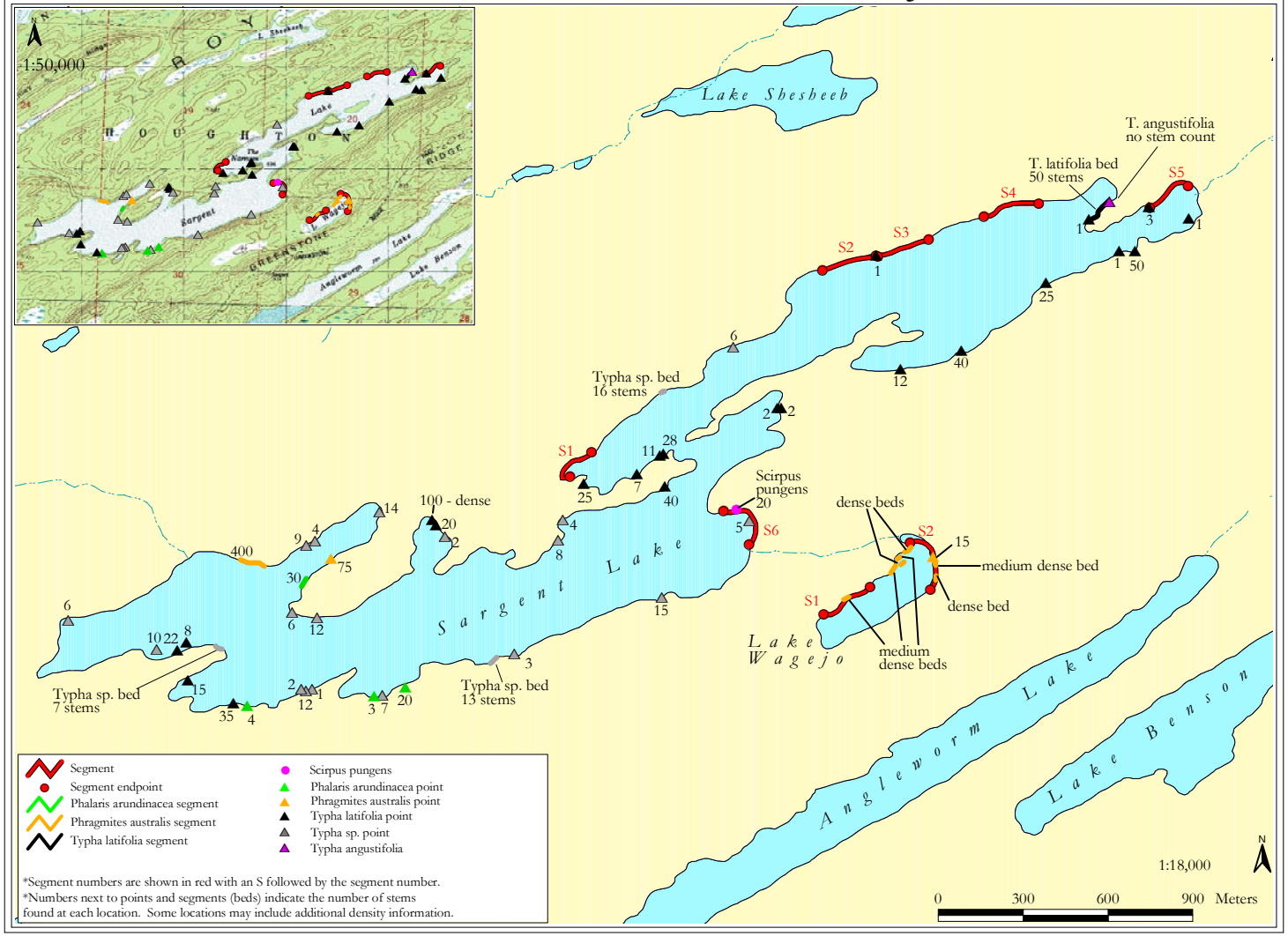
LAKE RICHIE 2003



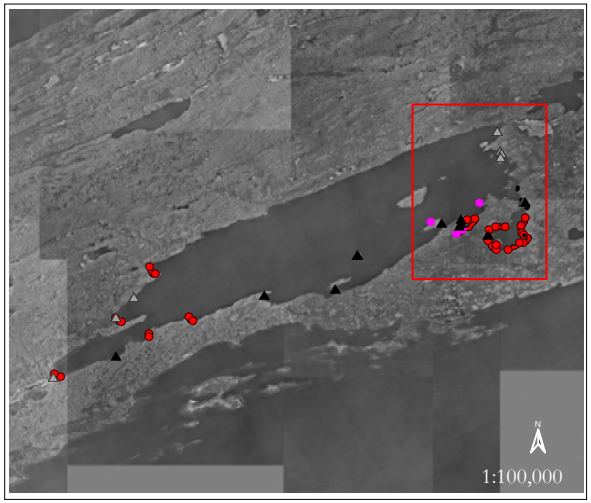


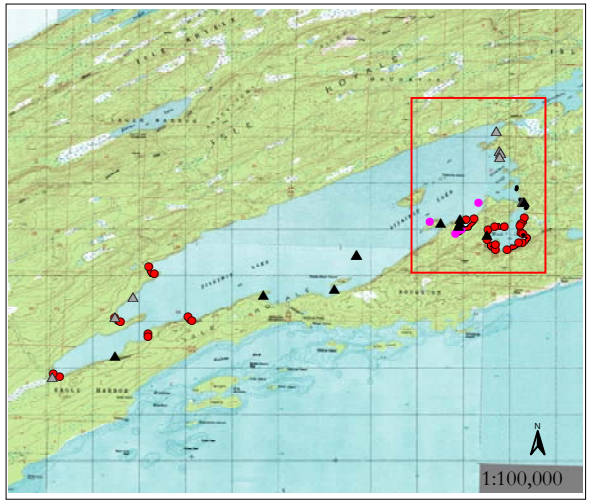


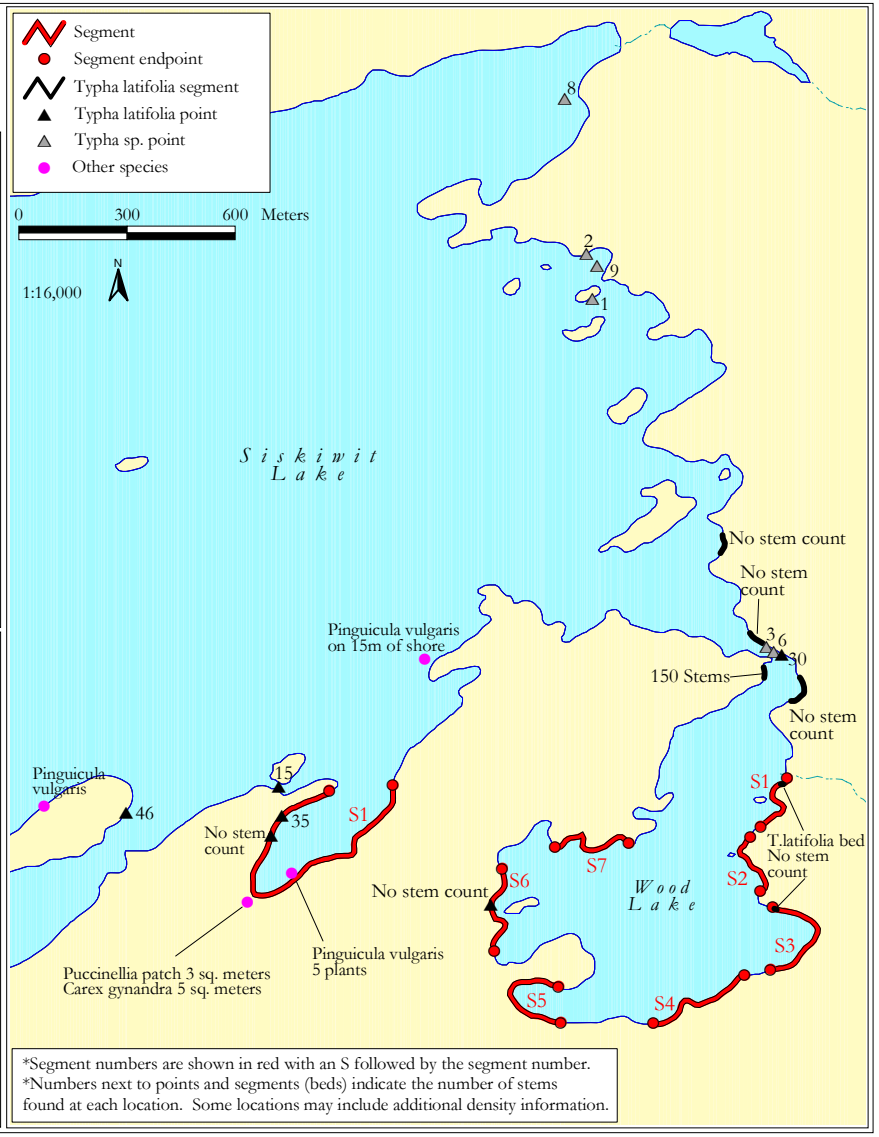
SARGENT LAKE AND LAKE WAGEJO 2004



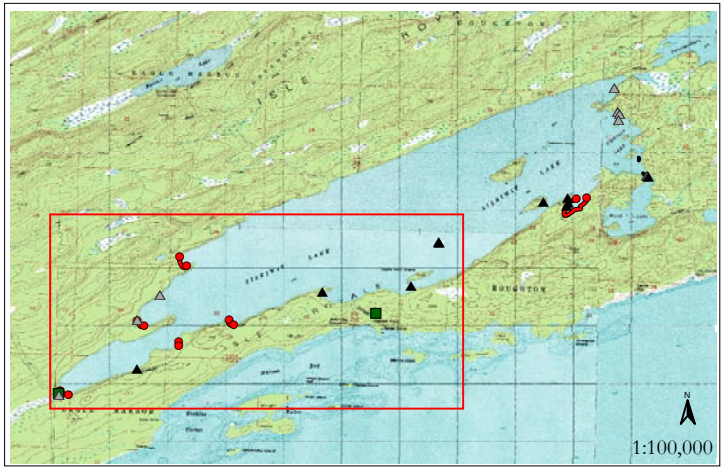
WOOD LAKE (2003) & EAST SISKIWIT LAKE (2005)

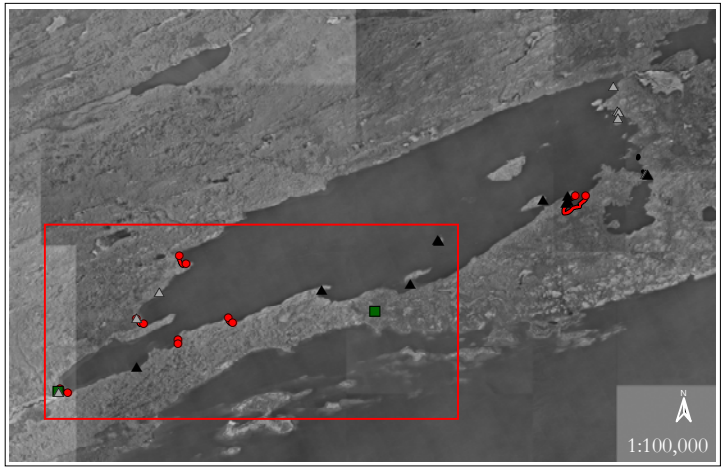


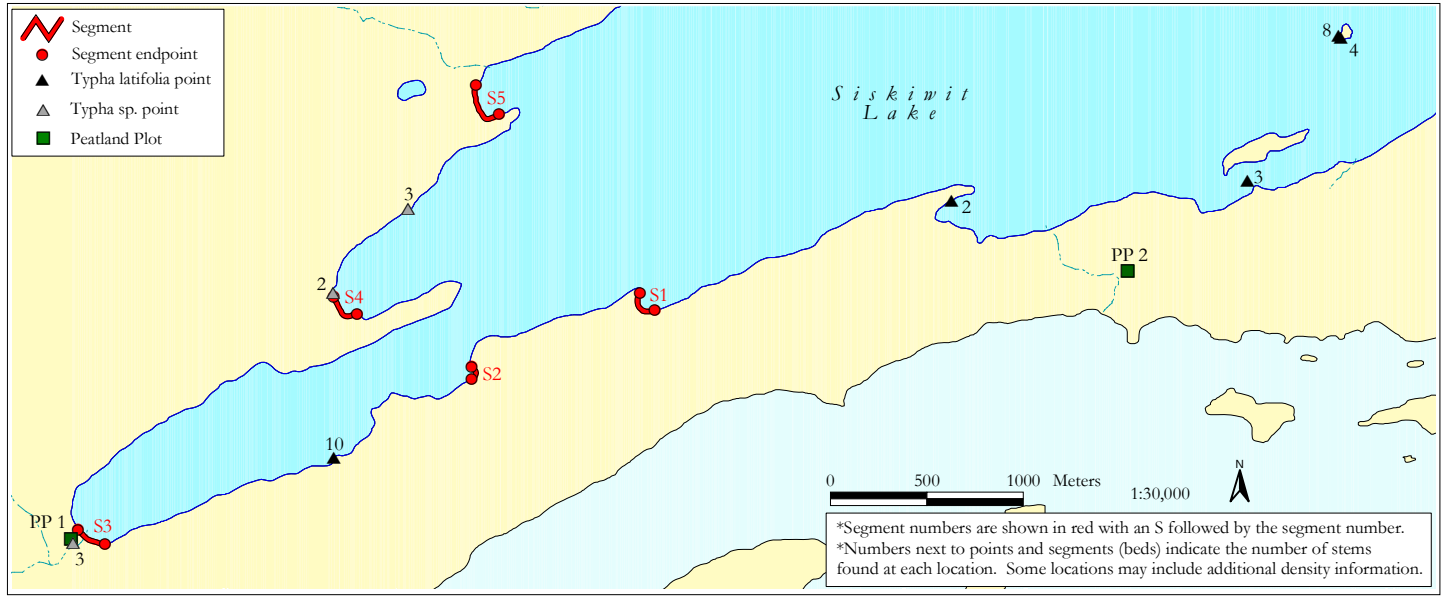




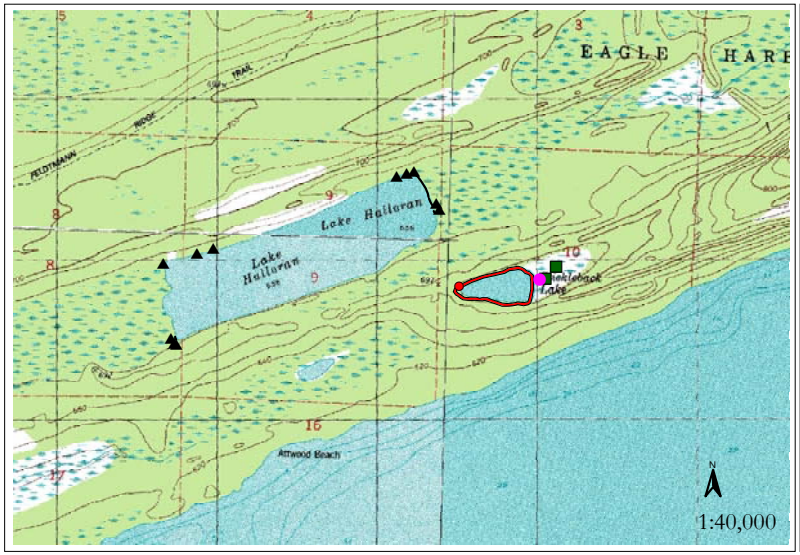
WEST SISKIWIT LAKE 2005

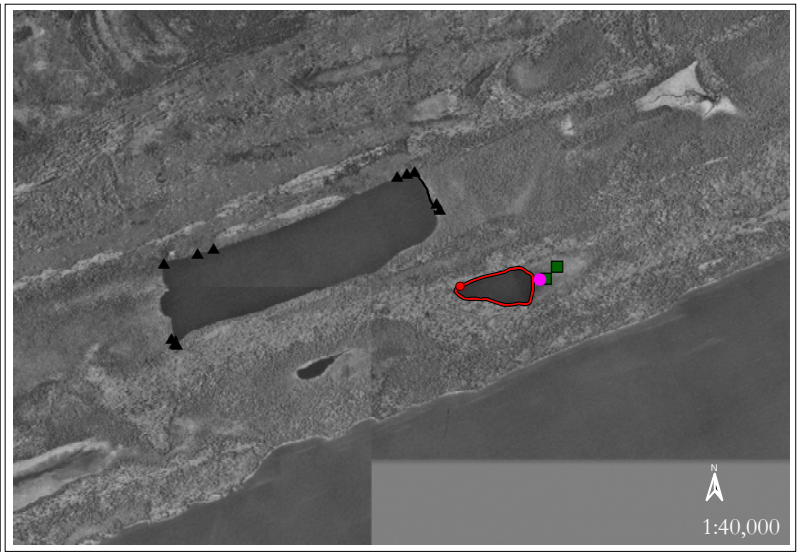


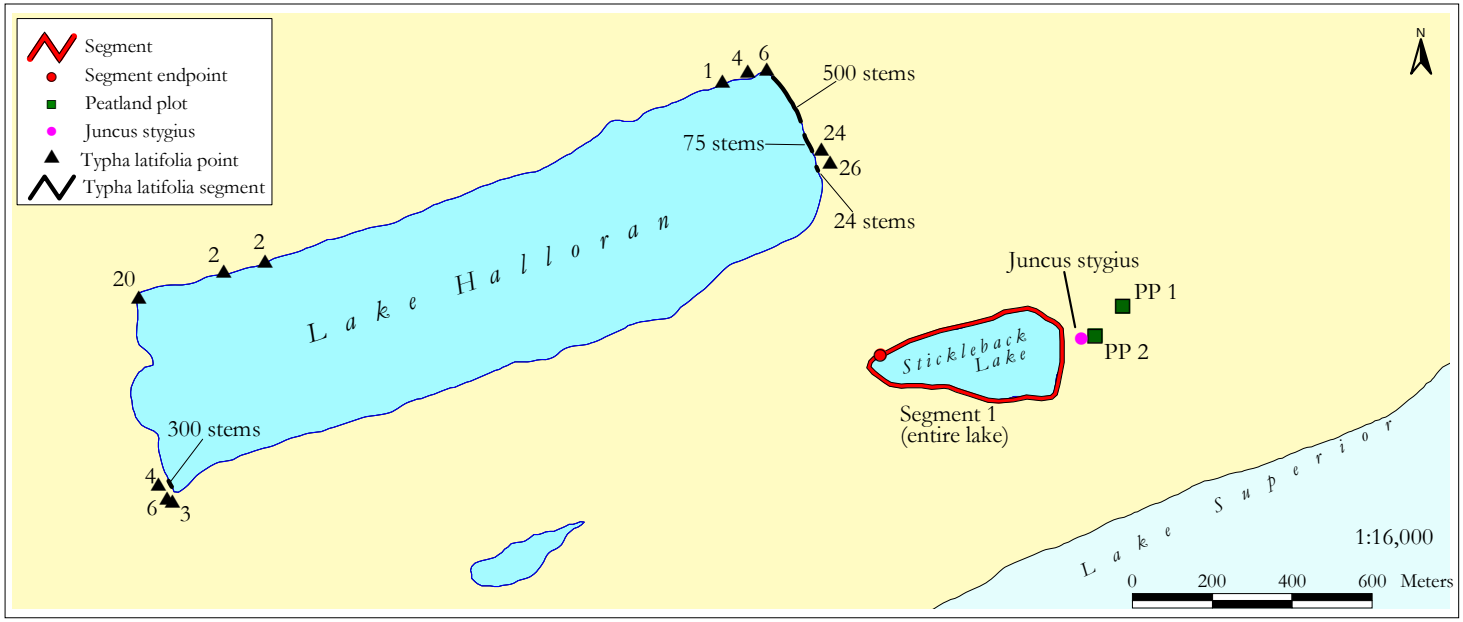




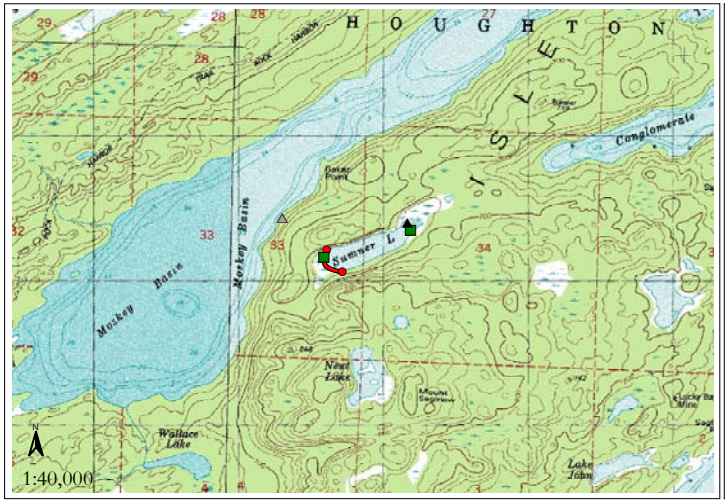
STICKLEBACK LAKE 2004 AND LAKE HALLORAN 2006

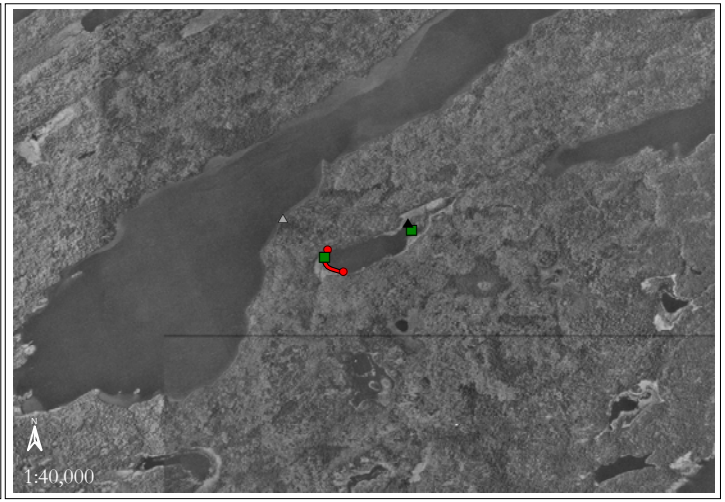


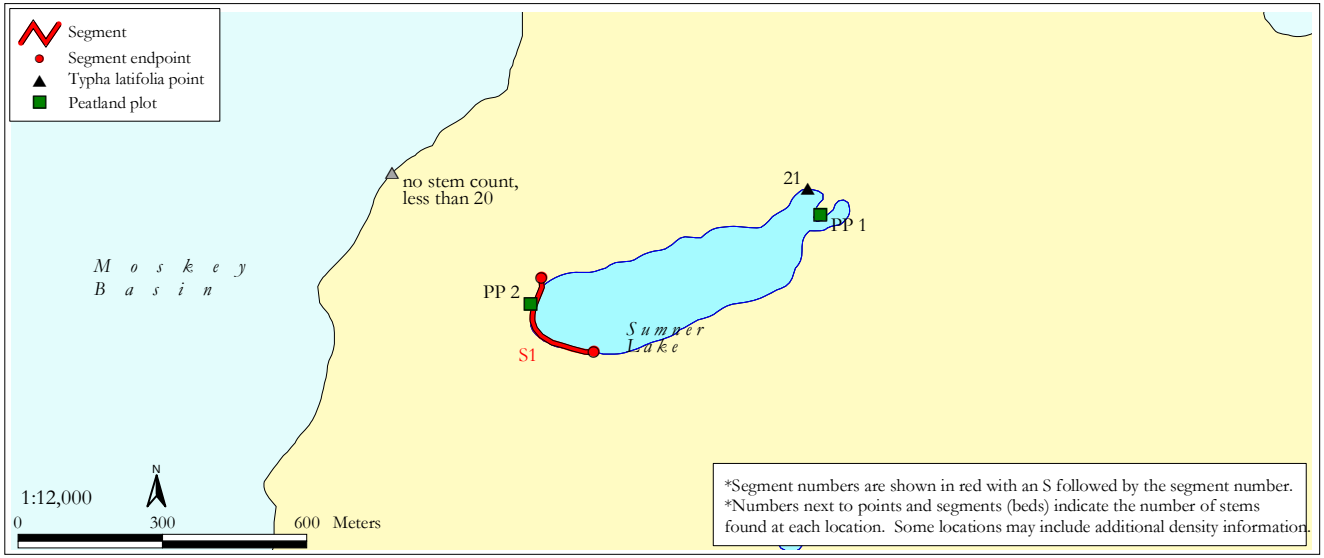




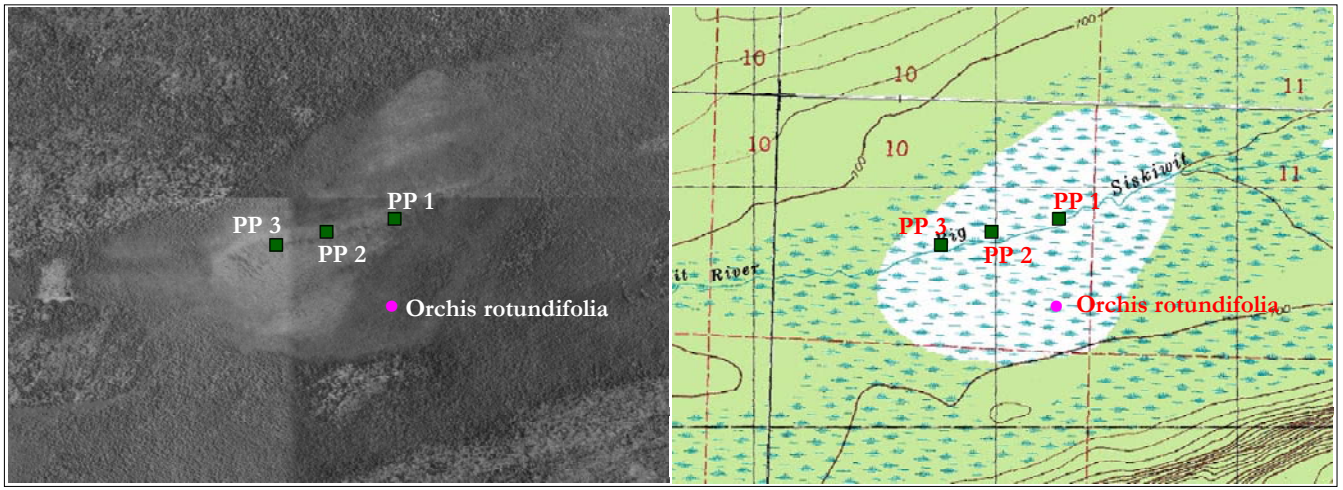
SUMNER LAKE 2004



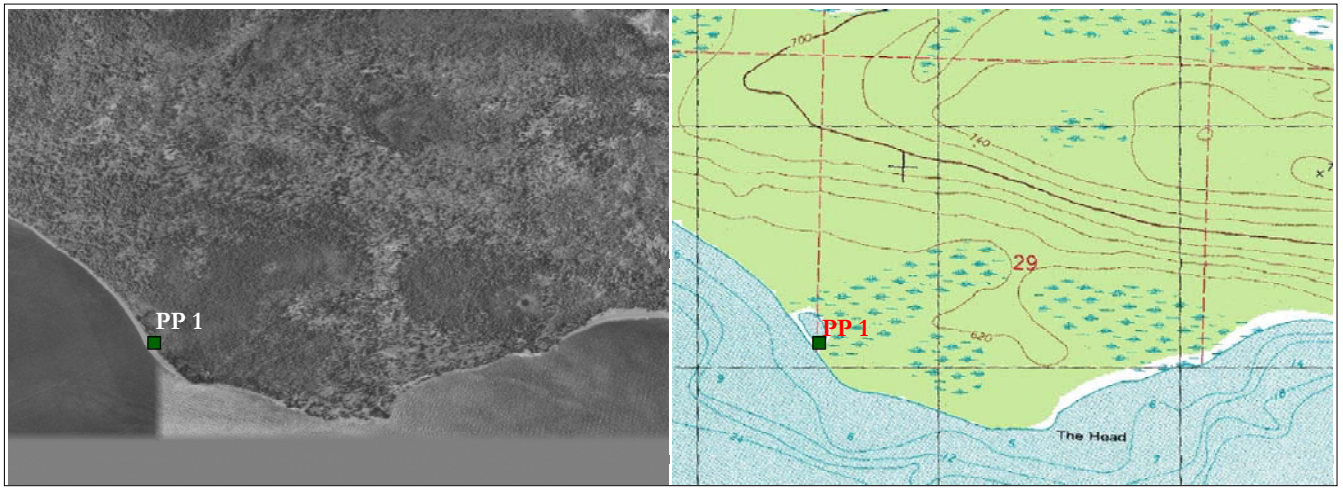




SISKIWIT FEN PEATLAND PLOTS 2004



SUPERIOR SHORELINE FEN 1 PEATLAND PLOTS 2004

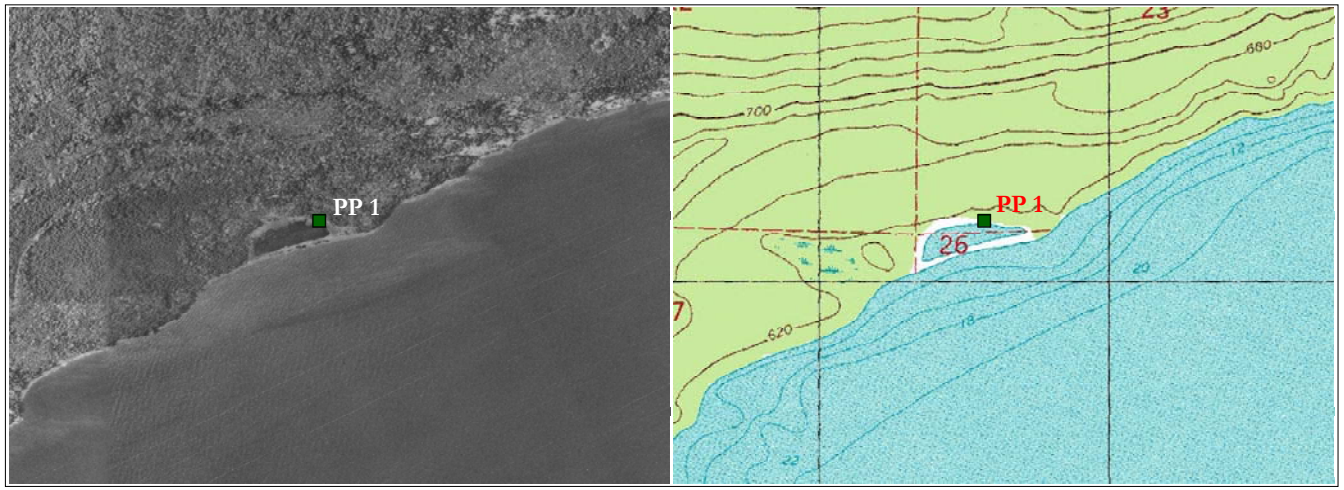


0 400 800 1200 Meters

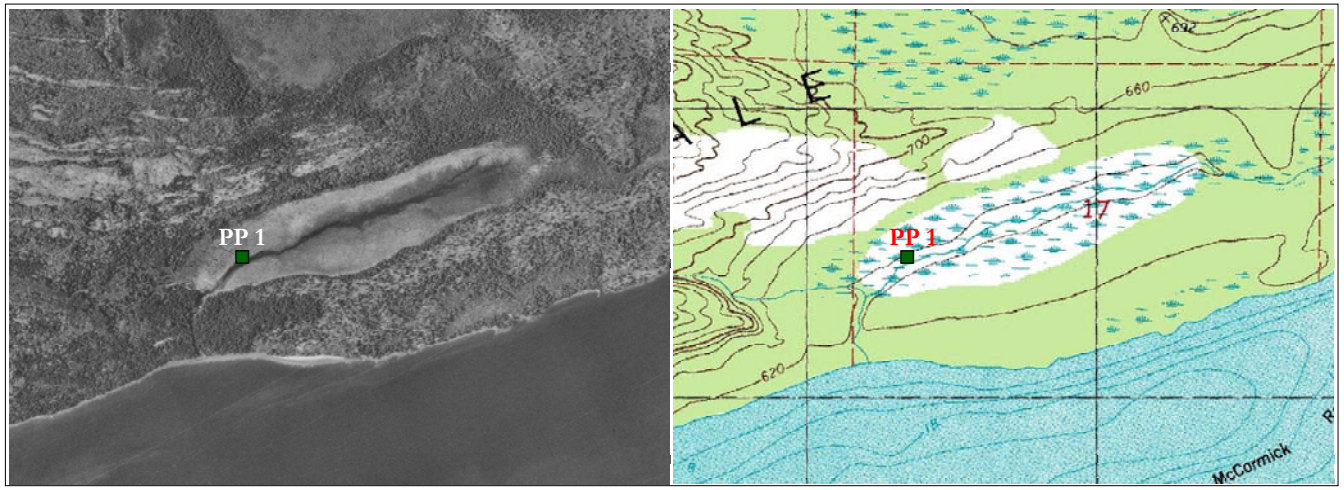
N

0 1000 2000 3000 Feet

SUPERIOR SHORELINE FEN 2 PEATLAND PLOTS 2004



SUPERIOR SHORELINE FEN 3 PEATLAND PLOTS 2004

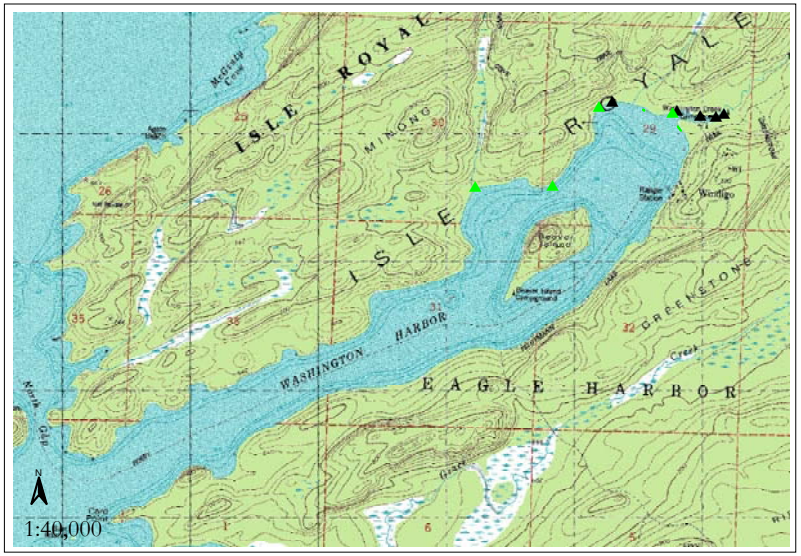


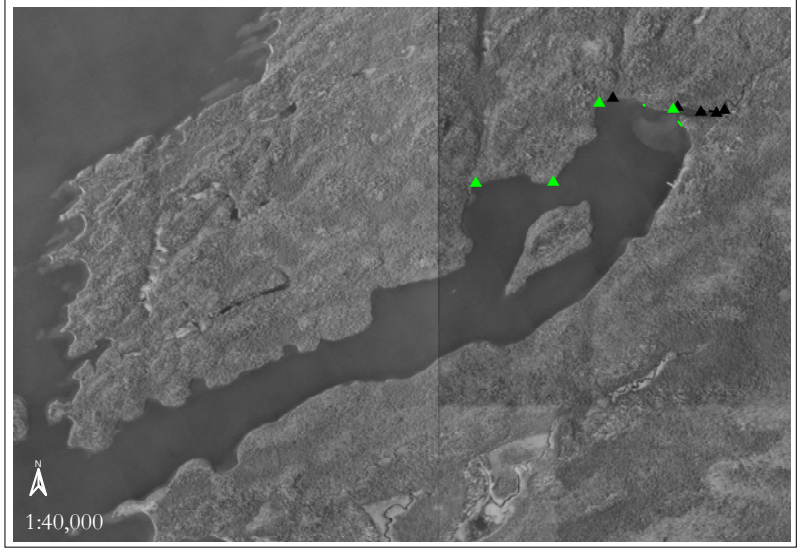
0 300 600 900 Meters

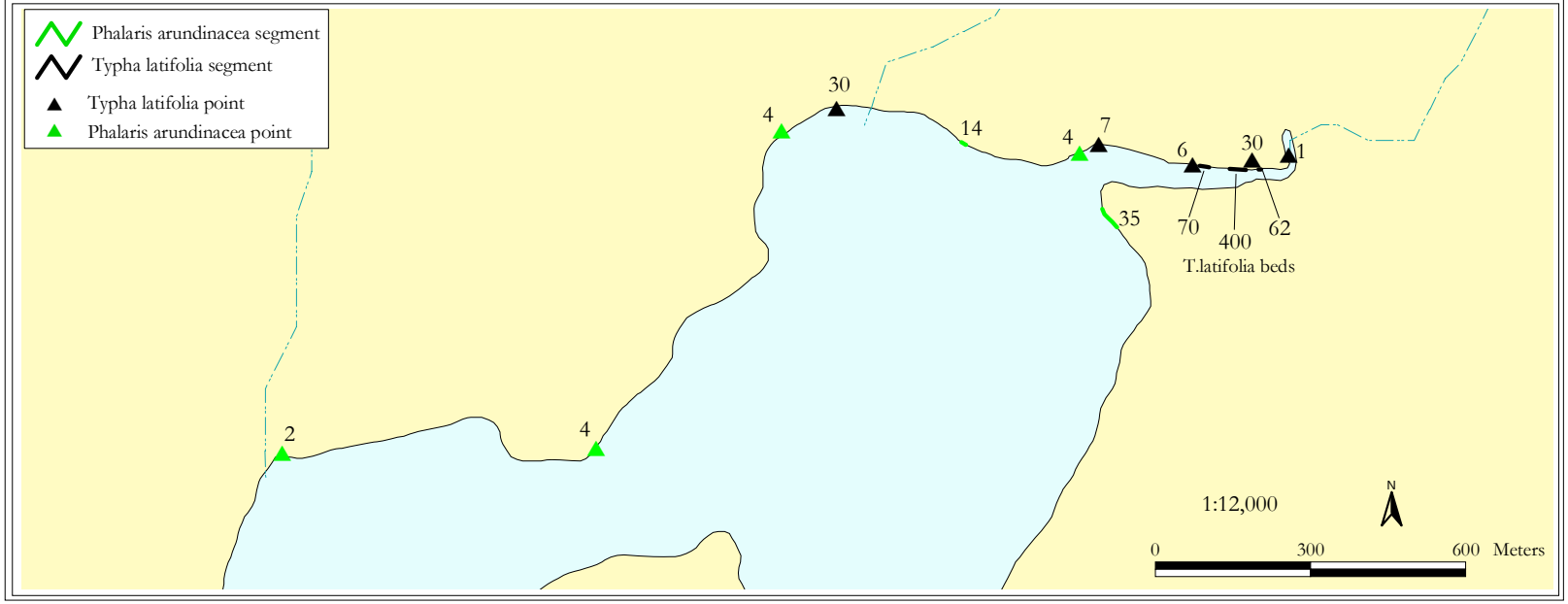
N

0 800 1600 2400 Feet

WASHINGTON HARBOR 2006







Appendix B1 – Species and Cover Classes for Aquatic Segments

A Site: Ahmik Lake, 7 aquatic segments
Date: 8/7/04
Sampled by: J.Elias and J.Meeker

	GENUS	SPECIES	PCORD	AHLK S1	AHLK S2	AHLK S3	AHLK S4	AHLK S5	AHLK S6	AHLK S7	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	1	Tr	Tr	Tr	Tr	Tr	100.00
2	*Carex*	*aquatilis*	CARAQU				Tr				14.29
2	*Carex*	*lasiocarpa*	CARLAS	3	3		2	Tr		Tr	71.43
3	*Carex*	*rostrata*	CARROS	Tr							14.29
4	*Chara*	spp.	CHASPP		Tr				Tr		28.57
5	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr	Tr	Tr	1		Tr	85.71
6	*Eleocharis*	*acicularis*	ELEACI		3	Tr	Tr	Tr		Tr	71.43
7	*Eleocharis*	*palustris*	ELEPAL	1	1	1	1	Tr		2	85.71
8	*Equisetum*	*fluviatile*	EQUFLU							Tr	14.29
9	*Glyceria*	*borealis*	GLYBOR	Tr	Tr	Tr	Tr	Tr		1	85.71
10	*Isoetes*	spp.	ISOSPP	Tr		Tr				Tr	42.86
11	*Juncus*	*brevicaudatus*	JUNBRE	Tr	1	Tr		1		1	71.43
12	*Juncus*	*effusus*	JUNEFF				Tr				14.29
13	*Juncus*	*nodosus*	JUNNOD		Tr					Tr	28.57
14	*Myriophyllum*	*farwellii*	MYRFAR		Tr						14.29
15	*Najas*	*flexilis*	NAJFLE		Tr	Tr					28.57
16	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	Tr	Tr	Tr	Tr	Tr	100.00
17	*Potamogeton*	*amplifolius*	POTAMP	1	2		Tr	Tr	3	2	85.71
18	*Potamogeton*	*epihydrus*	POTEPI						1		14.29
19	*Potamogeton*	*gramineus*	POTGRA	Tr	1	Tr	Tr			Tr	71.43
20	*Potamogeton*	*praelongus*	POTPRA	Tr	Tr	Tr		Tr	2	1	85.71
21	*Potamogeton*	*pusillus*	POTPUS		Tr						14.29
22	*Potamogeton*	spp.	POTSPP		Tr						14.29
23	*Ranunculus*	*longirostris*	RANLON			Tr		Tr	Tr		42.86
24	*Sagittaria*	*cuneata/ graminea* rosette	SAGROS		1					Tr	28.57
25	*Sagittaria*	*latifolia*	SAGLAT	1	1	Tr	1	Tr		Tr	85.71
26	*Scirpus*	*acutus*	SCIACU		1						14.29
27	*Sium*	*suave*	SIUSUA	1	Tr	Tr	Tr	Tr		Tr	85.71
28	*Sparganium*	*fluctuans*	SPAFLU	Tr	1	2	1	Tr		Tr	85.71
29	*Typha*	*latifolia*	TYPLAT	1	Tr						28.57
30	*Typha*	spp.	TYPSPP				Tr				14.29
31	*Utricularia*	*intermedia*	UTRINT		Tr		Tr				28.57
32	*Utricularia*	*vulgaris*	UTRVUL	Tr	Tr	Tr	Tr	Tr		Tr	85.71
			RICHNESS	17	25	16	17	15	7	19	

A Site: Ahmik Lake, 7 aquatic segments
Date: 8/7/04
Sampled by: J.Elias and J.Meeker

Entire Lake A lot of macrophytes in 2-3m of water, beds contain a lot of POTAMP, POTPRA, and some BIDBEC, MYRSPP, POTEPI, NAJFLE, & RANLON. Lake level is down ~75cm from mean high water level (based on shrub line). There appears to be 2 drawdowns; 1 below shrubs and CALCAN, and the 2nd with JUNSPP and CARVIR. Moose tracks present ("a-go-go").

Segment 1 Soft bottom bay, flocculent and/ or detritus. Shallow water w/ mud flat at end. TYPLAT scattered. Sponge (Spongilla lacustris) present.

Segment 2 Soft flocculent bottom. Water level ~0.5 m below shrub line. Fringe of wetland veg.. Lots of filamentous algae, ELEACI mats and bare areas present. Lots of moose tracks. Sponge (*S. lacustris and Corvomeyenia everetti* ?) present.

Segment 3 Small bay, with flocculent bottom. Shoreline steep with water >1m deep. Scant -to-no aquatic vegetation. Sponges present (*Ephydatia mulleri* and *S. lacustris*).

Segment 4 Peaty ends of bays, steep sided in between. Soft bottom and sparse aquatics. Lots of sponges (*S. lacustris*).

Segment 5 Dry, steep slope with wetland fringe ~1foot above water level. Flocculent bottom with scant aquatics. Sponge present (*S. lacustris*).

Segment 6 Aquatic survey, straight down middle of lake. Sponges present (*S. lacustris, E. mulleri*).

Segment 7 Shelf of wetland species ~ 5m wide. Few beds of aquatics, band of ELEPAL. Substrate is soft and flocculent. Sponge present (*S. lacustris*).

Additional species: Lake Ahmik

33 *Nitella*	spp.	NITSPP

A Site: Amygdaloid Lake, 6 aquatic segments
Date: 8/5/04
Sampled by: J.Elias and J.Meeker (segments 2-4) and V.Hofman and J.Marr (segments 1, 5-6)

	GENUS	SPECIES	PCORD	AMLK S1	AMLK S2	AMLK S3	AMLK S4	AMLK S5	AMLK S6	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	1	2	Tr		1	83.33
2	*Calla*	*palustris*	CALLAP			Tr				16.67
3	*Callitriche*	spp.	CALSPP	Tr		Tr		Tr		50.00
4	*Carex*	*lasiocarpa*	CARLAS		1	1				33.33
5	*Carex*	*rostrata*	CARROS			1				16.67
6	*Carex*	spp.	CARSPP						Tr	16.67
7	*Eleocharis*	*acicularis*	ELEACI	Tr	1				Tr	50.00
8	*Eleocharis*	*palustris*	ELEPAL		1					16.67
9	*Equisetum*	*fluviatile*	EQUFLU	Tr	Tr	Tr	Tr	Tr	Tr	100.00
10	*Glyceria*	*borealis*	GLYBOR			Tr				16.67
11	*Hippurus*	*vulgaris*	HIPVUL	1	Tr	1			1	66.67
12	*Iris*	*versicolor*	IRIVER				Tr			16.67
13	*Isoetes*	spp.	ISOSPP	1	Tr		1	1	Tr	83.33
14	*Juncus*	*brevicaudatus*	JUNBRE	Tr						16.67
15	*Lobelia*	*dortmanna*	LOBDOR	Tr	Tr		1	Tr	Tr	83.33
16	*Myriophyllum*	*verticillatum*	MYRVER	Tr	2	2	1	1	1	100.00
17	*Nitella*	spp.	NITSPP		Tr					16.67
18	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	Tr	1	Tr	Tr	100.00
19	*Potamogeton*	*amplifolius*	POTAMP						Tr	16.67
20	*Potamogeton*	*gramineus*	POTGRA	2	2	Tr	1	1	Tr	100.00
21	*Potamogeton*	*obtusifolius*	POTOBT						Tr	16.67
22	*Ranunculus*	*flammula*	RANFLA	Tr	Tr		Tr			50.00
23	*Ranunculus*	*longirostris*	RANLON	Tr	1	2	Tr	Tr	Tr	100.00
24	*Sium*	*suave*	SIUSUA	Tr	Tr	Tr	Tr	Tr	Tr	100.00
25	*Sparganium*	*angustifolium*	SPAANG		Tr	Tr				33.33
26	*Sparganium*	spp.	SPASPP						Tr	16.67
27	*Utricularia*	*vulgaris*	UTRVUL		Tr	1			Tr	50.00
			RICHNESS	14	17	15	11	9	16	

Entire Lake Lake level at shrub line (max water level). Most of lake shoreline with few aquatics, save for a few shelves with Isoetids.

Segment 1 Segment along southeastern shore. On shore, upland spp. include: MAICAN, COPTRI, ANAMAR, CORCAN, ALNINC, ALNVIR.

Segment 2 Small bay along southern shore. Lots of Periphyton. Narrow fringe of shoreline vegetation. Sedge meadow along part of shoreline. Sponge (*Spongilla lacustris*) present.

Segment 3 West bay of lake. End of bay a marshy shoreline w/ emergent veg. Sides of bay w/ overhanging trees and shrubs and undercut bank w/ moss. Substrate flocculent w/ much woody debris.

Segment 4 Segment along northern side of lake. Brown filamentous algae and Periphyton. Overhanging trees and shrubs, undercut bank w/ moss. Sparse shoreline veg. except woody. Steep gradient and sharp drop off in water. Sponge present (*S. lacustris*).

Segment 5 Substrate rock and sand, gradual sloping and then a steep drop off. Banks are non-sphagnum moss, ALNINC, THUOCC, PICSPP. ARANUD and other upland spp. growing down to shoreline.

Segment 6 End of lake; sides rocky, abrupt shoreline w/ overhanging cedar, fir and moss, supporting upland & wetland shrubs (ALNSPP, THUOCC, RIBSPP, VACBLU). End of cove (inlet) sheltered with windfall logs, coves and nooks with flocculent detritus on sand, HIPVUL and POTGRA. Sides of cove sandier w/ ISOSPP and LOBDOR.

Additional species: Amygdaloid Lake

28	*Chara*	spp.	CHASPP

A Site: Angleworm Lake, 3 aquatic segments
Date: 8/13/04
Sampled by: V.Hofman, M.Jones and J.Marr

	GENUS	SPECIES	PCORD	ANLK S1	ANLK S2	ANLK S3	% Frequency
1	*Bidens*	*beckii*	BIDBEC		Tr	Tr	66.67
2	*Carex*	*lasiocarpa*	CARLAS	Tr	Tr	2	100.00
3	*Carex*	*rostrata*	CARROS			Tr	33.33
4	*Carex*	*utriculata*	CARUTR		Tr		33.33
5	*Chara*	spp.	CHASPP	Tr	1	Tr	100.00
6	*Dulichium*	*arundinaceum*	DULARU		Tr		33.33
7	*Eleocharis*	*acicularis*	ELEACI			Tr	33.33
8	*Eleocharis*	*palustris*	ELEPAL	Tr	Tr		66.67
9	*Equisetum*	*fluviatile*	EQUFLU	Tr	Tr	Tr	100.00
10	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	2	Tr	100.00
11	*Glyceria*	*borealis*	GLYBOR		Tr	Tr	66.67
12	*Hippurus*	*vulgaris*	HIPVUL		Tr	Tr	66.67
13	*Isoetes*	spp.	ISOSPP	Tr	Tr	Tr	100.00
14	*Lobelia*	*dortmanna*	LOBDOR	1	1	Tr	100.00
15	*Lysimachia*	spp.	LYSSPP	Tr	Tr		66.67
16	*Myriophyllum*	*sibiricum*	MYRSIB			Tr	33.33
17	*Najas*	*flexilis*	NAJFLE	Tr	Tr	Tr	100.00
18	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	Tr	100.00
19	*Nymphaea*	*odorata*	NYMODO		Tr	Tr	66.67
20	*Potamogeton*	*amplifolius*	POTAMP			Tr	33.33
21	*Potamogeton*	*epihydrus*	POTEPI		Tr		33.33
22	*Potamogeton*	*gramineus*	POTGRA	Tr	Tr	Tr	100.00
23	*Potamogeton*	*natans*	POTNAT		Tr		33.33
24	*Potamogeton*	*pusillus*	POTPUS	Tr	Tr	Tr	100.00
25	*Potamogeton*	*robbinsii*	POTROB		Tr	2	66.67
26	*Ranunculus*	*longirostris*	RANLON		Tr		33.33
27	*Sagittaria*	*latifolia*	SAGLAT		Tr	Tr	66.67
28	*Sparganium*	*angustifolium*	SPAANG	Tr	Tr	Tr	100.00
29	*Sparganium*	*fluctuans*	SPAFLU		Tr		33.33
30	*Sparganium*	spp.	SPASPP	1	Tr	Tr	100.00
31	*Utricularia*	*intermedia*	UTRINT	Tr	Tr	Tr	100.00
32	*Utricularia*	*vulgaris*	UTRVUL	Tr	Tr	Tr	100.00
			RICHNESS	16	28	24	

Entire Lake Clams and finger sponges present in lake. PHRAUS and TYPSPP present on lake.
Segment 1 Segment along northern shore, including an open cove. Water is clear. Substrate is sand. MYRGAL on shore; bedrock coming down to shore in places.
Segment 2 Southwest end of lake. Shallow water. Sandy substrate with a +/- firm bottom. Beaver dam present on shore.
Segment 3 Northeastern end of lake; part of shoreline is a CARLAS wet meadow; muck substrate.

Additional species: Angleworm Lake

33	*Phragmites*	*australis*	PHRAUS
34	*Scirpus*	*acutus*	SCIACU
35	*Sparganium*	*americanum*	SPAAME
36	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Beaver Lake, 2 aquatic segments
Date: 8/5/04
Sampled by: A.Harris and M.Jones

	GENUS	SPECIES	PCORD	BELK S1	BELK S2	% Frequency
1	*Bidens*	*beckii*	BIDBEC	1	Tr	100.00
2	*Carex*	*lasiocarpa*	CARLAS	2		50.00
3	*Carex*	*utriculata*	CARUTR	Tr	Tr	100.00
4	*Chara*	spp.	CHASPP	Tr		50.00
5	*Dulichium*	*arundinaceum*	DULARU	Tr		50.00
6	*Eleocharis*	*palustris*	ELEPAL	1	1	100.00
7	*Equisetum*	*fluviatile*	EQUFLU	3	4	100.00
8	*Glyceria*	*borealis*	GLYBOR	1	1	100.00
9	*Hippurus*	*vulgaris*	HIPVUL		Tr	50.00
10	*Isoetes*	*lacustris*	ISOLAC	2	Tr	100.00
11	*Juncus*	*pelocarpus*	JUNPEL	Tr		50.00
12	*Lemna*	*trisulca*	LEMTRI		Tr	50.00
13	*Lysimachia*	*terrestris*	LYSTER	Tr		50.00
14	*Myriophyllum*	*verticillatum*	MYRVER	Tr	Tr	100.00
15	*Nuphar*	*variegata*	NUPVAR	1	Tr	100.00
16	*Potamogeton*	*foliosus*	POTFOL	4	1	100.00
17	*Potamogeton*	*gramineus*	POTGRA	2	2	100.00
18	*Potamogeton*	*richardsonii*	POTRIC	Tr	2	100.00
19	*Potamogeton*	*spirillus*	POTSPI	Tr	Tr	100.00
20	*Ranunculus*	*longirostris*	RANLON		Tr	50.00
21	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr	100.00
22	*Scirpus*	*acutus*	SCIACU	Tr		50.00
23	*Scirpus*	*cyperinus*	SCICYP	Tr		50.00
24	*Sium*	*suave*	SIUSUA		Tr	50.00
25	*Sparganium*	*fluctuans*	SPAFLU	4	3	100.00
26	*Utricularia*	*minor*	UTRMIN	Tr		50.00
27	*Utricularia*	*vulgaris*	UTRVUL	Tr	1	100.00
			RICHNESS	23	19	

Segment 1 Originally seg 3. Substrate: 1/2 muck and 1/2 sand. Fresh water clams present.
Segment 2 Originally seg 5. Substrate is mostly boulders.

Additional species: Beaver Lake

28	*Calamagrostis*	*canadensis*	CALCAN
29	*Chelone*	*glabra*	CHEGLA
30	*Iris*	*versicolor*	IRIVER
31	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Benson Lake, 4 aquatic segments
Date: 8/12/04
Sampled by: V.Hofman, M.Jones and J.Marr

	GENUS	SPECIES	PCORD	BNLK S1	BNLK S2	BNLK S3	BNLK S4	% Frequency
1	*Carex*	*lasiocarpa*	CARLAS	Tr	2	2	3	100.00
2	*Carex*	*rostrata*	CARROS				Tr	25.00
3	*Chara*	spp.	CHASPP	Tr	Tr	Tr	Tr	100.00
4	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr	Tr	Tr	100.00
5	*Eleocharis*	*palustris*	ELEPAL		Tr			25.00
6	*Equisetum*	*fluviatile*	EQUFLU	Tr	Tr	Tr	Tr	100.00
7	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	Tr	Tr	Tr	100.00
8	*Lobelia*	*dortmanna*	LOBDOR		Tr			25.00
9	*Najas*	*flexilis*	NAJFLE	Tr	Tr	1	1	100.00
10	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	Tr	Tr	100.00
11	*Nymphaea*	*odorata*	NYMODO	Tr			1	50.00
12	*Potamogeton*	*amplifolius*	POTAMP	Tr	Tr	1	Tr	100.00
13	*Potamogeton*	*epihydrus*	POTEPI			Tr		25.00
14	*Potamogeton*	*gramineus*	POTGRA	Tr	Tr	Tr	Tr	100.00
15	*Potamogeton*	*natans*	POTNAT	Tr	Tr	Tr		75.00
16	*Potamogeton*	*pusillus*	POTPUS	1	Tr	Tr	Tr	100.00
17	*Sagittaria*	*latifolia*	SAGLAT	Tr		Tr	Tr	75.00
18	*Scirpus*	*subterminalis*	SCISUB	2	Tr	Tr	2	100.00
19	*Sparganium*	*angustifolium*	SPAANG			Tr		25.00
20	*Sparganium*	spp.	SPASPP		Tr	Tr	Tr	75.00
21	*Sparganium*	*minimum*	SPAMIN		Tr	Tr		50.00
22	*Typha*	*latifolia*	TYPLAT			Tr	Tr	50.00
23	*Utricularia*	*intermedia*	UTRINT	Tr	Tr		Tr	75.00
24	*Utricularia*	*vulgaris*	UTRVUL			Tr	Tr	50.00
			RICHNESS	15	17	19	18	

Entire Lake Entire lake has ericaceous shrubs and CARLAS and CALCAN along shoreline. PHRAUS and TYPLAT present.
Segment 1 Protected bay; substrate is solid to semi-soft sand and silty sand. Gradual shore.
Segment 2 Protected bay along a Carex mat; flocculent substrate.
Segment 3 End of lake, with flocculent sediment along a CARSPP mat. Water is darker in color.
Segment 4 Northeast end of lake and outlet. Flocculent sediment and a fair amount of submergent vegetation near outlet.

Additional species: Benson Lake

25	*Juncus*	*brevicaudatus*	JUNBRE
26	*Typha*	*latifolia*	TYPLAT
27	*Nitella*	spp.	NITSPP
28	*Phragmites*	*australis*	PHRAUS
29	*Potamogeton*	*praelongus*	POTPRA
30	*Ranunculus*	*flammula*	RANFLA

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Chickenbone Lake, 6 aquatic segments
Date: 8/6/04
Sampled by: A.Harris and M.Jones

	GENUS	SPECIES	PCORD	CHLK S1	CHLK S2	CHLK S3	CHLK S4	CHLK S5	CHLK S6	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	Tr			Tr	Tr	66.67
2	*Callitriche*	*palustris*	CLTPAL					Tr		16.67
3	*Carex*	*lasiocarpa*	CARLAS	3	Tr			2	1	66.67
4	*Carex*	*utriculata*	CARUTR	1				3	Tr	50.00
5	*Chara*	spp.	CHASPP	4	4	1	2	3	4	100.00
6	*Dulichium*	*arundinaceum*	DULARU		Tr			1		33.33
7	*Eleocharis*	*acicularis*	ELEACI	Tr						16.67
8	*Eleocharis*	*palustris*	ELEPAL	4	4			4	4	66.67
9	*Equisetum*	*fluviatile*	EQUFLU	3	5	4	3	3	5	100.00
10	*Eriocaulon*	*aquaticum*	ERIAQU	1	3			Tr		50.00
11	*Glyceria*	*borealis*	GLYBOR	Tr				Tr	1	50.00
12	*Isoetes*	*lacustris*	ISOLAC	1		4		2		50.00
13	*Isoetes*	spp.	ISOSPP		Tr		4		2	50.00
14	*Juncus*	*pelocarpus*	JUNPEL	1	1			Tr	1	66.67
15	*Lemna*	*trisulca*	LEMTRI	Tr		Tr		Tr		50.00
16	*Myriophyllum*	*sibiricum*	MYRSIB	1	2	Tr	Tr	Tr	1	100.00
17	*Najas*	*flexilis*	NAJFLE	Tr	2	2	4		1	83.33
18	*Nitella*	spp.	NITSPP			Tr	Tr			33.33
19	*Nuphar*	*variegata*	NUPVAR	Tr	1	Tr	Tr	Tr	2	100.00
20	*Phragmites*	*australis*	PHRAUS		Tr					16.67
21	*Potamogeton*	*amplifolius*	POTAMP	Tr	Tr		Tr	Tr	Tr	83.33
22	*Potamogeton*	*gramineus*	POTGRA	2		2	3	2	1	83.33
23	*Potamogeton*	*pusillus*	POTPUS	Tr		Tr	Tr		Tr	66.67
24	*Potamogeton*	*richardsonii*	POTRIC	2	1	Tr		Tr	2	83.33
25	*Potamogeton*	*spirillus*	POTSPI	Tr	Tr	Tr	1	Tr	Tr	100.00
26	*Potamogeton*	*zosteriformis*	POTZOS	2	4	Tr	Tr	1	2	100.00
27	*Ranunculus*	*longirostris*	RANLON	Tr		Tr			Tr	50.00
28	*Sagittaria*	*latifolia*	SAGLAT	Tr	2				Tr	50.00
29	*Scirpus*	*acutus*	SCIACU	1	1					33.33
30	*Scirpus*	*subterminalis*	SCISUB		Tr			3	Tr	50.00
31	*Sium*	*suave*	SIUSUA			Tr	Tr		Tr	50.00
32	*Sparganium*	*eurycarpum*	SPAEUR					Tr	Tr	33.33
33	*Sparganium*	*fluctuans*	SPAFLU	Tr	4	1	2	4	3	100.00
34	*Utricularia*	*vulgaris*	UTRVUL		Tr			1	Tr	50.00
			RICHNESS	25	22	16	14	24	25	

A Site: Chickenbone Lake, 6 aquatic segments
Date: 8/6/04
Sampled by: A.Harris and M.Jones

Entire Lake	Segments 2, 5, & 6 were chosen to sample richest sites. Submergents common and widespread in lake, esp. POTRIC, POTZOS, and POTAMP. Large bed of CHASPP at east end of lake. Lake has +/- continuous fringe of EQUFLU, SCIACU, and ELEPAL; large stands of SCIACU. Freshwater clams present in lake. Cow and calf feeding in deep water (diving).
Segment 1	Originally seg 25. Substrate is muck.
Segment 2	Originally seg 43. Substrate is muck. Moose have been feeding heavily in this segment. PHRAUS within segment.
Segment 3	Originally seg 15. Substrate is boulders with a drop off to deep water about 5m from shore.
Segment 4	Originally seg 13. Substrate is boulders.
Segment 5	Originally seg 9. Substrate is muck.
Segment 6	Originally seg 1. Substrate is muck.

Additional species: Chickenbone Lake

36	*Cicuta*	*bulbifera*	CICBUL
37	*Hippurus*	*vulgaris*	HIPVUL
38	*Potamogeton*	*epihydrus*	POTEPI
39	*Potamogeton*	*foliosus*	POTFOL
40	*Utricularia*	*intermedia*	UTRINT
41	*Phalaris*	*arundinacea*	PHAARU

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Chippewa Harbor, 4 aquatic segments
Date: 8/7/2003
Sampled by: J.Meeker and J.Elias (segments 1, 3); and A.Harris and J.Marr (segments 2, 4)

	GENUS	SPECIES	PCORD	CHHA S1	CHHA S2	CHHA S3	CHHA S4	% Frequency
1	*Calla*	*palustris*	CALLAP	1			Tr	50.0
2	*Callitriche*	*palustris*	CALPAL		Tr		Tr	50.0
3	*Callitriche*	spp.	CALSPP	Tr		Tr		50.0
4	*Carex*	*aquatilis*	CARAQU	Tr				25.0
5	*Carex*	*lacustris*	CARLAC				Tr	25.0
6	*Carex*	*lasiocarpa*	CARLAS	Tr				25.0
7	*Carex*	spp.	CARSPP		Tr		Tr	50.0
8	*Carex*	*utriculata*	CARUTR	1	Tr	1	Tr	100.0
9	*Dulichium*	*arundinaceum*	DULARU	Tr				25.0
10	*Eleocharis*	*acicularis*	ELEACI	Tr	Tr	Tr		75.0
11	*Eleocharis*	*palustris*	ELEPAL	Tr	Tr		Tr	75.0
12	*Elodea*	*canadensis*	ELOCAN	Tr	Tr	Tr		75.0
13	*Equisetum*	*fluviatile*	EQUFLU	Tr		1	Tr	75.0
14	*Equisetum*	*palustre*	EQUPAL		Tr		Tr	50.0
15	*Hippurus*	*vulgaris*	HIPVUL	1		1	1	75.0
16	*Hypericum*	spp.	HYPSPP				Tr	25.0
17	*Isoetes*	spp.	ISOSPP		Tr		Tr	50.0
18	*moss*	spp. (aquatic)	MOSSAQ	Tr				25.0
19	*Myriophyllum*	*heterophyllum*	MYRHET			Tr		25.0
20	*Myriophyllum*	spp.	MYRSPP	Tr				25.0
21	*Myriophyllum*	*verticillatum*	MYRVER		Tr			25.0
22	*Nitella*	spp.	NITSPP				Tr	25.0
23	*Nuphar*	*variegata*	NUPVAR	Tr		1	Tr	75.0
24	*Potamogeton*	*alpinus*	POTALP		Tr			25.0
25	*Potamogeton*	*gramineus*	POTGRA		Tr	2	2	75.0
26	*Potamogeton*	*natans*	POTNAT		Tr			25.0
27	*Potamogeton*	*praelongus*	POTPRA		Tr	1		50.0
28	*Potamogeton*	*richardsonii*	POTRIC		Tr	2	1	75.0
29	*Ranunculus*	*longirostris*	RANLON	Tr	Tr		Tr	75.0
30	*Sagittaria*	*latifolia*	SAGLAT	Tr		Tr	Tr	75.0
31	*Sagittaria*	*rigida*	SAGRIG			Tr		25.0
32	*Sagittaria*	spp.	SAGSPP		Tr			25.0
33	*Scirpus*	*validus*	SCIVAL			Tr		25.0
34	*Sium*	*suave*	SIUSUA			Tr		25.0
35	*Sparganium*	*americanum*	SPAAME	Tr				25.0
36	*Sparganium*	*angustifolium*	SPAANG	1	Tr			50.0
37	*Sparganium*	*chlorocarpum*	SPACHL			2		25.0
38	*Sparganium*	*fluctuans*	SPAFLU			1	Tr	50.0
39	*Sparganium*	spp.	SPASPP				Tr	25.0
40	*Sparganium*	*minimum*	SPAMIN	1		2		50.0
41	*Typha*	*latifolia*	TYPLAT	Tr	Tr			50.0
42	*Utricularia*	*intermedia*	UTRINT	1		1	Tr	75.0
43	*Utricularia*	*vulgaris*	UTRVUL	1	Tr	1	Tr	100.0
			RICHNESS	22	19	20	21	

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Chippewa Harbor, 4 aquatic segments
Date: 8/7/2003
Sampled by: J.Meeker and J.Elias (segments 1, 3); and A.Harris and J.Marr (segments 2, 4)

Segment 1	Sampled by Meeker and Elias; large bay, south side, aquatic transect in small creek
Segment 2	Originally segment 3. Sampled by Harris and Marr; large bay, north side, aquatic transect; big beds of ELOCAN in 2 – 4m of water; POTPRA praelongus and POTRIC to 4m depth; substrate 80% sand and 20% cobble
Segment 3	Originally segment 4. Sampled by Meeker and Elias; aquatic segment in creek to Lake Richie portage
Segment 4	Originally segment 6. Sampled by Harris and Marr; aquatic segment at mouth of creek

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Lake Desor, 6 aquatic segments
Date: 8/3-4/2005
Sampled by: J.Meeker and J.Marr (Segments 1-2, 5-6); A.Harris and M.Jones (Segments 3-4)

	GENUS	SPECIES	PCORD	DELK S1	DELK S2	DELK S3	DELK S4	DELK S5	DELK S6	% Frequency
1	*Alisma*	*triviale*	ALITRI	Tr		Tr				33.33
2	*Carex*	*rostrata*	CARROS			Tr				16.67
3	*Chara*	spp.	CHASPP	Tr	Tr		Tr	Tr	Tr	83.33
4	*Eleocharis*	*acicularis*	ELEACI		Tr	Tr	Tr		Tr	66.67
5	*Eleocharis*	*palustris*	ELEPAL						Tr	16.67
6	*Elodea*	*canadensis*	ELOCAN				Tr		Tr	33.33
7	*Equisetum*	*fluviatile*	EQUFLU		Tr	Tr	Tr		1	66.67
8	*Iris*	*versicolor*	IRIVER			Tr				16.67
9	*Isoetes*	spp.	ISOSPP	Tr		Tr	Tr	Tr	Tr	83.33
10	*Juncus*	*pelocarpus*	JUNPEL			Tr	1	Tr	Tr	66.67
11	*Lysimachia*	*thyrsiflora*	LYSTHY		Tr					16.67
12	*Najas*	*flexilis*	NAJFLE	Tr	Tr	1	1	Tr	Tr	100.00
13	*Nuphar*	*variegata*	NUPVAR				Tr			16.67
14	*Nymphaea*	*odorata*	NYMODO		Tr	Tr	Tr		Tr	66.67
15	*Potamogeton*	*alpinus*	POTALP	1	2	1	2		Tr	83.33
16	*Potamogeton*	*amplifolius*	POTAMP		Tr	1	1		Tr	66.67
17	*Potamogeton*	*filiformis*	POTFIL	Tr	Tr	1	1	Tr	Tr	100.00
18	*Potamogeton*	*gramineus*	POTGRA	1	1	2	1	1	1	100.00
19	*Potamogeton*	*natans*	POTNAT				Tr			16.67
20	*Potamogeton*	*pusillus*	POTPUS			Tr	Tr			33.33
21	*Potamogeton*	*richardsonii*	POTRIC		Tr	Tr	Tr			50.00
22	*Potamogeton*	*zosteriformis*	POTZOS			Tr	Tr			33.33
23	*Ranunculus*	*longirostris*	RANLON						Tr	16.67
24	*Ranunculus*	*flammula*	RANFLA		Tr				Tr	33.33
25	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr	Tr	Tr		Tr	83.33
26	*Sagittaria*	*cuneata/graminea rosette*	SAGROS						Tr	16.67
27	*Scirpus*	*subterminalis*	SCISUB		Tr					16.67
28	*Sparganium*	*angustifolium*	SPAANG		1	Tr	2			50.00
			RICHNESS	8	15	18	19	6	17	

Segment 1 firm bottom, few macrophytes
Segment 2 firm sandy bottom, some rock and overhanging dead cedars
Segment 3 shallow bay (< 1m) substrate with 5cm organics over sand
Segment 4
Segment 5 < firm bottom, bouldery on edges, one side of bay with more macrophyte cover
Segment 6 < 1% macrophyte cover, sandy bouldery

Additional species: Lake Desor

29	*Typha*	*latifolia*	TYPLAT
30	*Phragmites*	*australis*	PHRAUS

A Site: Duncan Bay, 8 aquatic segments
Date: 8/8/04
Sampled by: J.Elias and J.Meeker (segments 3-5) and V.Hofman and J.Marr (segments 1-2, 6-8)

	GENUS	SPECIES	PCORD	DUBY S1	DUBY S2	DUBY S3	DUBY S4	DUBY S5	DUBY S6	DUBY S7	DUBY S8	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr								12.50
2	*Calla*	*palustris*	CALLAP	Tr							Tr	25.00
3	*Callitriche*	*palustris*	CLTPAL	Tr					Tr	Tr		37.50
4	*Carex*	*aquatilis*	CARAQU	Tr		Tr	2	3	2	Tr		75.00
5	*Carex*	*lasiocarpa*	CARLAS	2		1	Tr				1	50.00
6	*Carex*	*rostrata*	CARROS	2				Tr	Tr		1	50.00
7	*Carex*	*utriculata*	CARUTR	Tr			1					25.00
8	*Chara*	*spp.*	CHASPP	Tr				Tr				25.00
9	*Dulichium*	*arundinaceum*	DULARU	Tr			Tr			Tr		37.50
10	*Eleocharis*	*acicularis*	ELEACI	Tr		1	Tr	Tr		Tr	Tr	75.00
11	*Eleocharis*	*palustris*	ELEPAL	Tr	Tr	3	3	Tr	2	Tr		87.50
12	*Eleocharis*	spp.	ELESPP		Tr							12.50
13	*Elodea*	*canadensis*	ELOCAN	Tr								12.50
14	*Equisetum*	*fluviatile*	EQUFLU	Tr		Tr	Tr	Tr	Tr		Tr	75.00
15	*Glyceria*	*borealis*	GLYBOR	Tr	Tr				Tr	Tr		50.00
16	*Hippurus*	*vulgaris*	HIPVUL	Tr					Tr		Tr	37.50
17	*Isoetes*	spp.	ISOSPP	Tr	Tr	Tr	Tr	1	Tr	Tr	Tr	100.00
18	*Juncus*	*brevicaudatus*	JUNBRE	Tr		1	1	Tr	Tr	Tr		75.00
19	*Juncus*	*effusus*	JUNEFF	Tr					Tr	Tr	Tr	50.00
20	*Juncus*	*nodosus*	JUNNOD				Tr	1	Tr	Tr		50.00
21	*Myriophyllum*	spp.	MYRSPP			Tr		Tr	Tr	Tr	Tr	62.50
22	*Myriophyllum*	*verticillatum*	MYRVER	Tr		Tr	Tr	1	Tr	Tr		75.00
23	*Nuphar*	*variegata*	NUPVAR	Tr		Tr			Tr		2	50.00
24	*Nymphaea*	*tetragona*	NYMTET	Tr								12.50
25	*Phragmites*	*australis*	PHRAUS			2						12.50
26	*Polygonum*	*amphibium*	POLAMP	Tr								12.50
27	*Potamogeton*	*amplifolius*	POTAMP	Tr							Tr	25.00
28	*Potamogeton*	*epihydrus*	POTEPI	Tr								12.50
29	*Potamogeton*	*gramineus*	POTGRA	1			Tr		1	1	Tr	62.50
30	*Potamogeton*	*natans*	POTNAT	Tr								12.50
31	*Potamogeton*	*pusillus*	POTPUS	1								12.50
32	*Potamogeton*	*richardsonii*	POTRIC	Tr		Tr	Tr	1	Tr	Tr	Tr	87.50
33	*Ranunculus*	*flammula*	RANFLA	Tr			Tr	Tr			Tr	50.00
34	*Ranunculus*	*longirostris*	RANLON	Tr			Tr	1				37.50
35	*Sagittaria*	*latifolia*	SAGLAT	Tr		1			Tr		Tr	50.00
36	*Sagittaria*	spp.	SAGSPP	Tr								12.50
37	*Scirpus*	*acutus*	SCIACU	Tr	Tr	Tr						37.50
38	*Scirpus*	*subterminalis*	SCISUB	2								12.50
39	*Sium*	*suave*	SIUSUA	Tr	Tr				Tr	Tr	Tr	62.50

A Site: Duncan Bay, 8 aquatic segments
Date: 8/8/04
Sampled by: J.Elias and J.Meeker (segments 3-5) and V.Hofman and J.Marr (segments 1-2, 6-8)

40	*Sparganium*	*angustifolium*	SPAANG	Tr		Tr	Tr	Tr	1			62.50
41	*Sparganium*	*chlorocarpum*	SPACHL	Tr					Tr			25.00
42	*Sparganium*	spp.	SPASPP				Tr				Tr	25.00
43	*Sparganium*	spp. (floating leaves)	SPASPF								1	12.50
44	*Sparganium*	*minimum*	SPAMIN	2								12.50
45	*Subularia*	*aquatica*	SUBAQU							Tr		12.50
46	*Typha*	spp.	TYPSPP	Tr				Tr	Tr		Tr	50.00
47	*Utricularia*	*intermedia*	UTRINT	Tr			Tr		Tr			37.50
48	*Utricularia*	*vulgaris*	UTRVUL	Tr					Tr		Tr	37.50
			RICHNESS	41	6	15	18	16	23	16	20	

Segment 1 Segment is in inlet to bay; narrow and sheltered. Lots of aquatic and shoreline species.

Segment 2 no notes

Segment 3 Wind swept shoreline. Part of bay w/ wetland shelf (large reed bed) and steep sandy bank; part w/ overhanging MYRGAL on organic undercut ledge. Substrate firm sand and some detritus.

Segment 4 Windswept area with firm substrate and reed beds; near narrows on west side. Sparse aquatics present.

Segment 5 Near narrows, E side. Wind swept bay with a deep trough down middle. Firm bottom. Most aquatics at ~ 1-1.5m H2O.

Segment 6 End of a bay and inlet. Sediment rocky and sandy in bay turning to silt on sand, firm to mucky in inlet. Some aquatic vegetation especially in inlet. ELEPAL beds in bay. Inlet lined with CARROS and CARAQU. TYPSPP present.

Segment 7 End of bay with a little beach. Sediment is sand with a little detritus; shallow shores, gradually sloping. Very little aquatic vegetation; fringe of shoreline veg. PHAARU present.

Segment 8 End of bay near inlet. Sediment is silty sand firm to soft. Old logs present. CARROS patches on sides of bay near inlet. A fair amount of NUPVAR. TYPSPP present. Beaver swimming around.

Additional species: Duncan Bay

49	*Typha*	*latifolia*	TYPLAT

A Site: Lake Dustin, 1 aquatic segment
Date: 8/7/2003
Sampled by: A.Harris and J.Marr

	GENUS	SPECIES	PCORD	DULKS1	% Frequency
1	*Cardamine*	*pensylvanica*	CARPEN	Tr	100.0
2	*Eleocharis*	*acicularis*	ELEACI	Tr	100.0
3	*Equisetum*	*fluviatile*	EQUFLU	Tr	100.0
4	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	100.0
5	*Hippurus*	*vulgaris*	HIPVUL	Tr	100.0
6	*Isoetes*	*echinospora*	ISOECH	Tr	100.0
7	*Myriophyllum*	*verticillatum*	MYRVER	1	100.0
8	*Najas*	*flexilis*	NAJFLE	4	100.0
9	*Nuphar*	*variegata*	NUPVAR	Tr	100.0
10	*Potamogeton*	*alpinus*	POTALP	Tr	100.0
11	*Potamogeton*	*amplifolius*	POTAMP	1	100.0
12	*Potamogeton*	*epihydrus*	POTEPI	Tr	100.0
13	*Potamogeton*	*foliosus*	POTFOL	Tr	100.0
14	*Potamogeton*	*gramineus*	POTGRA	3	100.0
15	*Potamogeton*	*praelongus*	POTPRA	Tr	100.0
16	*Potamogeton*	*spirillus*	POTSPI	Tr	100.0
17	*Ranunculus*	*flammula*	RANFLA	Tr	100.0
18	*Sparganium*	*angustifolium*	SPAANG	Tr	100.0
19	*Sparganium*	*emersum*	SPAEME	Tr	100.0
20	*Sparganium*	*fluctuans*	SPAFLU	Tr	100.0
			RICHNESS	20	

Segment 1 Open fringe with shallow dry muck among bounders (2 photos)

Additional species: Lake Dustin

21	*Typha*	*latifolia*	TYPLAT

A Site: Lake Eva, 6 aquatic segments
Date: 8/4/04
Sampled by: J.Elias and J.Meeker (segments 1, 2-4) and V.Hofman and J.Marr (segments 1-2, 5-6)

	GENUS	SPECIES	PCORD	EVLK S1	EVLK S2	EVLK S3	EVLK S4	EVLK S5	EVLK S6	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	1	Tr		Tr	Tr	83.33
2	*Carex*	*lasiocarpa*	CARLAS	Tr			1	Tr		50.00
3	*Carex*	*rostrata*	CARROS		1					16.67
4	*Chara*	*spp.*	CHASPP	2	3	1	1	1	1	100.00
5	*Dulichium*	*arundinaceum*	DULARU		Tr		Tr	Tr	Tr	66.67
6	*Eleocharis*	*acicularis*	ELEACI	Tr		2	Tr	1	Tr	83.33
7	*Eleocharis*	*palustris*	ELEPAL	Tr	1		3	2	Tr	83.33
8	*Equisetum*	*fluviatile*	EQUFLU	1	1	1	2	1	Tr	100.00
9	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	1		Tr	Tr	Tr	83.33
10	*Glyceria*	*borealis*	GLYBOR		Tr	Tr	Tr	Tr	Tr	83.33
11	*Hippurus*	*vulgaris*	HIPVUL			Tr			Tr	33.33
12	*Isoetes*	spp.	ISOSPP	1	1	1	1	Tr	1	100.00
13	*Juncus*	*brevicaudatus*	JUNBRE	Tr	Tr		Tr	Tr	Tr	83.33
14	*Juncus*	*nodosus*	JUNNOD	Tr	Tr		Tr			50.00
15	*Juncus*	*pelocarpus*	JUNPEL	Tr						16.67
16	*Lobelia*	*dortmanna*	LOBDOR	Tr	1				Tr	50.00
17	*Nitella*	spp.	NITSPP	1	1				Tr	50.00
18	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	Tr	Tr	Tr	Tr	100.00
19	*Potamogeton*	*amplifolius*	POTAMP	1	2	Tr	Tr	2		83.33
20	*Potamogeton*	*epihydrus*	POTEPI		Tr				Tr	33.33
21	*Potamogeton*	*gramineus*	POTGRA	1	1	1	1	1	1	100.00
22	*Potamogeton*	*pusillus*	POTPUS	1	Tr	1		Tr	Tr	83.33
23	*Potamogeton*	*spirillus*	POTSPI		Tr	Tr				33.33
24	*Potamogeton*	*zosteriformis*	POTZOS	Tr		Tr	Tr	Tr	Tr	83.33
25	*Ranunculus*	*flammula*	RANFLA	Tr	Tr		Tr	Tr	Tr	83.33
26	*Ranunculus*	*longirostris*	RANLON	Tr		Tr		Tr	Tr	66.67
27	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr	Tr	Tr	Tr	Tr	100.00
28	*Scirpus*	*acutus*	SCIACU		Tr					16.67
29	*Sium*	*suave*	SIUSUA	Tr	Tr	1	Tr	Tr	Tr	100.00
30	*Sparganium*	*fluctuans*	SPAFLU	1	1	1	2	1	1	100.00
31	*Sparganium*	spp.	SPASPP					Tr	Tr	33.33
32	*Typha*	spp.	TYPSPP						Tr	16.67
33	*Utricularia*	*vulgaris*	UTRVUL	Tr	1	Tr	Tr	Tr	Tr	100.00
			RICHNESS	24	25	18	20	23	26	

A Site: Lake Eva, 6 aquatic segments
Date: 8/4/04
Sampled by: J.Elias and J.Meeker (segments 1, 2-4) and V.Hofman and J.Marr (segments 1-2, 5-6)

Entire Lake	Narrow wetland fringe along lake with small wetlands in bays. Several Isoetid shelves. A stream connects to "Eva Pond". (Additional stream species included in Lake Eva data).
Segment 1	East bay of lake (rich). Narrow band of shoreline vegetation, no single dominant species. Sponges present (*Spongilla lacustris*).
Segment 2	Larger east bay of lake. Narrow fringe of shoreline species. Sponge present (*S. lacustris*).
Segment 3	Along south side of lake. Very narrow band of shoreline vegetation along steep rocky bank. Sponge present.
Segment 4	Western end of lake. Wave pounded shore, band of shoreline, then thick band of ELEPAL and EQUFLU, and then band of SPAFLU. Fragments of aquatics washed in.
Segment 5	Western end of lake. Shallow cove with rocky and silty muck bottom.
Segment 6	3 plants of TYPSPP, probably TYPLAT

Additional species: Lake Eva

34	*Callitriche*	spp.	CALSPP
35	*Myriophyllum*	*verticillatum*	MYRVER
36	*Najas*	*flexilis*	NAJFLE
37	*Sagittaria*	*cuneata/ graminea rosette*	SAGROS
38	*Scirpus*	*subterminalis*	SCISUB
39	*Sparganium*	*chlorocarpum*	SPACHL
40	*Typha*	*latifolia*	TYPLAT
41	*Utricularia*	*intermedia*	UTRINT

A Site: Eva Pond, 1 segment (entire lake)
Date: 8/4/04
Sampled by: J.Elias, V.Hofman, J.Marr and J.Meeker

	GENUS	SPECIES	PCORD	EVPD S1	% Frequency
1	*Carex*	*aquatilis*	CARAQU	Tr	100.00
2	*Carex*	*lasiocarpa*	CARLAS	5	100.00
3	*Carex*	*utriculata*	CARUTR	Tr	100.00
4	*Chara*	spp.	CHASPP	Tr	100.00
5	*Dulichium*	*arundinaceum*	DULARU	Tr	100.00
6	*Eleocharis*	*palustris*	ELEPAL	Tr	100.00
7	*Equisetum*	*fluviatile*	EQUFLU	Tr	100.00
8	*Glyceria*	*borealis*	GLYBOR	Tr	100.00
9	*Hippurus*	*vulgaris*	HIPVUL	Tr	100.00
10	*Juncus*	*effusus*	JUNEFF	Tr	100.00
11	*Myriophyllum*	*verticillatum*	MYRVER	1	100.00
12	*Nuphar*	*variegata*	NUPVAR	Tr	100.00
13	*Nymphaea*	*odorata*	NYMODO	Tr	100.00
14	*Potamogeton*	*gramineus*	POTGRA	Tr	100.00
15	*Potamogeton*	*natans*	POTNAT	2	100.00
16	*Potamogeton*	*obtusifolius*	POTOBT	Tr	100.00
17	*Potamogeton*	*pusillus*	POTPUS	Tr	100.00
18	*Potamogeton*	*zosteriformis*	POTZOS	2	100.00
19	*Sagittaria*	*latifolia*	SAGLAT	Tr	100.00
20	*Sagittaria*	spp.	SAGSPP	Tr	100.00
21	*Scirpus*	*acutus*	SCIACU	Tr	100.00
22	*Scirpus*	*subterminalis*	SCISUB	2	100.00
23	*Sparganium*	spp.	SPASPP	Tr	100.00
24	*Sparganium*	*minimum*	SPAMIN	Tr	100.00
25	*Typha*	*latifolia*	TYPLAT	1	100.00
26	*Utricularia*	*intermedia*	UTRINT	Tr	100.00
27	*Utricularia*	*vulgaris*	UTRVUL	Tr	100.00
			RICHNESS	27	

Segment 1 Entire lake and shoreline were sampled. Sponges present (*Spongilla lacustris* and others). False bottom in places; fringed with CARLAS floating peat mats with SPHSPP (which is grounded inland). POTNAT = 25% of lake cover. Lake drains to Lake Eva.

A Site: Feldtmann Lake, 3 aquatic segments
Date: 6/29/04
Sampled by: V.Hofman and C.Tyrell (segment 1) and V.Hofman and E.Judzeiwitz (segments 2-3)

	GENUS	SPECIES	PCORD	FDLK S1	FDLK S2	FDLK S3	% Frequency
1	*Dulichium*	*arundinaceum*	DULARU		Tr		33.33
2	*Eleocharis*	*acicularis*	ELEACI		Tr		33.33
3	*Eleocharis*	*palustris*	ELEPAL	1	1	2	100.00
4	*Equisetum*	*fluviatile*	EQUFLU		1		33.33
5	*Glyceria*	*borealis*	GLYBOR	Tr	Tr		66.67
6	*Juncus*	spp.	JUNSPP		Tr	2	66.67
7	*Nuphar*	*variegata*	NUPVAR		Tr		33.33
8	*Potamogeton*	*epihydrus*	POTEPI		Tr		33.33
9	*Potamogeton*	*gramineus*	POTGRA			Tr	33.33
10	*Potamogeton*	*richardsonii*	POTRIC		Tr		33.33
11	*Scirpus*	*validus*	SCIVAL			2	33.33
12	*Sparganium*	spp.	SPASPP		Tr		33.33
13	*Sparganium*	spp. (floating leaves)	SPASPF		1		33.33
14	*Sparganium*	spp. (rosette)	SPASPR		Tr		33.33
15	*Utricularia*	*vulgaris*	UTRVUL		Tr		33.33
			RICHNESS	2	13	4	

Entire Lake Originally, the entire lake was sampled where each large reed bed was given its own segment, and the vegetation there was given a percent coverage. The three current segments were created from that data. Firm sandy substrate throughout. Little submergent vegetation, save for a few beds of POTAMP. There is +/- a fringe of ELEPAL around the entire lake. Heavy moose usage (7 in the water during sampling). Water is dark and difficult to see deeper than 1m. Water level appears 1-2" high, although shrub line is 1' above water level. (Emmet says that the beaver dam was repaired in the last several years and the water level is up, but may not be at the original high water mark.)

Segment 1 Northwestern end of lake. Substrate was firm gravel and coarse sand.

Segment 2 Along southern shore and includes a shallow little bay, which supports more vegetation. Substrate in bay is mucky, out of bay is gravel/ coarse sand. Several patches of floating and emergent vegetation.

Segment 3 Southwest end of lake.

Additional species: Feldtmann Lake

16	*Myriophyllum*	*alterniflorum*	MYRALT
17	*Myriophyllum*	*tenellum*	MYRTEN
18	*Potamogeton*	*amplifolius*	POTAMP
19	*Ranunculus*	*longirostris*	RANLON

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Five Finger Bay, 2 aquatic segments
Date: 8/8/04
Sampled by: J.Elias and J.Meeker (segment 1) and V.Hofman and J.Marr (segment 2)

	GENUS	SPECIES	PCORD	FFBY S1	FFBY S2	% Frequency
1	*Callitriche*	*hermaphroditica*	CALHER	Tr		50.00
2	*Callitriche*	*palustris*	CLTPAL	Tr		50.00
3	*Carex*	*aquatilis*	CARAQU	Tr		50.00
4	*Carex*	*lasiocarpa*	CARLAS	Tr		50.00
5	*Carex*	*utriculata*	CARUTR	1		50.00
6	*Eleocharis*	*acicularis*	ELEACI	1	Tr	100.00
7	*Eleocharis*	*palustris*	ELEPAL	Tr		50.00
8	*Equisetum*	*fluviatile*	EQUFLU	Tr		50.00
9	*Equisetum*	spp.	EQUSPP		Tr	50.00
10	*Hippurus*	*vulgaris*	HIPVUL	1		50.00
11	*Isoetes*	spp.	ISOSPP	2	Tr	100.00
12	*Myriophyllum*	*sibiricum*	MYRSIB	Tr		50.00
13	*Myriophyllum*	spp.	MYRSPP	Tr	Tr	100.00
14	*Myriophyllum*	*verticillatum*	MYRVER	Tr	Tr	100.00
15	*Nuphar*	*variegata*	NUPVAR	Tr		50.00
16	*Potamogeton*	*filiformis*	POTFIL	Tr	Tr	100.00
17	*Potamogeton*	*gramineus*	POTGRA	2	Tr	100.00
18	*Potamogeton*	*richardsonii*	POTRIC	1	Tr	100.00
19	*Ranunculus*	*flammula*	RANFLA	Tr	Tr	100.00
20	*Ranunculus*	*longirostris*	RANLON	Tr		50.00
21	*Sagittaria*	*cuneata/ graminea* rosette	SAGROS	Tr		50.00
22	*Sagittaria*	*latifolia*	SAGLAT	Tr		50.00
23	*Sium*	*suave*	SIUSUA	Tr		50.00
24	*Sparganium*	*angustifolium*	SPAANG	1		50.00
25	*Sparganium*	spp.	SPASPP	Tr		50.00
26	*Subularia*	*aquatica*	SUBAQU	Tr	Tr	100.00
27	*Utricularia*	*intermedia*	UTRINT	Tr		50.00
			RICHNESS	26	10	

Segment 1 Very narrow protected bay. Substrate firm. Steep bank with narrow fringe of wetland veg. except in end of bay where it is wider. Seiche activity observed.
Segment 2 Segment along southeast side of a cove. Substrate = firm sand.

Additional species: Five Finger Bay

28	*Typha*	spp.	TYPSPP
29	*Phalaris*	*arundinacea*	PHAARU

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Forbes Lake, 2 aquatic segments
Date: 8/12/04
Sampled by: V.Hofman, M.Jones and J.Marr

	GENUS	SPECIES	PCORD	FOLK S1	FOLK S2	% Frequency
1	*Carex*	*aquatilis*	CARAQU		Tr	50.00
2	*Carex*	*lasiocarpa*	CARLAS		1	50.00
3	*Chara*	spp.	CHASPP	Tr	Tr	100.00
4	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr	100.00
5	*Eleocharis*	*acicularis*	ELEACI	Tr	Tr	100.00
6	*Equisetum*	*fluviatile*	EQUFLU	Tr	Tr	100.00
7	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	Tr	100.00
8	*Isoetes*	spp.	ISOSPP	Tr	Tr	100.00
9	*Myriophyllum*	spp.	MYRSPP	Tr		50.00
10	*Najas*	*flexilis*	NAJFLE	Tr	1	100.00
11	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	100.00
12	*Potamogeton*	*amplifolius*	POTAMP	Tr	1	100.00
13	*Potamogeton*	*epihydrus*	POTEPI	Tr	Tr	100.00
14	*Potamogeton*	*gramineus*	POTGRA	Tr	Tr	100.00
15	*Potamogeton*	*natans*	POTNAT		Tr	50.00
16	*Potamogeton*	*pusillus*	POTPUS	Tr	Tr	100.00
17	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr	100.00
18	*Sium*	*suave*	SIUSUA		Tr	50.00
19	*Sparganium*	*angustifolium*	SPAANG	Tr	Tr	100.00
20	*Sparganium*	spp.	SPASPP		Tr	50.00
21	*Utricularia*	*intermedia*	UTRINT		Tr	50.00
22	*Utricularia*	*vulgaris*	UTRVUL	Tr		50.00
			RICHNESS	16	20	

Entire Lake Water is tannic colored. Periphyton and finger sponges present. *Calamagrostis* sp. (m3211).
Segment 1 Northeastern end of lake. Shore is a cedar swamp.
Segment 2 Southwestern end of lake, including several small bays. Part of shoreline was a rocky ledge; cedar swamp along other part. THUOCC trees along edge.

Additional species: Forbes Lake

23	*Potamogeton*	*praelongus*	POTPRA
24	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Lake Harvey, 5 aquatic segments
Date: 8/4/04
Sampled by: A.Harris and M.Jones

	GENUS	SPECIES	PCORD	HVLK S1	HVLK S2	HVLK S3	HVLK S4	HVLK S5	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	Tr	Tr	1		80.00
2	*Chara*	spp.	CHASPP		1	Tr	1	Tr	80.00
3	*Eleocharis*	*acicularis*	ELEACI		Tr			1	40.00
4	*Eleocharis*	*palustris*	ELEPAL			Tr			20.00
5	*Equisetum*	*fluviatile*	EQUFLU		Tr	1	Tr		60.00
6	*Eriocaulon*	*aquaticum*	ERIAQU	1	Tr			Tr	60.00
7	*Glyceria*	*borealis*	GLYBOR					Tr	20.00
8	*Isoetes*	*lacustris*	ISOLAC	1	Tr	2	Tr	4	100.00
9	*Juncus*	*pelocarpus*	JUNPEL		2	Tr	Tr	2	80.00
10	*Lobelia*	*dortmanna*	LOBDOR	1				Tr	40.00
11	*Najas*	*flexilis*	NAJFLE	3	3	3	4	4	100.00
12	*Nuphar*	*variegata*	NUPVAR			Tr			20.00
13	*Potamogeton*	*amplifolius*	POTAMP	3	3	Tr	1	3	100.00
14	*Potamogeton*	*filiformis*	POTFIL	1	Tr	3	2	Tr	100.00
15	*Potamogeton*	*gramineus*	POTGRA	Tr	1	2	1	2	100.00
16	*Potamogeton*	*pusillus*	POTPUS	2	2	2		2	80.00
17	*Potamogeton*	*richardsonii*	POTRIC	1	Tr	Tr	Tr	Tr	100.00
18	*Potamogeton*	*robbinsii*	POTROB	2	Tr	1	Tr	2	100.00
19	*Potamogeton*	*spirillus*	POTSPI	Tr	Tr	Tr	Tr	Tr	100.00
20	*Ranunculus*	*flammula*	RANFLA					Tr	20.00
21	*Sparganium*	*angustifolium*	SPAANG			Tr	Tr	Tr	60.00
			RICHNESS	12	15	16	13	17	

Entire Lake Fresh water clams present. Big bed of POTROB near west end of lake. POTAMP common in deep waters.
Segment 1 Originally seg 3; substrate = 1/2 muck, 1/2 boulders
Segment 2 Originally seg 2; substrate = 1/2 muck and sand, 1/2 boulders
Segment 3 Originally seg 9; substrate = 1/2 muck, 1/2 boulders
Segment 4 Originally seg 11; substrate = muck
Segment 5 Originally seg 13; substrate = boulders

Additional taxa: Lake Harvey

22	*Calamagrostis*	*canadensis*	CALCAN
23	*Nitella*	spp.	NITSPP
24	*Osmunda*	*regalis*	OSMREG
25	*Potamogeton*	*natans*	POTNAT
26	*Potamogeton*	*obtusifolius*	POTOBT
27	*Scirpus*	*subterminalis*	SCISUB
28	*Typha*	*latifolia*	TYPLAT
29	*Utricularia*	*vulgaris*	UTRVUL

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Hatchet Lake, 4 aquatic segments
Date: 8/4/04
Sampled by: A.Harris and M.Jones

	GENUS	SPECIES	PCORD	HALK S1	HALK S2	HALK S3	HALK S4	% Frequency
1	*Brasenia*	*schreberi*	BRASCH	Tr		Tr	Tr	75.00
2	*Chara*	spp.	CHASPP	1	Tr	Tr	Tr	100.00
3	*Eleocharis*	*acicularis*	ELEACI		Tr		Tr	50.00
4	*Eleocharis*	*palustris*	ELEPAL	1			1	50.00
5	*Equisetum*	*fluviatile*	EQUFLU	3	Tr	2	2	100.00
6	*Glyceria*	*borealis*	GLYBOR	Tr				25.00
7	*Isoetes*	*echinospora*	ISOECH	Tr				25.00
8	*Isoetes*	spp.	ISOSPP		Tr		1	50.00
9	*Najas*	*flexilis*	NAJFLE	Tr	Tr	Tr	2	100.00
10	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	2	1	100.00
11	*Nymphaea*	*odorata*	NYMODO			2	Tr	50.00
12	*Potamogeton*	*amplifolius*	POTAMP	Tr	Tr	3	Tr	100.00
13	*Potamogeton*	*epihydrus*	POTEPI				Tr	25.00
14	*Potamogeton*	*foliosus*	POTFOL	Tr		Tr		50.00
15	*Potamogeton*	*gramineus*	POTGRA	2	2	1	2	100.00
16	*Potamogeton*	*natans*	POTNAT				2	25.00
17	*Potamogeton*	*zosteriformis*	POTZOS	Tr	Tr	2	1	100.00
18	*Sagittaria*	*latifolia*	SAGLAT	Tr			Tr	50.00
19	*Scirpus*	*subterminalis*	SCISUB		Tr	Tr	Tr	75.00
20	*Sparganium*	*minimum*	SPAMIN			Tr		25.00
21	*Utricularia*	*intermedia*	UTRINT		Tr	Tr		50.00
22	*Utricularia*	*minor*	UTRMIN			Tr		25.00
23	*Utricularia*	*vulgaris*	UTRVUL	Tr	1	2	Tr	100.00
			RICHNESS	14	12	15	17	

Segment 1 Originally seg 5; substrate = sand
Segment 2 Originally seg 6; substrate = boulders
Segment 3 Originally seg 14; substrate = organic sediments
Segment 4 Originally seg 10; substrate =organic sediments and sand

Additional species: Hatchet Lake

24	*Carex*	*lasiocarpa*	CARLAS
25	*Carex*	*utriculata*	CARUTR
26	*Dulichium*	*arundinaceum*	DULARU
27	*Lysimachia*	*thyrsiflora*	LYSTHY
28	*Nymphaea*	*tetragona*	NYMTET
29	*Osmunda*	*regalis*	OSMREG
30	*Phragmites*	*australis*	PHRAUS
31	*Polygonum*	*amphibium*	POLAMP
32	*Scirpus*	*acutus*	SCIACU
33	*Scirpus*	*cyperinus*	SCICYP
34	*Sparganium*	*angustifolium*	SPAANG
35	*Symplocarpus*	*foetidus*	SYMFOE
36	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003 and 2004 Data: Aquatic Segments

A Site: Intermediate Lake, 9 aquatic segments
Date: 8/9/2003
Sampled by: J.Meeker and J.Elias (Segments 1-6); A.Harris and J.Marr (Segments 7-9)

	GENUS	SPECIES	PCORD	INLK S1	INLK S2	INLK S3	INLK S4	INLK S5	INLK S6	INLK S7	INLK S8	INLK S9	% Freq.
1	*Carex*	*utriculata*	CARUTR								Tr		11.1
2	*Chara*	spp.	CHASPP	1		3							22.2
3	*Eleocharis*	*acicularis*	ELEACI								Tr		11.1
4	*Eleocharis*	*palustris*	ELEPAL	1	Tr			1	2		2	Tr	66.7
5	*Equisetum*	*fluviatile*	EQUFLU	1	Tr	Tr	Tr	Tr	1	Tr	Tr		88.9
6	*Eriocaulon*	*aquaticum*	ERIAQU		Tr		1				Tr		33.3
7	*Isoetes*	*lacustris*	ISOLAC									1	11.1
8	*Isoetes*	spp.	ISOSPP	Tr	Tr	Tr	2		1	Tr	Tr		77.8
9	*Lobelia*	*dortmanna*	LOBDOR		Tr		2				Tr		33.3
10	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr	Tr	Tr	Tr	Tr	Tr	Tr			77.8
11	*Myriophyllum*	*sibiricum*	MYRSIB		1	1	Tr	1	Tr	Tr	Tr	Tr	88.9
12	*Myriophyllum*	spp.	MYRSPP	1									11.1
13	*Najas*	*flexilis*	NAJFLE	Tr	Tr			Tr		Tr	Tr	4	66.7
14	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	Tr		1		Tr		Tr	66.7
15	*Potamogeton*	*amplifolius*	POTAMP	Tr		Tr		2		Tr	Tr	Tr	66.7
16	*Potamogeton*	*epihydrus*	POTEPI	Tr		2		1		Tr	Tr	1	66.7
17	*Potamogeton*	*foliosus*	POTFOL		Tr								11.1
18	*Potamogeton*	*gramineus*	POTGRA	1	2	2	1	Tr	1	1	1	3	100.0
19	*Potamogeton*	*obtusifolius*	POTOBT		1	2	Tr		Tr	Tr		Tr	66.7
20	*Potamogeton*	*pusillus*	POTPUS		1		Tr	Tr					33.3
21	*Potamogeton*	*richardsonii*	POTRIC	Tr	Tr	1	Tr	Tr		Tr	Tr	Tr	88.9
22	*Potamogeton*	*spirillus*	POTSPI		Tr	Tr				Tr	Tr	Tr	55.6
23	*Potamogeton*	*zosteriformis*	POTZOS									Tr	11.1
24	*Ranunculus*	*longirostris*	RANLON	Tr		Tr					Tr		33.3
25	*Sagittaria*	*latifolia*	SAGLAT		Tr					Tr			22.2
26	*Scirpus*	*acutus*	SCIACU				2						11.1
27	*Sparganium*	*angustifolium*	SPAANG		Tr	Tr	Tr				Tr	Tr	55.6
28	*Sparganium*	*fluctuans*	SPAFLU	3	3	2		2		1			55.6
29	*Typha*	*latifolia*	TYPLAT	2				Tr					22.2
30	*Utricularia*	*vulgaris*	UTRVUL		Tr								11.1
			RICHNESS	15	19	15	12	13	7	14	16	13	

Segment 1 1.6m-1.8m at deep edge; scattered sponges

Segment 2

100m from head of bay; starts with fringe of aquatic; rocky at start; organic sediment in back of bay; scattered sponges (*Ephydatia, Spongilla*); lots of *Osmunda regalis*

Segment 3 lots of *Osmunda regalis* ; sponges (*Spongilla*) present, large *Chara* bed between 1-1.8 meters

Segment 4 straight shore; sponges in back (*Spongilla lacustris, Everettii mulleri*)

Segment 5 really soft flocculent bottom; few sponges

Segment 6 straight section; sponges

Segment 7 previously A. Harris' #3; Straight section of shoreline at E. end; boulder/cobble substrate

Segment 8 previously A. Harris' #2; sand substrate

Segment 9 previously A. Harris' #1; boulder/cobble substrate

A Site: Lane Cove, 5 aquatic segments
Date: 8/6/04
Sampled by: J.Elias and J.Meeker (segments 1-3) and V.Hofman and J.Marr (segments 4-5)

	GENUS	SPECIES	PCORD	LNCO S1	LNCO S2	LNCO S3	LNCO S4	LNCO S5	% Frequency
1	*Callitriche*	*palustris*	CLTPAL				Tr	Tr	40.00
2	*Carex*	*aquatilis*	CARAQU	1	Tr	1	1	2	100.00
3	*Carex*	*rostrata*	CARROS			1			20.00
4	*Carex*	*utriculata*	CARUTR					1	20.00
5	*Chara*	spp.	CHASPP	1					20.00
6	*Eleocharis*	*acicularis*	ELEACI	Tr	Tr	1	Tr		80.00
7	*Eleocharis*	*palustris*	ELEPAL	1		Tr	Tr		60.00
8	*Equisetum*	*fluviatile*	EQUFLU			Tr			20.00
9	*Glyceria*	*borealis*	GLYBOR	Tr	Tr	Tr		Tr	80.00
10	*Hippurus*	*vulgaris*	HIPVUL		Tr	Tr	Tr	1	80.00
11	*Isoetes*	spp.	ISOSPP	Tr	Tr	Tr	Tr	Tr	100.00
12	*Juncus*	*brevicaudatus*	JUNBRE	Tr	Tr	1			60.00
13	*Juncus*	*effusus*	JUNEFF		Tr	Tr	Tr		60.00
14	*Juncus*	*nodosus*	JUNNOD	1	Tr			Tr	60.00
15	*Myriophyllum*	spp.	MYRSPP			Tr			20.00
16	*Myriophyllum*	*verticillatum*	MYRVER	Tr		Tr	Tr	Tr	80.00
17	*Potamogeton*	*filiformis*	POTFIL	Tr		Tr	Tr		60.00
18	*Potamogeton*	*gramineus*	POTGRA	Tr		1			40.00
19	*Potamogeton*	*richardsonii*	POTRIC			Tr	1		40.00
20	*Ranunculus*	*flammula*	RANFLA	Tr		Tr			40.00
21	*Ranunculus*	*longirostris*	RANLON	Tr	Tr	Tr	Tr	Tr	100.00
22	*Sagittaria*	*cuneata/ graminea* rosette	SAGROS			1	2	1	60.00
23	*Sagittaria*	*latifolia*	SAGLAT	Tr			Tr		40.00
24	*Scirpus*	*validus*	SCIVAL	Tr					20.00
25	*Sium*	*suave*	SIUSUA					Tr	20.00
26	*Sparganium*	*angustifolium*	SPAANG	Tr	Tr	Tr			60.00
27	*Sparganium*	spp.	SPASPP				1		20.00
28	*Sparganium*	spp. (floating leaves)	SPASPF					1	20.00
29	*Typha*	*latifolia*	TYPLAT	2					20.00
30	*Typha*	spp.	TYPSPP		Tr	Tr			40.00
			RICHNESS	17	11	20	14	12	

Entire Lake Aquatics, scant and on shelves. *Pinguicula* on rocks, ~6 plants not in segments.
Segment 1 Shallow bay with sand/silt substrate. Wetland margin with emergents. TYPLAT present.
Segment 2 Passage behind a little island. TYPSPP 3 stems.
Segment 3 Narrow passageway with sand/silt substrate and steep bank. Narrow fringe of emergents and wetland species. TYPSPP present.
Segment 4 In bay; substrate along sides is rocky, at end silty sand firm to soft. Emergents and shoreline plants at end of bay.
Segment 5 Shallow cove < 2' deep at end of bay, surrounded by emergent *Poa/Carex* and upland w/ THUOCC, PHYOPU, ABIBAL. Substrate = sandy silt, firm to mucky soft. Some detritus. Most shoreline vegetation in water. Shore is moderate to steep.

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Lake LeSage, 5 aquatic segments
Date: 8/10/2003
Sampled by J.Meeker and J.Elias

	GENUS	SPECIES	PCORD	LSLKS1	LSLKS2	LSLKS3	LSLKS4	LSLKS5	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	Tr		Tr		60.0
2	*Carex*	*lasiocarpa*	CARLAS	Tr	Tr	2	1	1	100.0
3	*Chara*	spp.	CHASPP			Tr		Tr	40.0
4	*Eleocharis*	*acicularis*	ELEACI					Tr	20.0
5	*Eleocharis*	*palustris*	ELEPAL	Tr	Tr	1	Tr	2	100.0
6	*Equisetum*	*fluviatile*	EQUFLU	Tr	Tr	Tr			60.0
7	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	Tr	Tr	1	Tr	100.0
8	*Glyceria*	*borealis*	GLYBOR	1					20.0
9	*Hippurus*	*vulgaris*	HIPVUL	Tr	2	Tr			60.0
10	*Isoetes*	spp.	ISOSPP				Tr	Tr	40.0
11	*Lobelia*	*dortmanna*	LOBDOR			Tr	Tr	Tr	60.0
12	*Najas*	*flexilis*	NAJFLE	3	Tr	Tr	Tr		80.0
13	*Nuphar*	*variegata*	NUPVAR	Tr	1	Tr	Tr		80.0
14	*Phragmites*	*australis*	PHRAUS	1					20.0
15	*Potamogeton*	*amplifolius*	POTAMP	1	Tr		1	Tr	80.0
16	*Potamogeton*	*foliosus*	POTFOL			Tr	3	Tr	60.0
17	*Potamogeton*	*gramineus*	POTGRA	1	1	1		2	80.0
18	*Potamogeton*	*obtusifolius*	POTOBT	Tr	Tr				40.0
19	*Potamogeton*	*pusillus*	POTPUS	Tr					20.0
20	*Potamogeton*	*richardsonii*	POTRIC	1	1	1	2	1	100.0
21	*Potamogeton*	*spirillus*	POTSPI			Tr	1	Tr	60.0
22	*Ranunculus*	*flammula*	RANFLA			Tr	Tr		40.0
23	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr				40.0
24	*Sagittaria*	*rigida*	SAGRIG					Tr	20.0
25	*Scirpus*	*acutus*	SCIACU	2					20.0
26	*Scirpus*	*subterminalis*	SCISUB	3		Tr	3	Tr	80.0
27	*Sium*	*suave*	SIUSUA			Tr			20.0
28	*Sparganium*	*angustifolium*	SPAANG		Tr		Tr		40.0
29	*Sparganium*	*fluctuans*	SPAFLU	1	1		Tr		60.0
30	*Sparganium*	spp.	SPASPP			Tr	Tr	Tr	60.0
31	*Subularia*	*aquatica*	SUBAQU			1			20.0
32	*Typha*	*latifolia*	TYPLAT	Tr					20.0
33	*Utricularia*	*intermedia*	UTRINT	Tr	Tr	Tr	1	Tr	100.0
34	*Utricularia*	*vulgaris*	UTRVUL		1				20.0
			RICHNESS	21	17	19	18	16	

Segment 1 E. Bay, small lobe; soft organic substrate, much bare; *Spongilla lacustris* present;

Segment 2 small w. bay with small lobe; soft organic substrate, much bare; *Spongilla lacustris* ; bittern; cow moose in water

Segment 3 originally called segment 4; substrate half soft organic and half cobble/organic; few sponges; cow and calf in water

Segment 4 originally called segment 5; west bay large lobe; thick bed of POTRIC in middle of bay; dense beds of POTFOL and SCISUB; few sponges present

Segment 5 originally called segment 6; straight section; 90% open,no macros; *Spongilla lacustris* present

Additional taxa: Lake LeSage

35	*Dulichium*	*arundinaceum*	DULARU
36	*Elatine*	sp.	ELATSP
37	*Juncus*	*pelocarpus*	JUNPEL
38	*Menyanthes*	*trifoliata*	MENTRI
39	*Ranunculus*	*longirostris*	RANLON
40	*Triadenum*	*fraseri*	TRIFRA

A Site: Lily Lake, 1 aquatic segment (entire lake)
Date: 7/3/04
Sampled by: V.Hofman

	GENUS	SPECIES	PCORD	LILK S1	% Frequency
1	*Carex*	*lasiocarpa*	CARLAS	1	100.00
2	*Carex*	spp.	CARSPP	Tr	100.00
3	*Nuphar*	*variegata*	NUPVAR	1	100.00
3	*Nymphaea*	*odorata*	NYMODO	1	100.00
4	*Potamogeton*	*natans*	POTNAT	1	100.00
			RICHNESS	5	

Segment 1 A small lake surrounded by bog mat. Sampled entire lake for aquatic vegetation. Did not sample shoreline, assumed similar to peat plot data. Rich mucky flocculent bottom. Was difficult to tell water depth, as there was no solid bottom (1.5 m perhaps). Water was dark colored. Few aquatics. NYPODO in pockets along lake edge and NUPVAR scattered intermittently throughout lake.

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Linklater Lake, 2 aquatic segments
Date: 8/12/04
Sampled by: A.Harris and J.Meeker

	GENUS	SPECIES	PCORD	LNLK S1	LNLK S2	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr		50.00
2	*Callitriche*	*palustris*	CLTPAL		Tr	50.00
3	*Carex*	*lasiocarpa*	CARLAS	1	3	100.00
4	*Dulichium*	*arundinaceum*	DULARU		1	50.00
5	*Eleocharis*	*palustris*	ELEPAL	Tr	1	100.00
6	*Equisetum*	*fluviatile*	EQUFLU	Tr	1	100.00
7	*Glyceria*	*borealis*	GLYBOR	Tr		50.00
8	*Hippurus*	*vulgaris*	HIPVUL	3	4	100.00
9	*Isoetes*	spp.	ISOSPP	Tr		50.00
10	*Myriophyllum*	*farwellii*	MYRFAR	Tr	1	100.00
11	*Nuphar*	*variegata*	NUPVAR	1	Tr	100.00
12	*Potamogeton*	*amplifolius*	POTAMP	1	1	100.00
13	*Potamogeton*	*epihydrus*	POTEPI		Tr	50.00
14	*Potamogeton*	*gramineus*	POTGRA	Tr	1	100.00
15	*Potamogeton*	*obtusifolius*	POTOBT	Tr		50.00
16	*Potamogeton*	*spirillus*	POTSPI		Tr	50.00
17	*Sagittaria*	*latifolia*	SAGLAT		Tr	50.00
18	*Sagittaria*	*rigida*	SAGRIG		Tr	50.00
19	*Scirpus*	*subterminalis*	SCISUB	Tr	1	100.00
20	*Sium*	*suave*	SIUSUA		Tr	50.00
21	*Sparganium*	*angustifolium*	SPAANG		Tr	50.00
22	*Sparganium*	*fluctuans*	SPAFLU	3	Tr	100.00
23	*Typha*	spp.	TYPSPP	Tr		50.00
24	*Utricularia*	*intermedia*	UTRINT	Tr	Tr	100.00
25	*Utricularia*	*vulgaris*	UTRVUL	Tr		50.00
			RICHNESS	17	19	

Entire Lake Lake level is at shrub line. MYRFAR is common and there are patches of SAGRIG.
Segment 1 30% macro cover. 10-20% scattered TYPSPP along segment.
Segment 2 End of segment in small bay next to a CARLAS mat.

Additional species: Linklater Lake

26	*Calamagrostis*	*canadensis*	CALCAN
27	*Carex*	*utriculata*	CARUTR
28	*Cicuta*	*bulbifera*	CICBUL
29	*Iris*	*versicolor*	IRIVER
30	*Lycopus*	*uniflorus*	LYCUNI
31	*Myrica*	*gale*	MYRGAL
32	*Najas*	*flexilis*	NAJFLE
33	*Potamogeton*	*filiformis*	POTFIL
34	*Ranunculus*	*longirostris*	RANLON
35	*Triadenum*	*fraseri*	TRIFRA
36	*Typha*	*latifolia*	TYPLAT

A Site: Lake Livermore, 3 aquatic segments
Date: 8/7/04
Sampled by: A.Harris and M.Jones

	GENUS	SPECIES	PCORD	LVLK S1	LVLK S2	LVLK S3	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr		Tr	66.67
2	*Carex*	*lasiocarpa*	CARLAS	3	4	5	100.00
3	*Carex*	*utriculata*	CARUTR	Tr			33.33
4	*Chara*	spp.	CHASPP	1	3	1	100.00
5	*Dulichium*	*arundinaceum*	DULARU		Tr		33.33
6	*Eleocharis*	*acicularis*	ELEACI			Tr	33.33
7	*Eleocharis*	*palustris*	ELEPAL	2	2	4	100.00
8	*Equisetum*	*fluviatile*	EQUFLU	2	1	2	100.00
9	*Glyceria*	*borealis*	GLYBOR		Tr	Tr	66.67
10	*Isoetes*	*lacustris*	ISOLAC	2	3	1	100.00
11	*Juncus*	*pelocarpus*	JUNPEL	Tr	Tr	Tr	100.00
12	*Najas*	*flexilis*	NAJFLE	Tr	3	Tr	100.00
13	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	Tr	100.00
14	*Potamogeton*	*foliosus*	POTFOL	3	Tr	3	100.00
15	*Potamogeton*	*gramineus*	POTGRA	2	3	1	100.00
16	*Potamogeton*	*pusillus*	POTPUS		Tr		33.33
17	*Potamogeton*	*richardsonii*	POTRIC	Tr	2	Tr	100.00
18	*Potamogeton*	*spirillus*	POTSPI	Tr	2	Tr	100.00
19	*Potamogeton*	*zosteriformis*	POTZOS	Tr	Tr	1	100.00
20	*Ranunculus*	*flammula*	RANFLA		Tr		33.33
21	*Ranunculus*	*longirostris*	RANLON	1		Tr	66.67
22	*Sagittaria*	*latifolia*	SAGLAT	Tr		2	66.67
23	*Sium*	*suave*	SIUSUA	Tr	Tr		66.67
24	*Utricularia*	*vulgaris*	UTRVUL	Tr		Tr	66.67
			RICHNESS	19	18	19	

Entire Lake TYPLAT present on lake. Many clams present. Narrow fringe (3-5m) of EQUFLU, ELEPAL, & CARLAS around most of lake. Moderate large pondweed cover; large beds of POTFOL near the east end of lake.

Segment 1 Substrate is sand.

Segment 2 Substrate is mostly sand and boulders.

Segment 3 Substrate is sandy muck for 1m width and then muck.

Additional species: Lake Livermore

25	*Sparganium*	*fluctuans*	SPAFLU
26	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: McCargo/Brady Coves, 2 aquatic segments
Date: 8/1-2/2005
Sampled by: A.Harris and J.Meeker (Brady); J.Meeker and M.Jones (McCargoe)

	GENUS	SPECIES	PCORD	MCCO S1	BRCO S1	% Frequency
1	*Callitriche*	*hermaphorditica*	CALMER		Tr	50.00
2	*Carex*	*aquatilis*	CARAQU		1	50.00
3	*Carex*	*utriculata*	CARUTR	2		50.00
4	*Chara*	spp.	CHASPP		2	50.00
5	*Eleocharis*	*acicularis*	ELEACI	1	1	100.00
6	*Equisetum*	*fluviatile*	EQUFLU	1	1	100.00
7	*Eriocaulon*	*aquaticum*	ERIAQU		1	50.00
8	*Hippuris*	*vulgaris*	HIPVUL		2	50.00
9	*Iris*	*versicolor*	IRIVER		Tr	50.00
10	*Isoetes*	spp.	ISOSPP		Tr	50.00
11	*Myriophyllum*	*sibiricum*	MYRSIB		2	50.00
12	*Myriophyllum*	*verticillatum*	MYRVER	Tr	1	100.00
13	*Nuphar*	*variegata*	NUPVAR		1	50.00
14	*Potamogeton*	*alpinus*	POTALP	Tr	1	100.00
15	*Potamogeton*	*amplifolius*	POTAMP		1	50.00
16	*Potamogeton*	*natans*	POTNAT	3		50.00
17	*Potamogeton*	*richardsonii*	POTRIC	1	1	100.00
18	*Potamogeton*	*spirillus*	POTSPI		Tr	50.00
19	*Potamogeton*	*zosteriformis*	POTZOS	Tr		50.00
20	*Ranunculus*	*longirostris*	RANLON	Tr	1	100.00
21	*Sagittaria*	*latifolia*	SAGLAT		1	50.00
22	*Scirpus*	*subterminalis*	SCISUB		1	50.00
23	*Sium*	*suave*	SIUSUA		Tr	50.00
24	*Sparganium*	*angustifolium*	SPAANG	Tr		50.00
25	*Sparganium*	*eurycarpum*	SPAEUR	Tr		50.00
26	*Sparganium*	*fluctuans*	SPAFLU		2	50.00
27	*Utricularia*	*intermedia*	UTRINT		Tr	50.00
28	*Utricularia*	*vulgaris*	UTRVUL		1	50.00
			RICHNESS	11	23	

Segment 1 First small bay entering Brady Cove on south side.
Segment 2 At mouth of stream entering McCargoe Cove.

Additional species: McCargoe and Brady Coves

29	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: McDonald Lake, 1 aquatic segment
Date: 8/5/04
Sampled by: A.Harris and M.Jones

	GENUS	SPECIES	PCORD	MCLK S1	% Frequency
1	*Carex*	*utriculata*	CARUTR	5	100.00
2	*Chara*	spp.	CHASPP	3	100.00
3	*Eleocharis*	*palustris*	ELEPAL	4	100.00
4	*Glyceria*	*borealis*	GLYBOR	1	100.00
5	*Myriophyllum*	*sibiricum*	MYRSIB	3	100.00
6	*Najas*	*flexilis*	NAJFLE	Tr	100.00
7	*Potamogeton*	*amplifolius*	POTAMP	Tr	100.00
8	*Potamogeton*	*gramineus*	POTGRA	3	100.00
9	*Potamogeton*	*obtusifolius*	POTOBT	Tr	100.00
10	*Potamogeton*	*richardsonii*	POTRIC	2	100.00
11	*Ranunculus*	*longirostris*	RANLON	Tr	100.00
12	*Sparganium*	*angustifolium*	SPAANG	Tr	100.00
13	*Sparganium*	*fluctuans*	SPAFLU	3	100.00
14	*Utricularia*	*vulgaris*	UTRVUL	1	100.00
			RICHNESS	14	

Segment 1 Originally seg 3. Substrate is organic sediment. CHASPP is aboundant here. Fresh water clams present. Cow and calf feeding on aquatics.

Additional species: McDonald Lake

15	*Bidens*	*beckii*	BIDBEC
16	*Carex*	*lasiocarpa*	CARLAS
17	*Eleocharis*	*acicularis*	ELEACI
18	*Equisetum*	*fluviatile*	EQUFLU
19	*Isoetes*	*lacustris*	ISOLAC
20	*Menyanthes*	*trifoliata*	MENTRI
21	*Nuphar*	*variegata*	NUPVAR
22	*Potamogeton*	*pusillus*	POTPUS
23	*Potentilla*	*palustris*	POTPAL
24	*Sagittaria*	*latifolia*	SAGLAT
25	*Sparganium*	*minimum*	SPAMIN
26	*Typha*	*latifolia*	TYPLAT
27	*Utricularia*	*intermedia*	UTRINT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Moose Lake, 1 aquatic segment
Date: 8/12/2003
Sampled by: J.Meeker and J.Elias

	GENUS	SPECIES	PCORD	MOLK S1	% Frequency
1	*Chara*	spp.	CHASPP	Tr	100
2	*Equisetum*	*fluviatile*	EQUFLU	Tr	100
3	*Najas*	*flexilis*	NAJFLE	Tr	100
4	*Nuphar*	*variegata*	NUPVAR	Tr	100
5	*Potamogeton*	*amplifolius*	POTAMP	Tr	100
6	*Potamogeton*	*foliosus*	POTFOL	Tr	100
7	*Potamogeton*	*gramineus*	POTGRA	1	100
8	*Potamogeton*	*pusillus*	POTPUS	Tr	100
9	*Sagittaria*	*rigida*	SAGRIG	Tr	100
10	*Scirpus*	*subterminalis*	SCISUB	Tr	100
11	*Sparganium*	spp.	SPASPP	Tr	100
12	*Utricularia*	*intermedia*	UTRINT	Tr	100
13	*Utricularia*	*vulgaris*	UTRVUL	Tr	100
			RICHNESS	13	

Segment 1 aquatic transect, flocculent substrate; lots of colonial jelly bags

Additional species: Moose Lake shoreline

14	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Moskey Basin, 1 segment
Date: 8/11/2003
Sampled by: J.Elias and J.Meeker

	GENUS	SPECIES	PCORD	MOBA S1	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	100
2	*Callitriche*	*palustris*	CLTPAL	Tr	100
3	*Chara*	spp.	CHASPP	Tr	100
4	*Eleocharis*	*acicularis*	ELEACI	1	100
5	*Eleocharis*	*palustris*	ELEPAL	3	100
6	*Equisetum*	*fluviatile*	EQUFLU	2	100
7	*Glyceria*	*borealis*	GLYBOR	1	100
8	*Hippurus*	*vulgaris*	HIPVUL	1	100
9	*Isoetes*	spp.	ISOSPP	1	100
10	*Juncus*	*brevicaudatus*	JUNBRE	Tr	100
11	*Juncus*	*pelocarpus*	JUNPEL	Tr	100
12	*Lobelia*	*dortmanna*	LOBDOR	Tr	100
13	*Myriophyllum*	*sibiricum*	MYRSIB	Tr	100
14	*Nuphar*	*variegata*	NUPVAR	Tr	100
15	*Potamogeton*	*filiformis*	POTFIL	Tr	100
16	*Potamogeton*	*gramineus*	POTGRA	2	100
17	*Potamogeton*	*richardsonii*	POTRIC	1	100
18	*Ranunculus*	*flammula*	RANFLA	1	100
19	*Ranunculus*	*longirostris*	RANLON	Tr	100
20	*Sagittaria*	*graminea*	SAGGRA	3	100
21	*Sium*	*suave*	SIUSUA	Tr	100
22	*Sparganium*	spp.	SPASPP	Tr	100
23	*Subularia*	*aquatica*	SUBAQU	Tr	100
24	*Typha*	*latifolia*	TYPLAT	Tr	100
25	*Utricularia*	*vulgaris*	UTRVUL	Tr	100
			RICHNESS	25	

Segment 1 Segment covers 2 coves west of dock; the 2 small basins surrounded by bedrock whalebacks; sandy/silty, moderately squishy; ringed w/ELOPAL edge mixed with EQUFLU; in 2nd bay lots of flowering SAGGRA with both erect and floating lvs.

Additional species: Moskey Basin

26	*Phalaris*	*arundinacea*	PHAARU

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Mud Lake, 2 aquatic segments
Date: 8/7/2005
Sampled by: J.Meeker and A. Harris

	GENUS	SPECIES	PCORD	MDLK S1	MDLK S2	% Frequency
1	*Carex*	*aquatilis*	CARAQU	Tr		50.00
2	*Carex*	*lasiocarpa*	CARLAS		Tr	50.00
3	*Chara*	spp.	CHASPP	Tr	Tr	100.00
4	*Dulichium*	*arundinaceum*	DULARU	Tr	1	100.00
5	*Eleocharis*	*acicularis*	ELEACI	1		50.00
6	*Eleocharis*	*palustris*	ELEPAL	Tr	1	100.00
7	*Equisetum*	*fluviatile*	EQUFLU	Tr	Tr	100.00
8	*Glyceria*	*borealis*	GLYBOR		Tr	50.00
9	*Isoetes*	spp.	ISOSPP	Tr		50.00
10	*Najas*	*flexilis*	NAJFLE	1	Tr	100.00
11	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	100.00
12	*Potamogeton*	*amplifolius*	POTAMP	1	2	100.00
13	*Potamogeton*	*gramineus*	POTGRA	2	1	100.00
14	*Potamogeton*	*obtusifolius*	POTOBT	Tr	Tr	100.00
15	*Potamogeton*	*pusillus*	POTPUS	Tr	Tr	100.00
16	*Potamogeton*	*richardsonii*	POTRIC	Tr	Tr	100.00
17	*Scirpus*	*acutus*	SCIACU	Tr	Tr	100.00
18	*Scirpus*	*subterminalis*	SCISUB	3	3	100.00
19	*Sparganium*	*angustifolium*	SPAANG	Tr	Tr	100.00
20	*Utricularia*	*intermedia*	UTRINT	Tr	1	100.00
21	*Utricularia*	*vulgaris*	UTRVUL	1	Tr	100.00
			RICHNESS	19	18	

Entire Lake water level at time of sampling flooding the outside edge of the *Myrica* fringe
Segment 1 Deep muck substrate heavily moose browsed, stained waters
Segment 2 Sparse vegetation and very flocculent beginning 5m out from shore

A Site: Lake Ojibway, 2 aquatic segments
Date: 8/14/04
Sampled by: V.Hofman, M.Jones, J.Meeker (segment 1) and A.Harris and J.Marr (segment 2)

	GENUS	SPECIES	PCORD	OJLKS1	OJLKS2	% Frequency
1	*Brasenia*	*schreberi*	BRASCH	1	1	100.00
2	*Carex*	*lasiocarpa*	CARLAS	3	5	100.00
3	*Carex*	*rostrata*	CARROS	3	Tr	100.00
4	*Carex*	*utriculata*	CARUTR	Tr	1	100.00
5	*Dulichium*	*arundinaceum*	DULARU	2	2	100.00
6	*Eleocharis*	*palustris*	ELEPAL	Tr		50.00
7	*Equisetum*	*fluviatile*	EQUFLU	Tr	Tr	100.00
8	*Eriocaulon*	*aquaticum*	ERIAQU	1		50.00
9	*Juncus*	*brevicaudatus*	JUNBRE	Tr		50.00
10	*Juncus*	*pelocarpus*	JUNPEL	Tr		50.00
11	*Najas*	*flexilis*	NAJFLE	1	Tr	100.00
12	*Nuphar*	*variegata*	NUPVAR	1	Tr	100.00
13	*Nymphaea*	*odorata*	NYMODO	Tr	Tr	100.00
14	*Potamogeton*	*amplifolius*	POTAMP	Tr	Tr	100.00
15	*Potamogeton*	*epihydrus*	POTEPI	2	3	100.00
16	*Potamogeton*	*gramineus*	POTGRA	2	Tr	100.00
17	*Potamogeton*	*natans*	POTNAT	1	2	100.00
18	*Potamogeton*	*pusillus*	POTPUS	Tr	3	100.00
19	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr	100.00
20	*Sagittaria*	spp.	SAGSPP	Tr		50.00
21	*Scirpus*	*subterminalis*	SCISUB	4	2	100.00
22	*Sparganium*	*angustifolium*	SPAANG	2	1	100.00
23	*Sparganium*	*chlorocarpum*	SPACHL	Tr		50.00
24	*Utricularia*	*intermedia*	UTRINT	1	Tr	100.00
25	*Utricularia*	*minor*	UTRMIN		Tr	50.00
26	*Utricularia*	*vulgaris*	UTRVUL	Tr	Tr	100.00
			RICHNESS	25	20	

Entire Lake Lake is at or slightly above mean high water mark. Water is cold and dark colored. The lake has risen ~ 80cm in the last few decades (beaver dam), dead THUOCC standing in the water, therefore the vegetation of the floating CARLAS mats present are young.
Segment 1 Segment on north side of lake.
Segment 2 Substrate is muck. Water depth is 50 to 70 cm; cold and dark colored. Cedar snags present in water. CARLAS dominated shoreline.

Additional species: Lake Ojibway

27	*Eleocharis*	*acicularis*	ELEACI
28	*Glyceria*	*borealis*	GLYBOR
29	*Polygonum*	*amphibium*	POLAMP
30	*Sium*	*suave*	SIUSUA
31	*Sparganium*	*fluctuans*	SPAFLU
32	*Sparganium*	*minimum*	SPAMIN
33	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Otter Lake, 2 aquatic segments
Date: 8/5/04
Sampled by: A.Harris and M.Jones

	GENUS	SPECIES	PCORD	OTLK S1	OTLK S2	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	3	100.00
2	*Carex*	*lasiocarpa*	CARLAS	1	4	100.00
3	*Chara*	spp.	CHASPP	Tr	Tr	100.00
4	*Dulichium*	*arundinaceum*	DULARU	Tr	3	100.00
5	*Eleocharis*	*palustris*	ELEPAL	4		50.00
6	*Equisetum*	*fluviatile*	EQUFLU	3	2	100.00
7	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	Tr	100.00
8	*Glyceria*	*borealis*	GLYBOR	1	1	100.00
9	*Isoetes*	*lacustris*	ISOLAC	3	3	100.00
10	*Juncus*	*pelocarpus*	JUNPEL	3	1	100.00
11	*Myriophyllum*	*sibiricum*	MYRSIB	Tr	Tr	100.00
12	*Myriophyllum*	*verticillatum*	MYRVER	Tr		50.00
13	*Nuphar*	*variegata*	NUPVAR	Tr	3	100.00
14	*Potamogeton*	*gramineus*	POTGRA	1	2	100.00
15	*Potamogeton*	*natans*	POTNAT		Tr	50.00
16	*Potamogeton*	*obtusifolius*	POTOBT	Tr	2	100.00
17	*Potamogeton*	*pusillus*	POTPUS		3	50.00
18	*Potamogeton*	*robbinsii*	POTROB	3	Tr	100.00
19	*Potamogeton*	*spirillus*	POTSPI		Tr	50.00
20	*Ranunculus*	*longirostris*	RANLON		Tr	50.00
21	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr	100.00
22	*Scutellaria*	*galericulata*	SCUGAL		Tr	50.00
23	*Sium*	*suave*	SIUSUA		Tr	50.00
24	*Sparganium*	*eurycarpum*	SPAEUR	Tr		50.00
25	*Sparganium*	*fluctuans*	SPAFLU	4	1	100.00
26	*Utricularia*	*intermedia*	UTRINT		Tr	50.00
27	*Utricularia*	*vulgaris*	UTRVUL	Tr	1	100.00
			RICHNESS	20	24	

Entire Lake Numerous fresh water clams. North and south sides of lake drop off sharply to deep water. Very little vegetation; aquatics in intermittent patches. Sites were randomly chosen.

Segment 1 Substrate is mix of bedrock and muck.

Segment 2 Substrate is muck.

Additional species: Otter Lake

28	*Carex*	*utriculata*	CARUTR
29	*Iris*	*versicolor*	IRIVER
30	*Najas*	*flexilis*	NAJFLE
31	*Potamogeton*	*filiformis*	POTFIL
32	*Potamogeton*	*foliosus*	POTFOL
33	*Sparganium*	*angustifolium*	SPAANG
34	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Patterson Lake, 2 aquatic segments
Date: 8/7/04
Sampled by: V.Hofman and J.Marr

	GENUS	SPECIES	PCORD	PALK S1	PALK S2	% Frequency
1	*Bidens*	*beckii*	BIDBEC	2	1	100.00
2	*Calla*	*palustris*	CALLAP		Tr	50.00
3	*Callitriche*	*palustris*	CLTPAL		Tr	50.00
4	*Carex*	*aquatilis*	CARAQU	1		50.00
5	*Carex*	*lasiocarpa*	CARLAS	1	2	100.00
6	*Carex*	*rostrata*	CARROS		Tr	50.00
7	*Carex*	*utriculata*	CARUTR	Tr		50.00
8	*Ceratophyllum*	*demersum*	CERDEM		1	50.00
9	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr	100.00
10	*Eleocharis*	*acicularis*	ELEACI	Tr	Tr	100.00
11	*Eleocharis*	*palustris*	ELEPAL	Tr		50.00
12	*Equisetum*	*fluviatile*	EQUFLU	Tr	Tr	100.00
13	*Glyceria*	*borealis*	GLYBOR	Tr		50.00
14	*Hippurus*	*vulgaris*	HIPVUL		Tr	50.00
15	*Isoetes*	spp.	ISOSPP	Tr		50.00
16	*Myriophyllum*	*farwellii*	MYRFAR	1		50.00
17	*Myriophyllum*	spp.	MYRSPP		1	50.00
18	*Najas*	*flexilis*	NAJFLE	Tr		50.00
19	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	100.00
20	*Polygonum*	*amphibium*	POLAMP	Tr		50.00
21	*Potamogeton*	*amplifolius*	POTAMP	1	Tr	100.00
22	*Potamogeton*	*epihydrus*	POTEPI	Tr		50.00
23	*Potamogeton*	*filiformis*	POTFIL	Tr		50.00
24	*Potamogeton*	*gramineus*	POTGRA	1	Tr	100.00
25	*Potamogeton*	*natans*	POTNAT		Tr	50.00
26	*Potamogeton*	*pusillus*	POTPUS		Tr	50.00
27	*Potamogeton*	*zosteriformis*	POTZOS	Tr		50.00
28	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr	100.00
29	*Scirpus*	*acutus*	SCIACU	1		50.00
30	*Sium*	*suave*	SIUSUA	Tr	Tr	100.00
31	*Sparganium*	*chlorocarpum*	SPACHL	Tr		50.00
32	*Sparganium*	*fluctuans*	SPAFLU	3	2	100.00
33	*Sparganium*	*minimum*	SPAMIN	Tr	1	100.00
34	*Typha*	spp.	TYPSPP	Tr		50.00
35	*Utricularia*	*intermedia*	UTRINT	1	Tr	100.00
36	*Utricularia*	*vulgaris*	UTRVUL	Tr	Tr	100.00
			RICHNESS	28	22	

Entire Lake Water is tannic brown, visibility ~ 1m. Lake has some bog mats along shoreline.
Segment 1 Substrate = soft to firm silty sand. Several beds of SCIACU, SPAFLU and POTAMP.
Segment 2 Segment at inlet. Substrate = silty sand with flocculent organics in stream. A lot of aquatics in stream.

Additional species: Patterson Lake

37	*Chara*	spp.	CHASPP
38	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Pickerel Cove, 6 aquatic segments
Date: 8/3/04
Sampled by: J.Elias and J.Meeker (segments 1-4, 6) and V.Hofman and J.Marr (segments 1-5)

	GENUS	SPECIES	PCORD	PICO S1	PICO S2	PICO S3	PICO S4	PICO S5	PICO S6	% Frequency
1	*Callitriche*	spp.	CALSPP			Tr		Tr	Tr	50.00
2	*Carex*	*aquatilis*	CARAQU		1	2	2	1	3	83.33
3	*Carex*	*lasiocarpa*	CARLAS					1	1	33.33
4	*Carex*	*utriculata*	CARUTR			2	1	1	2	66.67
5	*Chara*	spp.	CHASPP		Tr	Tr				33.33
6	*Eleocharis*	*acicularis*	ELEACI	1	Tr	1	1	Tr	1	100.00
7	*Eleocharis*	*palustris*	ELEPAL	Tr		2			Tr	50.00
8	*Equisetum*	*fluviatile*	EQUFLU		Tr	Tr	Tr	1	Tr	83.33
9	*Glyceria*	*borealis*	GLYBOR			Tr	Tr		1	50.00
10	*Isoetes*	spp.	ISOSPP	1	Tr	Tr	Tr	Tr	Tr	100.00
11	*Juncus*	*brevicaudatus*	JUNBRE	Tr		Tr	Tr		1	66.67
12	*Juncus*	*effusus*	JUNEFF			Tr	Tr		Tr	50.00
13	*Juncus*	*nodosus*	JUNNOD				Tr			16.67
14	*Juncus*	*pelocarpus*	JUNPEL			Tr				16.67
15	*Lysimachia*	*thyrsiflora*	LYSTHY					Tr		16.67
16	*moss*	spp. (aquatic)	MOSSAQ			Tr				16.67
17	*Myriophyllum*	spp.	MYRSPP				Tr			16.67
18	*Myriophyllum*	*verticillatum*	MYRVER	Tr		Tr		Tr	Tr	66.67
19	*Potamogeton*	*filiformis*	POTFIL					Tr	Tr	33.33
20	*Potamogeton*	*gramineus*	POTGRA	Tr	1		Tr	Tr	Tr	83.33
21	*Potamogeton*	*richardsonii*	POTRIC				Tr	1	Tr	50.00
22	*Ranunculus*	*flammula*	RANFLA			Tr	Tr			33.33
23	*Ranunculus*	*longirostris*	RANLON	Tr	Tr	Tr		1	Tr	83.33
24	*Sagittaria*	*cuneata/ graminea rosette*	SAGROS		Tr			2	Tr	50.00
25	*Sagittaria*	*latifolia*	SAGLAT			Tr	Tr	Tr	Tr	66.67
26	*Sium*	*suave*	SIUSUA	Tr		Tr	Tr	Tr		66.67
27	*Sparganium*	*angustifolium*	SPAANG				Tr	Tr	Tr	50.00
28	*Sparganium*	spp.	SPASPP			Tr				16.67
29	*Typha*	spp.	TYPSPP					Tr		16.67
30	*Utricularia*	*intermedia*	UTRINT					Tr		16.67
			RICHNESS	8	8	19	16	19	19	

Entire Lake Scattered PHAARU stems along northern shore.
Segment 1 Originally seg 2. Mostly rocky shore w/ small sandy end of bay. Segment is at sandy end.
Segment 2 Originally seg 3.
Segment 3 Originally seg 4. Two small baylets w/in bay, emergents in ends, sparse aquatics.
Segment 4 Originally seg 5. Lots of Periphyton. Ring of emergents, sparse submergents.
Segment 5 Originally seg 6. 20 TYPSPP stems
Segment 6 Originally seg 7.

Additional species: Pickerel Cove

31	*Scutellaria*	*galericulata*	SCUGAL	
32	*Callitriche*	*hermaphroditica*	CALHER	marr 3184, Voss!

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Lake Richie, 12 aquatic segments
Date: 8/10/2003
Sampled by: J.Meeker and J.Elias (segments 1-6); A.Harris and J.Marr (segments 7-12)

	GENUS	SPECIES	PCORD	RILK S1	RILK S2	RILK S3	RILK S4	RILK S5	RILK S6	RILK S7	RILK S8	RILK S9	RILK S10	RILK S11	RILK S12	% Freq.
1	*Armoracia*	*lacustris*	ARMLAC		1						Tr					16.7
2	*Bidens*	*beckii*	BIDBEC									Tr		Tr		16.7
3	*Callitriche*	*palustris*	CLTPAL				Tr	Tr								16.7
4	*Carex*	*lasiocarpa*	CARLAS	1						Tr	Tr				1	33.3
5	*Carex*	*utriculata*	CARUTR	1				Tr			1			Tr		33.3
6	*Chara*	spp.	CHASPP		1	Tr	Tr	Tr	Tr	Tr	Tr	Tr	Tr	Tr	Tr	91.7
7	*Eleocharis*	*acicularis*	ELEACI	2		1	Tr	Tr		Tr	Tr	Tr	Tr	Tr	Tr	83.3
8	*Eleocharis*	*palustris*	ELEPAL		3	2		1		1	4	4	3	1	3	75.0
9	*Elodea*	*canadensis*	ELOCAN		Tr	Tr			Tr	Tr	Tr	Tr	Tr	Tr	Tr	75.0
10	*Equisetum*	*fluviatile*	EQUFLU	Tr	1	Tr		3		1	1	2	1	Tr		75.0
11	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	Tr							Tr		Tr	1	41.7
12	*Glyceria*	*borealis*	GLYBOR	Tr	1			Tr			Tr				Tr	41.7
13	*Isoetes*	*lacustris*	ISOLAC									2				8.3
14	*Isoetes*	spp.	ISOSPP	Tr	1	Tr	Tr		Tr	Tr	1		1	1	2	83.3
15	*Lemna*	*trisulca*	LEMTRI	Tr				Tr		Tr			Tr		Tr	41.7
16	*Lobelia*	*dortmanna*	LOBDOR									Tr				8.3
17	*Lysimachia*	*thyrsiflora*	LYSTHY							2		Tr				16.7
18	*moss*	*spp. (aquatic)*	MOSSAQ	Tr						Tr						16.7
19	*Myriophyllum*	*sibiricum*	MYRSIB	1	Tr	1	2	1		Tr	1	1	1	1	Tr	91.7
20	*Myriophyllum*	spp.	MYRSPP			Tr										8.3
21	*Myriophyllum*	*verticillatum*	MYRVER	2	Tr	Tr	1	1		Tr	Tr	Tr	Tr	Tr		83.3
22	*Najas*	*flexilis*	NAJFLE			Tr			Tr	Tr		Tr	Tr		Tr	50.0
23	*Nitella*	spp.	NITSPP							Tr						8.3
24	*Nuphar*	*variegata*	NUPVAR	Tr	Tr		3			Tr				1		41.7
25	*Potamogeton*	*amplifolius*	POTAMP			1	2	2				1	1			41.7
26	*Potamogeton*	*epihydrus*	POTEPI						Tr	2						16.7
27	*Potamogeton*	*filiformis*	POTFIL			Tr	1	1			Tr	Tr	2			50.0
28	*Potamogeton*	*foliosus*	POTFOL	2	3	1	Tr	Tr		Tr	3	Tr	Tr	1	Tr	91.7
29	*Potamogeton*	*gramineus*	POTGRA	2	1	2	2	3	1	2	3	2	3	4	1	100.0
30	*Potamogeton*	*obtusifolius*	POTOBT											Tr		8.3
31	*Potamogeton*	*pusillus*	POTPUS						Tr			Tr		Tr	Tr	33.3
32	*Potamogeton*	*richardsonii*	POTRIC	Tr	Tr	2	3	3	Tr	2	1	2	3	2		91.7
33	*Potamogeton*	*robbinsii*	POTROB		Tr				Tr	2	3	1	3	Tr	Tr	66.7
34	*Potamogeton*	*spirillus*	POTSPI					Tr	1	Tr	Tr	Tr	Tr			50.0
35	*Potamogeton*	*zosteriformis*	POTZOS												Tr	8.3
36	*Ranunculus*	*longirostris*	RANLON	Tr	Tr		Tr	Tr		Tr		1		Tr	Tr	66.7
37	*Sagittaria*	*graminea*	SAGGRA												Tr	8.3
38	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr					Tr	Tr	Tr		1	Tr	58.3
39	*Scirpus*	*acutus*	SCIACU										2	1	1	25.0
40	*Scirpus*	*subterminalis*	SCISUB				1	Tr								16.7
41	*Sium*	*suave*	SIUSUA				Tr									8.3
42	*Sparganium*	*angustifolium*	SPAANG				Tr	Tr		1	Tr	Tr	Tr	Tr	Tr	66.7
43	*Sparganium*	*fluctuans*	SPAFLU	1			2	1				Tr				33.3
44	*Subularia*	*aquatica*	SUBAQU		Tr											8.3
45	*Typha*	*latifolia*	TYPLAT	Tr						Tr						16.7
46	*Utricularia*	*intermedia*	UTRINT											Tr		8.3
47	*Vallisneria*	*americana*	VALAME		1	3	Tr	Tr	Tr	2	Tr	2	3	1	Tr	91.7
48	*Zosterella*	*dubia*	HETDUB			Tr			2							16.7
			RICHNESS	19	19	17	18	21	12	26	21	26	20	24	22	

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Lake Richie, 12 aquatic segments
Date: 8/10/2003
Sampled by: J.Meeker and J.Elias (segments 1-6); A.Harris and J.Marr (segments 7-12)

Segment 1	Originally J.Elias and J. Meeker seg 6; sponges present
Segment 2	Originally J.Elias and J. Meeker seg 5; sponges present
Segment 3	Originally J.Elias and J. Meeker seg 1; sponges
Segment 4	Originally J.Elias and J. Meeker seg 2; sponges
Segment 5	Originally J.Elias and J. Meeker seg 3; sponges
Segment 6	Originally J.Elias and J. Meeker seg 4
Segment 7	Originally A.Harris and J. Marr seg 1
Segment 8	Originally A.Harris and J. Marr seg 6; sand substrate
Segment 9	Originally A.Harris and J. Marr seg 2; substrate is 30% gravel, 40% sand, 30% bedrock
Segment 10	Originally A.Harris and J. Marr seg 3; substrate is 40% sand, 40% cobble, 20% bedrock
Segment 11	Originally A.Harris and J. Marr seg 4; silty sand substrate
Segment 12	Originally A.Harris and J. Marr seg 5; sand substrate

A Site: Robinson Bay, 7 aquatic segments
Date: 8/3/04 and 8/5/04
Sampled by: J.Elias and J.Meeker (segments 1-3, 7) and V.Hofman and J.Marr (segments 4-6)

	GENUS	SPECIES	PCORD	ROBY S1	ROBY S2	ROBY S3	ROBY S4	ROBY S5	ROBY S6	ROBY S7	% Frequency
1	*Calla*	*palustris*	CALLAP	Tr		Tr					28.57
2	*Callitriche*	spp.	CALSPP			Tr			Tr		28.57
3	*Carex*	*aquatilis*	CARAQU			1			Tr	Tr	42.86
4	*Carex*	*utriculata*	CARUTR						1	2	28.57
5	*Eleocharis*	*acicularis*	ELEACI		1	Tr	Tr			Tr	57.14
6	*Eleocharis*	*palustris*	ELEPAL							Tr	14.29
7	*Eleocharis*	spp.	ELESPP		Tr				Tr		28.57
8	*Glyceria*	*borealis*	GLYBOR		Tr	Tr			Tr	Tr	57.14
9	*Hippurus*	*vulgaris*	HIPVUL						Tr	Tr	28.57
10	*Isoetes*	spp.	ISOSPP	Tr	Tr	Tr	Tr	Tr		Tr	85.71
11	*Juncus*	*brevicaudatus*	JUNBRE		Tr	1			Tr	Tr	57.14
12	*Juncus*	*effusus*	JUNEFF			Tr				Tr	28.57
13	*Juncus*	*nodosus*	JUNNOD						Tr	Tr	28.57
14	*Myriophyllum*	spp.	MYRSPP	Tr				Tr			28.57
15	*Myriophyllum*	*verticillatum*	MYRVER	Tr	Tr	Tr				Tr	57.14
16	*Potamogeton*	*filiformis*	POTFIL		Tr						14.29
17	*Potamogeton*	*gramineus*	POTGRA		Tr						14.29
18	*Potamogeton*	*richardsonii*	POTRIC	1		Tr		Tr		1	57.14
19	*Ranunculus*	*flammula*	RANFLA						Tr		14.29
20	*Ranunculus*	*longirostris*	RANLON	Tr			Tr	Tr	Tr	Tr	71.43
21	*Sium*	*suave*	SIUSUA			Tr			Tr		28.57
22	*Sparganium*	*angustifolium*	SPAANG						1		14.29
23	*Sparganium*	*eurycarpum*	SPAEUR							Tr	14.29
24	*Subularia*	*aquatica*	SUBAQU		Tr		Tr				28.57
		RICHNESS		6	9	11	4	4	12	14	

Segment 1 Bay with few emergents in narrow band. Most submergents deeper than 2.5m. A lot of Periphyton. Substrate rocky. POTPEC was found floating and not included in data.

Segment 2 South side of bay, behind small island. Narrow band of mixed forbs, etc. No clear dominant species. SIUSUA was *Angelica* sp. in original data.

Segment 3 Western small bay behind a small island. Much woody debris, sparse aquatics. All shoreline vegetation is at end of bay, more than a narrow band, more of a small wetland. *Alisma spp.* was found but not collected.

Segment 4 CASSEP on rocks. Rocky substrate with sandy patches at end of cove (location of all aquatic spp.). Med/steep drop along sides of coves. Rocky shoreline, save the beach at the end; surrounded by cedar / boreal uplands and rocky elevation.

Segment 5 TRISPI on rocks, somewhat sheltered area, rocky to sandy silt shore, with abrupt to gradual drop offs, the latter w/ POTRIC and MYRSPP. Shore is rocky and generally 3" higher than the water except for one lower area w/ shore plants.

Segment 6 Rocky (plum size) to sand and silt. Soft sediment in end of cove, which is vegetated w/ CARUTR, CALCAN. Very little aquatic veg. Shallow, deepest area is ~1m deep.

Segment 7 A wind and wave swept narrow bay w/ firm substrate. Detritus and patch of wetland at the end. North facing side w/ little wetland veg. and south side more open w/ more veg. A few PHAARU stems.

Additional species: Robinson Bay

25	*Potamogeton*	*praelongus*	POTPRA
26	*Phalaris*	*arundinacea*	PHAARU

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Sargent Lake, 6 aquatic segments
Date: 8/9/04, 8/10/04, and 8/13/04
Sampled by: A.Harris and M.Jones (segments 3-5), and A.Harris and J.Meeker (segments 1-2, 6)

	GENUS	SPECIES	PCORD	SALK S1	SALK S2	SALK S3	SALK S4	SALK S5	SALK S6	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr			Tr	Tr	Tr	66.67
2	*Carex*	*lasiocarpa*	CARLAS		Tr			3		33.33
3	*Chara*	spp.	CHASPP	Tr	Tr	Tr		Tr	2	83.33
4	*Dulichium*	*arundinaceum*	DULARU	1				Tr		33.33
5	*Eleocharis*	*acicularis*	ELEACI	3	3	2	1	1	2	100.00
6	*Eleocharis*	*palustris*	ELEPAL	2	3	3	2	Tr	3	100.00
7	*Equisetum*	*fluviatile*	EQUFLU	1	2	2	3	1	1	100.00
8	*Eriocaulon*	*aquaticum*	ERIAQU		1	1	Tr		1	66.67
9	*Glyceria*	*borealis*	GLYBOR	1	1			2	Tr	66.67
10	*Isoetes*	*lacustris*	ISOLAC			2	1	2		50.00
11	*Isoetes*	spp.	ISOSPP	Tr	Tr				Tr	50.00
12	*Juncus*	*brevicaudatus*	JUNBRE		Tr				Tr	33.33
13	*Juncus*	*pelocarpus*	JUNPEL		Tr	3	3	3	Tr	83.33
14	*Lobelia*	*dortmanna*	LOBDOR		Tr	Tr	Tr		1	66.67
15	*Myriophyllum*	*sibiricum*	MYRSIB	Tr	Tr	Tr	Tr	2		83.33
16	*Myriophyllum*	*verticillatum*	MYRVER	Tr	2	3	Tr	2	2	100.00
17	*Najas*	*flexilis*	NAJFLE		Tr			Tr	Tr	50.00
18	*Nuphar*	*variegata*	NUPVAR		Tr	Tr		Tr	Tr	66.67
19	*Potamogeton*	*amplifolius*	POTAMP		2	1		Tr	1	66.67
20	*Potamogeton*	*foliosus*	POTFOL	2	Tr			4	Tr	66.67
21	*Potamogeton*	*gramineus*	POTGRA	1	1	2	1	2	2	100.00
22	*Potamogeton*	*obtusifolius*	POTOBT					Tr		16.67
23	*Potamogeton*	*pusillus*	POTPUS						Tr	16.67
24	*Potamogeton*	*richardsonii*	POTRIC	Tr	Tr		Tr	2		66.67
25	*Potamogeton*	*robbinsii*	POTROB	Tr					1	33.33
26	*Potamogeton*	*spirillus*	POTSPI						Tr	16.67
27	*Potamogeton*	*zosteriformis*	POTZOS		Tr	Tr		3	1	66.67
28	*Ranunculus*	*flammula*	RANFLA		Tr			2	1	50.00
29	*Ranunculus*	*longirostris*	RANLON	Tr	Tr	Tr	Tr	Tr		83.33
30	*Sagittaria*	*latifolia*	SAGLAT	1	Tr		Tr	3		66.67
31	*Sagittaria*	*rigida*	SAGRIG	Tr						16.67
32	*Scirpus*	*acutus*	SCIACU		1	Tr	Tr			50.00
33	*Scirpus*	*subterminalis*	SCISUB					Tr		16.67
34	*Sium*	*suave*	SIUSUA						Tr	16.67
35	*Sparganium*	*americanum*	SPAAME						Tr	16.67
36	*Sparganium*	*angustifolium*	SPAANG	Tr						16.67
37	*Sparganium*	*chlorocarpum*	SPACHL	1						16.67
38	*Sparganium*	*fluctuans*	SPAFLU	3		1	Tr	1	1	83.33
39	*Typha*	*latifolia*	TYPLAT			Tr			Tr	33.33
			RICHNESS	20	24	18	16	25	26	

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Sargent Lake, 6 aquatic segments
Date: 8/9/04, 8/10/04, and 8/13/04
Sampled by: A.Harris and M.Jones (segments 3-5), and A.Harris and J.Meeker (segments 1-2, 6)

Entire Lake	Low water levels, 0.5m below shrub line; lots of exposed sand and boulders along shore. (Beaver dam let go?) Abundant RANFLA & ELEACI.
Segment 1	Originally seg 5. Bay near narrows. Substrate is mostly flocculent (6") on firmer sediment. Not much macrophyte cover, save SPAFLU.
Segment 2	Originally seg 4. North side of lake. Straight sandy shore along a linear shoreline.
Segment 3	Originally seg 14. Substrate is boulders.
Segment 4	Originally seg 12. Substrate is boulders.
Segment 5	Originally seg 8. Substrate is muck.
Segment 6	Shallow sandy shore.

Additional species: Sargent Lake

40	*Juncus*	*nodosus*	JUNNOD	
41	*Phalaris*	*arundinacea*	PHAARU	
42	*Phragmites*	*australis*	PHRAUS	
43	*Typha*	*angustifolia*	TYPANG	note!!
44	*Typha*	spp.	TYPSPP	
45	*Utricularia*	*vulgaris*	UTRVUL	

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Lake Scholts, 1 segment
Date: 8/7/2003
Sampled by J.Meeker and J.Elias

	GENUS	SPECIES	PCORD	SCLK S1	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	100
2	*Callitriche*	spp.	CALSPP	1	100
3	*Carex*	*utriculata*	CARUTR	Tr	100
4	*Chara*	*spp.*	CHASPP	Tr	100
5	*Eleocharis*	*palustris*	ELEPAL	Tr	100
6	*Equisetum*	*fluviatile*	EQUFLU	Tr	100
7	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	100
8	*Glyceria*	*borealis*	GLYBOR	Tr	100
9	*Lycopus*	*uniflorus*	LYCUNI	Tr	100
10	*Myriophyllum*	*heterophyllum*	MYRHET	Tr	100
11	*Myriophyllum*	*verticillatum*	MYRVER	1	100
12	*Najas*	*flexilis*	NAJFLE	Tr	100
13	*Nuphar*	*variegata*	NUPVAR	Tr	100
14	*Potamogeton*	*amplifolius*	POTAMP	Tr	100
15	*Potamogeton*	*epihydrus*	POTEPI	3	100
16	*Potamogeton*	*gramineus*	POTGRA	1	100
17	*Potamogeton*	*praelongus*	POTPRA	Tr	100
18	*Potamogeton*	*pusillus*	POTPUS	1	100
19	*Potamogeton*	*richardsonii*	POTRIC	Tr	100
20	*Potamogeton*	*spirillus*	POTSPI	2	100
21	*Ranunculus*	*longirostris*	RANLON	1	100
22	*Scirpus*	*subterminalis*	SCISUB	Tr	100
23	*Sparganium*	*fluctuans*	SPAFLU	Tr	100
24	*Sparganium*	*minimum*	SPAMIN	1	100
25	*Utricularia*	*intermedia*	UTRINT	Tr	100
26	*Utricularia*	*vulgaris*	UTRVUL	Tr	100
			RICHNESS	26	

Entire Lake linear lake with steep sides on south side.

Segment 1 aquatic transect with mostly soft organic substrate; Located on west half of north side.

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Shesheeb Lake, 1 aquatic segment
Date: 8/12/04
Sampled by: A.Harris and J.Meeker

	GENUS	SPECIES	PCORD	SHLK S1	% Frequency
1	*Bidens*	*beckii*	BIDBEC	1	100.00
2	*Calamagrostis*	*canadensis*	CALCAN	Tr	100.00
3	*Carex*	*lasiocarpa*	CARLAS	3	100.00
4	*Dulichium*	*arundinaceum*	DULARU	Tr	100.00
5	*Eleocharis*	*acicularis*	ELEACI	Tr	100.00
6	*Equisetum*	*fluviatile*	EQUFLU	1	100.00
7	*Hippurus*	*vulgaris*	HIPVUL	1	100.00
8	*Myriophyllum*	*farwellii*	MYRFAR	2	100.00
9	*Najas*	*flexilis*	NAJFLE	3	100.00
10	*Nuphar*	*variegata*	NUPVAR	1	100.00
11	*Potamogeton*	*amplifolius*	POTAMP	4	100.00
12	*Potamogeton*	*epihydrus*	POTEPI	1	100.00
13	*Potamogeton*	*gramineus*	POTGRA	2	100.00
14	*Potamogeton*	*obtusifolius*	POTOBT	Tr	100.00
15	*Potamogeton*	*spirillus*	POTSPI	Tr	100.00
16	*Sagittaria*	*latifolia*	SAGLAT	1	100.00
17	*Sagittaria*	spp.	SAGSPP	Tr	100.00
18	*Scirpus*	*subterminalis*	SCISUB	1	100.00
19	*Sium*	*suave*	SIUSUA	Tr	100.00
20	*Sparganium*	*fluctuans*	SPAFLU	4	100.00
21	*Typha*	*latifolia*	TYPLAT	1	100.00
22	*Utricularia*	*intermedia*	UTRINT	Tr	100.00
			RICHNESS	22	

Entire Lake Most of the shoreline is floating CARLAS mat. MYRFAR is common and there are patches of SAGRIG. Possible ZOSDUB.
Segment 1 Northwest end of lake. Substrate is muck.

Additional taxa: Shesheeb Lake

23	*Callitriche*	*palustris*	CLTPAL
24	*Carex*	*aquatilis*	CARAQU
25	*Carex*	*utriculata*	CARUTR
26	*Eleocharis*	*palustris*	ELEPAL
27	*Glyceria*	*borealis*	GLYBOR
28	*Isoetes*	spp.	ISOSPP
29	*Polygonum*	*amphibium*	POLAMP
30	*Potamogeton*	*natans*	POTNAT
31	*Potamogeton*	*pusillus*	POTPUS
32	*Ranunculus*	*longirostris*	RANLON
33	*Sagittaria*	*rigida*	SAGRIG
34	*Sparganium*	*minimum*	SPAMIN
35	*Utricularia*	*vulgaris*	UTRVUL

A Site: Lake Siskiwit, 6 aquatic segments
Date: 8/1-2/2005, and 8/8/2003
Sampled by: J.Meeker and J. Marr (Segments 1-3); A.Harris and M.Jones (Segments 4, 5)
Segment 6 sampled by: A.Harris and J.Marr on 8/8/2003

	GENUS	SPECIES	PCORD	SILK S1	SILK S2	SILK S3	SILK S4	SILK S5	SILK S6	% Frequency
1	*Callitriche*	*palustris*	CLTPAL						Tr	16.67
2	*Chara*	spp.	CHASPP		Tr	2	Tr	Tr	1	83.33
3	*Eleocharis*	*acicularis*	ELEACI			Tr		Tr	Tr	50.00
4	*Eleocharis*	*palustris*	ELEPAL					Tr	Tr	33.33
5	*Equisetum*	*fluviatile*	EQUFLU			Tr				16.67
6	*Hippuris*	*vulgaris*	HIPVUL			Tr				16.67
7	*Iris*	*versicolor*	IRIVER						Tr	16.67
8	*Isoetes*	spp.	ISOSPP	Tr		Tr		Tr	Tr	66.67
9	*Juncus*	*pelocarpus*	JUNPEL		2	1		Tr	Tr	66.67
10	*Lobelia*	*dortmanna*	LOBDOR		2	2		Tr		50.00
11	*Myriophyllum*	*verticillatum*	MYRVER		Tr	Tr		Tr	Tr	66.67
12	*Najas*	*flexilis*	NAJFLE			Tr		Tr	1	50.00
13	*Nuphar*	*variegata*	NUPVAR			Tr			Tr	33.33
14	*Potamogeton*	*alpinus*	POTALP			Tr				16.67
15	*Potamogeton*	*amplifolius*	POTAMP		Tr	Tr			Tr	50.00
16	*Potamogeton*	*gramineus*	POTGRA	Tr	2	1	Tr	Tr	2	100.00
17	*Potamogeton*	*obtusifolius*	POTOBT		Tr					16.67
18	*Potamogeton*	*pusillus*	POTPUS					Tr		16.67
19	*Potamogeton*	*richardsonii*	POTRIC		Tr	1			1	50.00
20	*Ranunculus*	*longirostris*	RANLON						Tr	16.67
21	*Sagittaria*	*latifolia*	SAGLAT			Tr			Tr	33.33
22	*Sparganium*	*angustifolium*	SPAANG		Tr	Tr			Tr	50.00
23	*Typha*	*latifolia*	TYPLAT						Tr	16.67
24	*Utricularia*	*intermedia*	UTRINT			Tr				16.67
25	*Utricularia*	*vulgaris*	UTRVUL			Tr				16.67
			RICHNESS	2	9	18	2	10	17	

Segment 1	Cobbles and boulders, sedimentary organics in trough, little vegetation
Segment 2	sedimentary organics (about 10 cm) on sand, overall about 20-30% cover of macrophytes
Segment 3	shoreline with fine organic debris, scattered beds of CHASPP and LOBDOR
Segment 4	Much of bay with bare, sandy substrate, <50 cm deep
Segment 5	Substrate sandy, open to east, few macrophytes, those present confined to the south shore
Segment 6	Segment a small bay on the SE shore of Siskiwit L. Aquatics most abundant at end of Bay, NAJFLE to ~ 3m water depth. Substrate is 60% sand, 40% cobbles.

Additional taxa: Siskiwit Lake

26	*Eriocaulon*	*aquaticum*	ERICAU
27	*Iris*	*versicolor*	IRIVER
28	*Myriophyllum*	*sibiricum*	MYRSIB
29	*Potamogeton*	*epihydrous*	POTEPI
30	*Potamogeton*	*natans*	POTNAT
31	*Ranunculus*	*longirostris*	RANLON
32	*Scirpus*	*cyperinus*	SCICYP
33	*Sparganium*	*eurycarpum*	SPAEUR
34	*Sparganium*	*minima*	SPAMIN
35	*Typha*	*latifolia*	TYPLAT

A Site: Stickleback Lake, 1 aquatic segment (entire lake)
Date: 7/12/04
Sampled by: V.Hofman and J.Marr

	GENUS	SPECIES	PCORD	STLK S1	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	100.00
2	*Callitriche*	spp.	CALSPP	Tr	100.00
3	*Carex*	*lasiocarpa*	CARLAS	1	100.00
4	*Carex*	*utriculata*	CARUTR	Tr	100.00
5	*Dulichium*	*arundinaceum*	DULARU	1	100.00
6	*Eleocharis*	*acicularis*	ELEACI	1	100.00
7	*Equisetum*	*fluviatile*	EQUFLU	1	100.00
8	*Glyceria*	*borealis*	GLYBOR	1	100.00
9	*Isoetes*	spp.	ISOSPP	Tr	100.00
10	*moss*	spp. (aquatic)	MOSSAQ	Tr	100.00
11	*Nitella*	spp.	NITSPP	Tr	100.00
12	*Nuphar*	*variegata*	NUPVAR	Tr	100.00
13	*Potamogeton*	*epihydrus*	POTEPI	1	100.00
14	*Potamogeton*	*robbinsii*	POTROB	Tr	100.00
15	*Potamogeton*	spp.	POTSPP	Tr	100.00
16	*Riccia*	*fluitans*	RICFLU	Tr	100.00
17	*Scirpus*	*acutus*	SCIACU	Tr	100.00
18	*Sparganium*	*angustifolium*	SPAANG	2	100.00
19	*Sparganium*	spp. (rosette)	SPASPR	Tr	100.00
20	*Utricularia*	*intermedia*	UTRINT	Tr	100.00
21	*Utricularia*	*vulgaris*	UTRVUL	Tr	100.00
			RICHNESS	21	

Segment 1 Surveyed entire lake. Northeast end shore is bog mat with flocculent organic sediment. Remaining shoreline is steep banks and upland veg. 1 foot above water level. Rocky substrate for 1 m or less, becoming organic and somewhat flocculent. Liverwort sp. was found (M3061).

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Stockly Bay, 2 aquatic segments
Date: 8/6/04
Sampled by: V.Hofman and J.Marr

	GENUS	SPECIES	PCORD	STBY S1	STBY S2	% Frequency
1	*Carex*	*utriculata*	CARUTR	Tr		50.00
2	*Dulichium*	*arundinaceum*	DULARU		Tr	50.00
3	*Eleocharis*	*acicularis*	ELEACI	Tr	1	100.00
4	*Hippurus*	*vulgaris*	HIPVUL		Tr	50.00
5	*Juncus*	*brevicaudatus*	JUNBRE	Tr	1	100.00
6	*Juncus*	*effusus*	JUNEFF	Tr	Tr	100.00
7	*Myriophyllum*	*alterniflorum*	MYRALT	Tr		50.00
8	*Myriophyllum*	*sibiricum*	MYRSIB	Tr	1	100.00
9	*Myriophyllum*	*verticillatum*	MYRVER	Tr		50.00
10	*Potamogeton*	*gramineus*	POTGRA	Tr		50.00
11	*Ranunculus*	*flammula*	RANFLA		Tr	50.00
12	*Ranunculus*	*longirostris*	RANLON	Tr	Tr	100.00
13	*Sagittaria*	spp.	SAGSPP		Tr	50.00
14	*Sparganium*	*angustifolium*	SPAANG		2	50.00
15	*Sparganium*	*chlorocarpum*	SPACHL	Tr		50.00
16	*Typha*	spp.	TYPSPP	Tr	Tr	100.00
			RICHNESS	11	11	

Segment 1 End of bay. Substrate = firm sand with rocky shoreline. Shoreline is a steep mossy bank with upland veg that slightly overhangs exposed boulders.

Segment 2 Segment in bay. Sides of bay has steep mossy overhanging banks with upland species and rocky substrate. At the end of bay is a shallow vegetated area; substrate is silty sand, firm to soft.

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Sumner Lake, 1 segment
Date: 8/15/04
Sampled by: V.Hofman, J.Marr and J.Meeker

	GENUS	SPECIES	PCORD	SMLK S1	% Frequency
1	*Carex*	*lasiocarpa*	CARLAS	2	100.00
2	*Chara*	spp.	CHASPP	Tr	100.00
3	*Dulichium*	*arundinaceum*	DULARU	Tr	100.00
4	*Equisetum*	*fluviatile*	EQUFLU	Tr	100.00
5	*Najas*	*flexilis*	NAJFLE	2	100.00
6	*Nuphar*	*variegata*	NUPVAR	1	100.00
7	*Nymphaea*	*odorata*	NYMODO	Tr	100.00
8	*Potamogeton*	*amplifolius*	POTAMP	1	100.00
9	*Potamogeton*	*gramineus*	POTGRA	1	100.00
10	*Potamogeton*	*natans*	POTNAT	1	100.00
11	*Potamogeton*	*zosteriformis*	POTZOS	1	100.00
12	*Sagittaria*	*latifolia*	SAGLAT	Tr	100.00
13	*Scirpus*	*subterminalis*	SCISUB	1	100.00
14	*Sparganium*	*angustifolium*	SPAANG	Tr	100.00
15	*Utricularia*	*gibba*	UTRGIB	Tr	100.00
16	*Utricularia*	*intermedia*	UTRINT	Tr	100.00
17	*Utricularia*	*vulgaris*	UTRVUL	Tr	100.00
			RICHNESS	17	

Entire Lake A small lake surrounded by SPHSPP dominated peat mat. Water is very dark colored. Periphyton present. Narrow shoreline band of CARSTR, CALCAN

Segment 1 Segment along sedge mat. Sparse aquatic cover. Substrate is very flocculent organic matter.

Additional species: Sumner Lake

18	*Carex*	*rostrata*	CARROS
19	*Juncus*	*brevicaudatus*	JUNBRE
20	*Potamogeton*	*obtusifolius*	POTOBT
21	*Sium*	*suave*	SIUSUA
22	*Typha*	*latifolia*	TYPLAT

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Tobin Harbor, 3 aquatic segments
Date: 8/12/2003
Sampled by: J.Elias and J.Meeker

	GENUS	SPECIES	PCORD	TOHA S1	TOHA S2	TOHA S3	% Frequency
1	*Callitriche*	*palustris*	CLTPAL		Tr		33.3
2	*Carex*	*aquatilis*	CARAQU	2		1	66.7
3	*Eleocharis*	*acicularis*	ELEACI	2	1	Tr	100.0
4	*Glyceria*	*borealis*	GLYBOR		Tr		33.3
5	*Isoetes*	spp.	ISOSPP	1	Tr	Tr	100.0
6	*Myriophyllum*	*sibiricum*	MYRSIB	1			33.3
7	*Myriophyllum*	*verticillatum*	MYRVER		1	Tr	66.7
8	*Potamogeton*	*filiformis*	POTFIL		1	1	66.7
9	*Potamogeton*	*gramineus*	POTGRA			Tr	33.3
10	*Potamogeton*	*praelongus*	POTPRA	Tr	Tr		66.7
11	*Potamogeton*	*richardsonii*	POTRIC	Tr	Tr		66.7
12	*Ranunculus*	*flammula*	RANFLA		Tr		33.3
13	*Ranunculus*	*longirostris*	RANLON	1	1	Tr	100.0
14	*Sagittaria*	*latifolia*	SAGLAT		Tr		33.3
15	*Subularia*	*aquatica*	SUBAQU	Tr			33.3
			RICHNESS	8	11	7	

Entire Lake firm bottom, shallow (<2.5 m)

Segment 1 few sponges
Segment 2 straight section just before stream/head, southeast side
Segment 3 straight section, northwest side

Additional species: Tobin Harbor

16	*Phalaris*	*arundinacea*	PHAARU

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Lake Wagejo, 2 aquatic segments
Date: 8/13/04
Sampled by: A.Harris and J.Meeker

	GENUS	SPECIES	PCORD	WALK S1	WALK S2	% Frequency
1	*Carex*	*lasiocarpa*	CARLAS	4	5	100.00
2	*Carex*	*rostrata*	CARROS		1	50.00
3	*Chara*	spp.	CHASPP	1	2	100.00
4	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr	100.00
5	*Eleocharis*	*acicularis*	ELEACI		Tr	50.00
6	*Eleocharis*	*palustris*	ELEPAL	1	2	100.00
7	*Equisetum*	*fluviatile*	EQUFLU	1	2	100.00
8	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	Tr	100.00
9	*Glyceria*	*borealis*	GLYBOR		Tr	50.00
10	*Isoetes*	spp.	ISOSPP	Tr		50.00
11	*Najas*	*flexilis*	NAJFLE		2	50.00
12	*Nuphar*	*variegata*	NUPVAR	Tr	Tr	100.00
13	*Phragmites*	*australis*	PHRAUS		1	50.00
14	*Potamogeton*	*amplifolius*	POTAMP		2	50.00
15	*Potamogeton*	*epihydrus*	POTEPI	Tr	Tr	100.00
16	*Potamogeton*	*gramineus*	POTGRA	3	1	100.00
17	*Potamogeton*	*natans*	POTNAT		Tr	50.00
18	*Potamogeton*	*obtusifolius*	POTOBT		Tr	50.00
19	*Potamogeton*	*pusillus*	POTPUS		Tr	50.00
20	*Potentilla*	*palustris*	POTPAL	Tr		50.00
21	*Ranunculus*	*longirostris*	RANLON		Tr	50.00
22	*Sagittaria*	*latifolia*	SAGLAT	Tr	Tr	100.00
23	*Scirpus*	*subterminalis*	SCISUB	3	2	100.00
24	*Sparganium*	*angustifolium*	SPAANG	2	Tr	100.00
25	*Sparganium*	*fluctuans*	SPAFLU	2	Tr	100.00
26	*Utricularia*	*intermedia*	UTRINT	Tr	Tr	100.00
27	*Utricularia*	*minor*	UTRMIN	Tr	Tr	100.00
28	*Utricularia*	*vulgaris*	UTRVUL	Tr		50.00
			RICHNESS	18	25	

Entire Lake Water at mean high mark, up to shrubs on rocks and to floating CARSPP mat. Little drawdown species present. Abundant SCISUB in bay at northeast corner of lake.

Segment 1 Peaty shore; a floating CARLAS mat (with short section of outcrop).

Segment 2 Peaty shore at north end of lake (floating CARLAS mat).

Additional species: Lake Wagejo

29	*Iris*	*versicolor*	IRIVER
30	*Nitella*	spp.	NITSPP
31	*Potamogeton*	*spirillus*	POTSPI

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Lake Whittlesey, 5 aquatic segments
Date: 8/6/2003
Sampled by: A.Harris, J.Marr, J.Meeker and J.Elias

	GENUS	SPECIES	PCORD	WHLK S1	WHLK S2	WHLK S3	WHLK S4	WHLK S5	% Frequency
1	*Bidens*	*beckii*	BIDBEC			Tr			20
2	*Carex*	*aquatilis*	CARAQU		Tr				20
3	*Carex*	*lasiocarpa*	CARLAS			Tr			20
4	*Carex*	*utriculata*	CARUTR	Tr	1	1	Tr	1	100
5	*Chara*	spp.	CHASPP	Tr		Tr	Tr	Tr	80
6	*Eleocharis*	*palustris*	ELEPAL	2	2	2	1	Tr	100
7	*Equisetum*	*fluviatile*	EQUFLU	Tr	1	Tr	Tr	Tr	100
8	*Eriocaulon*	*aquaticum*	ERIAQU	Tr	1	1	Tr		80
9	*Glyceria*	*borealis*	GLYBOR	Tr	Tr	Tr	Tr	1	100
10	*Isoetes*	*echinospora*	ISOECH	Tr					20
11	*Isoetes*	spp.	ISOSPP			Tr		Tr	40
12	*Juncus*	*pelocarpus*	JUNPEL	1	Tr	Tr			60
13	*Lobelia*	*dortmanna*	LOBDOR	Tr	Tr			Tr	60
14	*Myriophyllum*	*verticillatum*	MYRVER	Tr			Tr	Tr	60
15	*Najas*	*flexilis*	NAJFLE	1	2	3	1	Tr	100
16	*Nuphar*	*variegata*	NUPVAR					Tr	20
17	*Phragmites*	*australis*	PHRAUS		Tr				20
18	*Polygonum*	*amphibium*	POLAMP			Tr			20
19	*Potamogeton*	*amplifolius*	POTAMP	1		Tr		Tr	60
20	*Potamogeton*	*epihydrus*	POTEPI	Tr	Tr	Tr	Tr	1	100
21	*Potamogeton*	*filiformis*	POTFIL	Tr		Tr	Tr	Tr	80
22	*Potamogeton*	*gramineus*	POTGRA	1	1	2	1	1	100
23	*Potamogeton*	*richardsonii*	POTRIC	Tr	Tr	Tr	Tr	Tr	100
24	*Potamogeton*	*spirillus*	POTSPI	Tr			Tr	Tr	60
25	*Potamogeton*	spp.	POTSPP		Tr	Tr	Tr	1	80
26	*Ranunculus*	*flammula*	RANFLA	1	Tr	Tr	Tr		80
27	*Sagittaria*	*latifolia*	SAGLAT			Tr	Tr		40
28	*Sparganium*	*angustifolium*	SPAANG			Tr			20
29	*Sparganium*	spp.	SPASPP	1					20
30	*Sparganium*	*minimum*	SPAMIN		Tr	Tr	Tr	Tr	80
31	*Typha*	spp.	TYPSPP				Tr		20
32	*Utricularia*	*intermedia*	UTRINT		Tr	Tr			40
			RICHNESS	19	17	23	18	18	

Segment 1 firm/sandy substrate
Segment 2 no notes
Segment 3 mucky silt 10-12"
Segment 4 no notes
Segment 5 rocky (8-10" in size) with little veneer of silt/organics.

Appendix B: Isle Royale 2003-2005 Aquatic Segment Data

A Site: Wood Lake, 7 aquatic segments
Date: 8/8/2003
Sampled by J.Meeker and J.Elias

	GENUS	SPECIES	PCORD	WOLK S1	WOLK S2	WOLK S3	WOLK S4	WOLK S5	WOLK S6	WOLK S7	% Frequency
1	*Bidens*	*beckii*	BIDBEC	Tr	Tr	Tr		Tr	Tr	1	85.7
2	*Carex*	*utriculata*	CARUTR	1							14.3
3	*Chara*	*spp.*	CHASPP					2	Tr	2	42.9
4	*Eleocharis*	*acicularis*	ELEACI	Tr							14.3
5	*Eleocharis*	*palustris*	ELEPAL	1	1	Tr					42.9
6	*Elodea*	*canadensis*	ELOCAN			Tr				Tr	28.6
7	*Equisetum*	*fluviatile*	EQUFLU	1	Tr	3	Tr	Tr	Tr	1	100.0
8	*Eriocaulon*	*aquaticum*	ERIAQU	2	Tr						28.6
9	*Isoetes*	spp.	ISOSPP	Tr	1	1	Tr	Tr	1	2	100.0
10	*Juncus*	*pelocarpus*	JUNPEL	2	Tr	Tr					42.9
11	*Lobelia*	*dortmanna*	LOBDOR	3							14.3
12	*Myriophyllum*	*verticillatum*	MYRVER	Tr				Tr		Tr	42.9
13	*Najas*	*flexilis*	NAJFLE	1	1	2	1	3	2	4	100.0
14	*Nuphar*	*variegata*	NUPVAR					Tr			14.3
15	*Potamogeton*	*epihydrus*	POTEPI	Tr							14.3
16	*Potamogeton*	*filiformis*	POTFIL						1		14.3
17	*Potamogeton*	*foliosus*	POTFOL	Tr	1	Tr		1		1	71.4
18	*Potamogeton*	*gramineus*	POTGRA	1	1	1	Tr	1	Tr	1	100.0
19	*Potamogeton*	*obtusifolius*	POTOBT					1		Tr	28.6
20	*Potamogeton*	*pusillus*	POTPUS	Tr		1	Tr	2	2	3	85.7
21	*Potamogeton*	*richardsonii*	POTRIC	1	Tr	2		2	1	1	85.7
22	*Potamogeton*	*robbinsii*	POTROB			2			Tr	2	42.9
23	*Potamogeton*	*spirillus*	POTSPI	Tr	Tr	Tr	Tr	Tr	Tr	Tr	100.0
24	*Potamogeton*	spp.	POTSPP			Tr					14.3
25	*Potamogeton*	*zosteriformis*	POTZOS			Tr	Tr	Tr	Tr		57.1
26	*Ranunculus*	*longirostris*	RANLON					Tr	Tr	2	42.9
27	*Sparganium*	*angustifolium*	SPAANG	Tr	Tr	Tr	Tr	Tr	Tr	Tr	100.0
28	*Sparganium*	*fluctuans*	SPAFLU							Tr	14.3
29	*Sparganium*	*minimum*	SPAMIN		Tr				Tr	Tr	42.9
30	*Typha*	*latifolia*	TYPLAT	Tr		2			Tr		42.9
			RICHNESS	19	13	17	8	16	16	18	

Segment 1 scattered sponges present
Segment 2 no notes
Segment 3 dense beds 2m-3m
Segment 4 rocky, steep dropoff
Segment 5 no notes
Segment 6 no notes
Segment 7 thick bed at mouth of bay to 3m

Appendix B2 – Species and Cover Classes for Shoreline Segments

Appendix B. Isle Royale 2003-2005 Shoreline Segment Data

S Site: Ahmik Lake, 6 shoreline segments
Date: 8/7/04
Sampled by: J.Elias and J.Meeker

	GENUS	SPECIES	PCORD	AHLK S1	AHLK S2	AHLK S3	AHLK S4	AHLK S5	AHLK S7*	% Freq.
1	*Agrostis*	*hyemalis*	AGRHYE		Tr	1	Tr	Tr	1	83.33
2	*Calamagrostis*	*canadensis*	CALCAN	Tr	2	Tr	Tr	1	1	100.00
3	*Campanula*	*aparinoides*	CAMAPA	Tr	Tr		Tr	Tr		66.67
4	*Carex*	*aquatilis*	CARAQU				Tr			16.67
5	*Carex*	*cryptolepis*	CARCRY		Tr					16.67
6	*Carex*	*flava*	CARFLA						Tr	16.67
7	*Carex*	*lasiocarpa*	CARLAS	3	3		2	Tr	Tr	83.33
8	*Carex*	*rostrata*	CARROS	Tr						16.67
9	*Carex*	spp. (Ovales type)	CAROVA	Tr	Tr				Tr	50.00
10	*Carex*	spp. (Stellulatae type)	CARSTE	Tr				Tr		33.33
11	*Carex*	*stipata*	CARSTI			Tr				16.67
12	*Carex*	*viridula*	CARVIR	Tr	Tr	1	Tr		1	83.33
13	*Cicuta*	*bulbifera*	CICBUL	Tr	Tr		Tr			50.00
14	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr	Tr	Tr	1	Tr	100.00
15	*Eleocharis*	*palustris*	ELEPAL		1	Tr			1	50.00
16	*Eleocharis*	spp.	ELESPP				Tr		Tr	33.33
17	*Equisetum*	*arvense*	EQUARV					Tr	Tr	33.33
18	*Eupatorium*	*maculatum*	EUPMAC		Tr		Tr	Tr	Tr	66.67
19	*Glyceria*	*borealis*	GLYBOR	Tr		Tr			1	50.00
20	*Glyceria*	*canadensis*	GLYCAN				Tr	Tr		33.33
21	*Hypericum*	*majus*	HYPMAJ			Tr	Tr			33.33
22	*Iris*	*versicolor*	IRIVER	Tr	Tr	Tr				50.00
23	*Juncus*	*brevicaudatus*	JUNBRE	Tr	1	Tr		1	1	83.33
24	*Juncus*	*effusus*	JUNEFF				Tr			16.67
25	*Juncus*	*nodosus*	JUNNOD		Tr				Tr	33.33
26	*Juncus*	*tenuis*	JUNTEN		1					16.67
27	*Juncus*	*tenuis var. dudleyi*	JUNDUD	1						16.67
28	*Lycopus*	*americanus*	LYCAME	Tr	Tr	Tr		Tr		66.67
29	*Lycopus*	*uniflorus*	LYCUNI	Tr			Tr		1	50.00
30	*Lysimachia*	*terrestris*	LYSTER	Tr	Tr	Tr	Tr	Tr	Tr	100.00
31	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr		Tr	Tr	Tr		66.67
32	*Mentha*	*arvensis*	MENARV	Tr		Tr	Tr	Tr		66.67
33	*Menyanthes*	*trifoliata*	MENTRI	Tr	Tr					33.33
34	*Myrica*	*gale*	MYRGAL	Tr	Tr	Tr	1	1	Tr	100.00
35	*Potentilla*	*palustris*	POTPAL	Tr			Tr			33.33
36	*Sagittaria*	*latifolia*	SAGLAT						Tr	16.67
37	*Scirpus*	*cyperinus*	SCICYP	Tr	Tr	Tr	Tr	Tr		83.33
38	*Scutellaria*	*galericulata*	SCUGAL	Tr		Tr		Tr		50.00
39	*Sium*	*suave*	SIUSUA	1	Tr	Tr	Tr	Tr	Tr	100.00
40	*Triadenum*	*fraseri*	TRIFRA	Tr	Tr	Tr	Tr	Tr	Tr	100.00
41	*Typha*	*latifolia*	TYPLAT	1	Tr					33.33
42	*Typha*	spp.	TYPSPP				Tr			16.67
43	*Viola*	spp.	VIOSPP	Tr	Tr	Tr		Tr		66.67
			RICHNESS	27	24	20	23	20	20	

Appendix B. Isle Royale 2003-2005 Shoreline Segment Data

Entire Lake	A lot of macrophytes in 2-3m of water, beds contain a lot of POTAMP, POTPRA, and some BIDBEC, MYRSPP, POTEPI, NAJFLE, & RANLON. Lake level is down ~75cm from mean high water level (based on shrub line). There appears to be 2 drawdowns; 1 below shrubs and CALCAN, and the 2nd with JUNSPP and CARVIR. Moose tracks present
Segment 1	Soft bottom bay, flocculent and/ or detritus. Shallow water w/ mud flat at end. TYPLAT scattered. Sponge present.
Segment 2	Soft flocculent bottom. Water level ~0.5 m below shrub line. Fringe of wetland veg.. Lots of filamentous algae, ELEACI mats and bare areas present. Lots of moose tracks. Sponge (*Spongilla lacustris* and *Corvomeyenia everetti*) present.
Segment 3	Small bay, with flocculent bottom. Shoreline steep with water >1m deep. Scant-to-no aquatic vegetation. Sponges present (*E. mulleri and S. lacustris*).
Segment 4	Peaty ends of bays, steep sided in between. Soft bottom and sparse aquatics. Lots of sponges *S. lacustris*).
Segment 5	Dry, steep slope with wetland fringe ~1foot above water level. Flocculent bottom with scant aquatics. Sponge present (*S. lacustris*).
Segment 7*	No shoreline segment 6, segment 7 on a shelf about 5 m wide. Few beds of aquatics, band of ELEPAL. Substrate is soft and flocculent. Sponge present (*S. lacustris*).

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Amygdaloid Lake, 6 shoreline segments
Date: 8/5/04
Sampled by: J.Elias and J.Meeker (segments 2-4) and V.Hofman and J.Marr (segments 1, 5, 6)

	GENUS	SPECIES	PCORD	AMLK S1	AMLK S2	AMLK S3	AMLK S4	AMLK S5	AMLK S6	% Freq.
1	*Agrostis*	*hyemalis*	AGRHYE	Tr					Tr	33.3
2	*Anaphalis*	*margaritacea*	ANAMAR	Tr						16.7
3	*Asteraceae*	spp.	ASTESP						Tr	16.7
4	*Calamagrostis*	*canadensis*	CALCAN	Tr	1	1		Tr	Tr	83.3
5	*Calla*	*palustris*	CALLAP			Tr				16.7
6	*Caltha*	*palustris*	CALPAL	Tr					Tr	33.3
7	*Campanula*	*aparinoides*	CAMAPA			Tr				16.7
8	*Carex*	*canescens*	CARCAN						Tr	16.7
9	*Carex*	*diandra*	CARDIA			Tr			Tr	33.3
10	*Carex*	*gynandra*	CARGYN	Tr				Tr	Tr	50.0
11	*Carex*	*hystericina*	CARHYS						Tr	16.7
12	*Carex*	*lasiocarpa*	CARLAS		1	1				33.3
13	*Carex*	*leptalea*	CARLEP	Tr						16.7
14	*Carex*	*rostrata*	CARROS			1				16.7
15	*Carex*	spp. (Stellulatae type)	CARSTE	Tr				Tr		33.3
16	*Carex*	*stipata*	CARSTI						Tr	16.7
17	*Chelone*	*glabra*	CHEGLA						Tr	16.7
18	*Cicuta*	*bulbifera*	CICBUL	Tr	Tr	Tr		Tr	Tr	83.3
19	*Cinna*	*latifolia*	CINLAT	Tr						16.7
20	*Epilobium*	*spp.*	EPISPP	Tr						16.7
21	*Equisetum*	*arvense*	EQUARV					Tr		16.7
22	*Equisetum*	*fluviatile*	EQUFLU		Tr	Tr				33.3
23	*Fragaria*	*virginiana*	FRAVIR					Tr		16.7
24	*Galium*	spp. *(tinctorium/trifidum)*	GALSTT						Tr	16.7
25	*Glyceria*	*borealis*	GLYBOR			Tr				16.7
26	*Glyceria*	*canadensis*	GLYCAN			Tr				16.7
27	*Glyceria*	*striata*	GLYSTR						Tr	16.7
28	*Hieracium*	*spp.*	HIESPP					Tr	Tr	33.3
29	*Impatiens*	*capensis*	IMPCAP						Tr	16.7
30	*Iris*	*versicolor*	IRIVER	Tr	Tr	Tr	Tr	Tr	Tr	100.0
31	*Juncus*	*brevicaudatus*	JUNBRE	Tr						16.7
32	*Lycopus*	*uniflorus*	LYCUNI	Tr	Tr	Tr		Tr	Tr	83.3
33	*Lysimachia*	spp.	LYSSPP		Tr			Tr	Tr	50.0
34	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr		Tr		Tr	Tr	66.7
35	*Mentha*	*arvensis*	MENARV	Tr					Tr	33.3
36	*Menyanthes*	*trifoliata*	MENTRI			Tr				16.7
37	*moss*	spp.	MOSSPP				Tr			16.7
38	*Poa*	*palustris*	POAPAL					Tr		16.7
39	*Sium*	*suave*	SIUSUA	Tr	Tr	Tr			Tr	66.7
40	*Symplocarpus*	*foetidus*	SYMFOE			Tr				16.7
41	*Viola*	spp.	VIOSPP	Tr				Tr	Tr	50.0
			RICHNESS	17	8	16	2	13	22	

Entire Lake Lake level at shrub line (max water level). Most of lake shoreline with few aquatics, save for a few shelves with Isoetids.

Segment 1 Segment along southeastern shore. On shore, upland spp. include: MAICAN, COPTRI, ANAMAR, CORCAN, ALNINC Small bay along southern shore. Lots of Periphyton. Narrow fringe of shoreline vegetation. Sedge meadow along part of shoreline.

Segment 2 Sponge (*Spongilla lacustris*) present.

Segment 3 West bay of lake. End of bay a marshy shoreline w/ emergent veg. Sides of bay w/ overhanging trees and shrubs and undercut bank w/ moss. Substrate flocculent w/ much woody debris.

Segment 4 Segment along northern side of lake. Brown filamentous algae and Periphyton. Overhanging trees and shrubs, undercut bank w/ moss. Sparse shoreline veg. except woody. Steep gradient and sharp drop off in water. Sponge present (S.

Segment 5 Substrate rock and sand, gradual sloping and then a steep drop off. Banks are non-sphagnum moss, ALNINC, THUOCC, PICSPP. ARANUD and other upland spp. growing down to shoreline.

Segment 6 End of lake; sides rocky, abrupt shoreline w/ overhanging cedar, fir and moss, supporting upland wetland shrubs (ALNSPP, THUOCC, RIBSPP, VACBLU). End of cove (inlet) sheltered with windfall logs, coves and nooks with flocculent detritus on sand, HIPVUL and POTGRA. Sides of cove sandier w/ ISOSPP and LOBDOR.

Additional species: Amygdaloid Lake

42	*Chamaedaphne*	*calyculata*	CHACAL
43	*Ledum*	*groenlandicum*	LEDGRO

Appendix B. Isle Royale 2003-2005 Shoreline Segments

Site: Amygdaloid Lake, 6 shoreline segments
Date: 8/5/04
Sampled by: J.Elias and J.Meeker (segments 2-4) and V.Hofman a

GENUS	SPECIES	PCORD
Agrostis	*hyemalis*	AGRHYE
Anaphalis	*margaritacea*	ANAMAR
Asteraceae	spp.	ASTESP
Calamagrostis	*canadensis*	CALCAN
Calla	*palustris*	CALLAP
Caltha	*palustris*	CALPAL
Campanula	*aparinoides*	CAMAPA
Carex	*canescens*	CARCAN
Carex	*diandra*	CARDIA
Carex	*gynandra*	CARGYN
Carex	*hystericina*	CARHYS
Carex	*lasiocarpa*	CARLAS
Carex	*leptalea*	CARLEP
Carex	*rostrata*	CARROS
Carex	spp. (Stellulatae type)	CARSTE
Carex	*stipata*	CARSTI
Chelone	*glabra*	CHEGLA
Cicuta	*bulbifera*	CICBUL
Cinna	*latifolia*	CINLAT
Epilobium	*spp.*	EPISPP
Equisetum	*arvense*	EQUARV
Equisetum	*fluviatile*	EQUFLU
Fragaria	*virginiana*	FRAVIR
Galium	spp. *(tinctorium/trifidum)*	GALSTT
Glyceria	*borealis*	GLYBOR
Glyceria	*canadensis*	GLYCAN
Glyceria	*striata*	GLYSTR
Hieracium	*spp.*	HIESPP
Impatiens	*capensis*	IMPCAP
Iris	*versicolor*	IRIVER
Juncus	*brevicaudatus*	JUNBRE
Lycopus	*uniflorus*	LYCUNI
Lysimachia	spp.	LYSSPP
Lysimachia	*thyrsiflora*	LYSTHY
Mentha	*arvensis*	MENARV
Menyanthes	*trifoliata*	MENTRI
moss	spp.	MOSSPP
Poa	*palustris*	POAPAL
Sium	*suave*	SIUSUA
Symplocarpus	*foetidus*	SYMFOE
Viola	spp.	VIOSPP

RICHNESS

Entire Lake Lake level at shrub line (max water level). M
Segment 1 Segment along southeastern shore. On shore,
Small bay along southern shore. Lots of Perip
Segment 2 Sponge (*Spongilla lacustris*) present.
Segment 3 West bay of lake. End of bay a marshy shorel
undercut bank w/ moss. Substrate flocculent
Segment 4 Segment along northern side of lake. Brown
bank w/ moss. Sparse shoreline veg. except v
Segment 5 Substrate rock and sand, gradual sloping and t
PICSPP. ARANUD and other upland spp. gr
Segment 6 End of lake; sides rocky, abrupt shoreline w/
RIBSPP, VACBLU). End of cove (inlet) shel
POTGRA. Sides of cove sandier w/ ISOSPP

ional species: Amygdaloid Lake

Chamaedaphne	*calyculata*	CHACAL
Ledum	*groenlandicum*	LEDGRO

Appendix B. Isle Royale 2003 and 2004 Data: Shoreline Segments

S Site: Angleworm Lake, 3 shoreline segments
Date: 8/13/04
Sampled by: V.Hofman, M.Jones and J.Marr

	GENUS	SPECIES	PCORD	ANLK S1	ANLK S2	ANLK S3	% Freq.
1	*Alnus*	*incana*	ALNINC	Tr	Tr	1	100.00
2	*Aster*	*puniceus*	ASTPUN	Tr	Tr		66.67
3	*Aster*	*umbellatus*	ASTUMB		Tr	Tr	66.67
4	*Calamagrostis*	*canadensis*	CALCAN	Tr	Tr	Tr	100.00
5	*Carex*	*flava*	CARFLA			Tr	33.33
6	*Carex*	*lasiocarpa*	CARLAS	Tr	Tr	2	100.00
7	*Carex*	*rostrata*	CARROS			Tr	33.33
8	*Carex*	spp. (Stellulatae type)	CARSTE			Tr	33.33
9	*Carex*	*stricta*	CARSTR	Tr		Tr	66.67
10	*Carex*	*utriculata*	CARUTR		Tr		33.33
11	*Chamaedaphne*	*calyculata*	CHACAL		Tr	Tr	66.67
12	*Dulichium*	*arundinaceum*	DULARU		Tr		33.33
13	*Eupatorium*	*maculatum*	EUPMAC	Tr	Tr	Tr	100.00
14	*Glyceria*	*borealis*	GLYBOR			Tr	33.33
15	*Iris*	*versicolor*	IRIVER	Tr	Tr	Tr	100.00
16	*Lysimachia*	spp.	LYSSPP			Tr	33.33
17	*Menyanthes*	*trifoliata*	MENTRI		Tr	Tr	66.67
18	*Myrica*	*gale*	MYRGAL	3	2	2	100.00
19	*Osmunda*	*regalis*	OSMREG		3		33.33
20	*Symplocarpus*	*foetidus*	SYMFOE	Tr		Tr	66.67
21	*Thalictrum*	*dasycarpum*	THADAS	Tr	Tr	Tr	100.00
22	*Viburnum*	*opulus*	VIBOPU	Tr		Tr	66.67
			RICHNESS	11	14	18	

Entire Lake Clams and finger sponges present in lake. PHRAUS and TYPSPP present on lake.

Segment 1 Segment along northern shore, including an open cove. Water is clear. Substrate is sand. MYRGAL on shore; bedrock coming down to shore in places.

Segment 2 Southwest end of lake. Shallow water. Sandy substrate with a +/- firm bottom. Beaver dam present on shore.

Segment 3 Northeastern end of lake; part of shoreline is a CARLAS wet meadow; muck substrate.

Additional species: Angleworm Lake

23	*Campanula*	*aparinoides*	CAMAPA
24	*Chelone*	*glabra*	CHEGLA
25	*Euthamia*	*graminifolia*	EUTGRA
26	*Glyceria*	*canadensis*	GLYCAN
27	*Juniperus*	*communis*	JUNCOM
28	*Lycopus*	*uniflorus*	LYCUNI
29	*Lysimachia*	*terrestris*	LYSTER
30	*Phragmites*	*australis*	PHRAUS
31	*Prenanthes*	*alba*	PREALB
32	*Triadenum*	*fraseri*	TRIFRA
33	*Typha*	spp.	TYPSPP
34	*Viburnum*	*edule*	VIBEDU

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Benson Lake, 4 shoreline segments
Date: 8/12/04
Sampled by: V.Hofman, M.Jones and J.Marr

	GENUS	SPECIES	PCORD	BNLK S1	BNLK S2	BNLK S3	BNLK S4	% Frequency
1	*Aster*	*puniceus*	ASTPUN				Tr	25.00
2	*Aster*	*umbellatus*	ASTUMB		Tr	Tr	Tr	75.00
3	*Calamagrostis*	*canadensis*	CALCAN	1	Tr	1	Tr	100.00
4	*Campanula*	*aparinoides*	CAMAPA		Tr		Tr	50.00
5	*Carex*	*lasiocarpa*	CARLAS	Tr	2	2	3	100.00
6	*Carex*	*limosa*	CARLIM				Tr	25.00
7	*Carex*	*rostrata*	CARROS				Tr	25.00
8	*Carex*	spp. (Stellulatae type)	CARSTE				Tr	25.00
9	*Carex*	*stricta*	CARSTR		Tr			25.00
10	*Cicuta*	*bulbifera*	CICBUL		Tr	Tr	Tr	75.00
11	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr	Tr	Tr	100.00
12	*Equisetum*	*fluviatile*	EQUFLU			Tr		25.00
13	*Eupatorium*	*maculatum*	EUPMAC	Tr	Tr	Tr	Tr	100.00
14	*Euthamia*	*graminifolia*	EUTGRA				Tr	25.00
15	*Impatiens*	*capensis*	IMPCAP				Tr	25.00
16	*Iris*	*versicolor*	IRIVER		Tr	Tr		50.00
17	*Lycopus*	*uniflorus*	LYCUNI	Tr	Tr	Tr		75.00
18	*Lysimachia*	spp.	LYSSPP		Tr	Tr		50.00
19	*Lysimachia*	*terrestris*	LYSTER	Tr	Tr	Tr	Tr	100.00
20	*Menyanthes*	*trifoliata*	MENTRI	Tr		Tr	Tr	75.00
21	*Myrica*	*gale*	MYRGAL	2	1	Tr	Tr	100.00
22	*Potentilla*	*palustris*	POTPAL		Tr		Tr	50.00
23	*Rubus*	spp. (dewberry)	RUBDEW	Tr				25.00
24	*Sarracenia*	*purpurea*	SARPUR			Tr		25.00
25	*Scutellaria*	*galericulata*	SCUGAL			Tr	Tr	50.00
26	*Thalictrum*	*dasycarpum*	THADAS				Tr	25.00
27	*Triadenum*	*fraseri*	TRIFRA	Tr	Tr	Tr	Tr	100.00
28	*Typha*	*latifolia*	TYPLAT			Tr	Tr	50.00
			RICHNESS	10	15	17	21	

Entire Lake Entire lake has ericaceous shrubs and CARLAS and CALCAN along shoreline. PHRAUS and TYPLAT present.
Segment 1 Protected bay; substrate is solid to semi-soft sand and silty sand. Gradual shore.
Segment 2 Protected bay along a CARSPP mat; flocculent substrate.
Segment 3 End of lake, with flocculent sediment along a CARSPP mat. Water is darker in color.
Segment 4 Northeast end of lake and outlet. Flocculent sediment and a fair amount of submergent vegetation near outlet.

Additional species: Benson Lake

29	*Agrostis*	*hyemalis*	AGRHYE
30	*Chelone*	*glabra*	CHEGLA
31	*Glyceria*	*canadensis*	GLYCAN
32	*Juncus*	*brevicaudatus*	JUNBRE
33	*Lysimachia*	*thyrsiflora*	LYSTHY
34	*Phragmites*	*australis*	PHRAUS
35	*Typha*	spp.	TYPSPP

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Chippewa Harbor, 3 shoreline segments
Date: 8/7/2003
Sampled by: J.Meeker and J.Elias (segments 1 & 3); A.Harris and J.Marr (segment 4)

S2 not sampled

	GENUS	SPECIES	PCORD	CHHA S1	CHHA S3	CHHA S4	% Freq.
1	*Agrostis*	*hyemalis*	AGRHYE	Tr			33.3
2	*Alnus*	*incana*	ALNINC	1			33.3
3	*Aster*	*puniceus*	ASTPUN	Tr			33.3
4	*Aster*	*umbellatus*	ASTUMB	Tr			33.3
5	*Bidens*	*cernua*	BIDCER	Tr			33.3
6	*Calamagrostis*	*canadensis*	CALCAN	Tr	1	2	100.0
7	*Campanula*	*aparinoides*	CAMAPA	Tr	Tr	1	100.0
8	*Carex*	*aquatilis*	CARAQU		2		33.3
9	*Carex*	*aurea*	CARAUR			Tr	33.3
10	*Carex*	*bebbii*	CARBEB			Tr	33.3
11	*Carex*	*buxbaumii*	CARBUX	1			33.3
12	*Carex*	*flava*	CARFLA	Tr		1	66.7
13	*Carex*	*interior*	CARINT	Tr			33.3
14	*Carex*	*lacustris*	CARLAC		Tr	Tr	66.7
15	*Carex*	*lasiocarpa*	CARLAS	5	2	3	100.0
16	*Carex*	*utriculata*	CARUTR		2	2	66.7
17	*Chelone*	*glabra*	CHEGLA	Tr			33.3
18	*Cicuta*	*bulbifera*	CICBUL	Tr	Tr	Tr	100.0
19	*Dulichium*	*arundinaceum*	DULARU	Tr		Tr	66.7
20	*Eleocharis*	spp.	ELESPP			Tr	33.3
21	*Epilobium*	*ciliatum*	EPICIL		Tr		33.3
22	*Equisetum*	*fluviatile*	EQUFLU	1	1	1	100.0
23	*Eupatorium*	*maculatum*	EUPMAC		Tr	Tr	66.7
24	*Glyceria*	*borealis*	GLYBOR			Tr	33.3
25	*Glyceria*	*canadensis*	GLYCAN		Tr		33.3
26	*Habenaria*	*hyperborea*	HABHYP		Tr		33.3
27	*Habenaria*	*psycodes*	HABPSY	Tr			33.3
28	*Hieracium*	spp.	HIESPP	Tr			33.3
29	*Hypericum*	*canadense*	HYPCAN	Tr			33.3
30	*Impatiens*	*capensis*	IMPCAP		Tr	Tr	66.7
31	*Iris*	*versicolor*	IRIVER	Tr			33.3
32	*Juncus*	*brevicaudatus*	JUNBRE		Tr		33.3
33	*Juncus*	*effusus*	JUNEFF		Tr		33.3
34	*Juncus*	*nodosus*	JUNNOD			Tr	33.3
35	*Lycopus*	*americanus*	LYCAME	Tr			33.3
36	*Lycopus*	*uniflorus*	LYCUNI	Tr		Tr	66.7
37	*Lysimachia*	*terrestris*	LYSTER		Tr	1	66.7
38	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr			33.3
39	*Mentha*	*arvensis*	MENARV		Tr	Tr	66.7
40	*Myrica*	*gale*	MYRGAL	1	1	2	100.0
41	*Phalaris*	*arundinacea*	PHAARU			Tr	33.3
42	*Phleum*	*pratense*	PHLPRA			Tr	33.3
43	*Physocarpus*	*opulifolius*	PHYOPU			Tr	33.3
44	*Poa*	*palustris*	POAPAL			1	33.3
45	*Polygonum*	*sagittatum*	POLSAG		Tr	3	66.7
46	*Potentilla*	*norvegica*	POTNOR	Tr			33.3

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Chippewa Harbor, 3 shoreline segments
Date: 8/7/2003
Sampled by: J.Meeker and J.Elias (segments 1 & 3); A.Harris and J.Marr (segment 4)

S2 not sampled

	GENUS	SPECIES	PCORD	CHHA S1	CHHA S3	CHHA S4	% Freq.
47	*Potentilla*	*palustris*	POTPAL	Tr	Tr		66.7
48	*Ranunculus*	spp.	RANSPP			Tr	33.3
49	*Rubus*	spp. (dewberry)	RUBDEW	Tr			33.3
50	*Rumex*	spp.	RUMSPP		Tr		33.3
51	*Scirpus*	*cyperinus*	SCICYP		Tr		33.3
52	*Scutellaria*	*galericulata*	SCUGAL		Tr	Tr	66.7
53	*Sium*	*suave*	SIUSUA		Tr		33.3
54	*Spiraea*	*alba*	SPIALB			2	33.3
55	*Thalictrum*	*dasycarpum*	THADAS	Tr	Tr	Tr	100.0
56	*Thelypteris*	*palustris*	THEPAL	Tr			33.3
57	*Thuja*	*occidentalis*	THUOCC	Tr			33.3
58	*Typha*	*latifolia*	TYPLAT	Tr			33.3
59	*Utricularia*	*intermedia*	UTRINT		Tr		33.3
60	*Viola*	spp.	VIOSPP			Tr	33.3
			RICHNESS	30	26	30	

Segment 1 Originally segment 2. Sampled by Meeker and Elias; sedge meadow along creek with *Carex lasiocarpa/C. utriculata* strand

Segment 2 no data - not sampled for shoreline

Segment 3 Originally segment 4. Sampled by Meeker and Elias; sedge meadow segment along creek

Segment 4 Originally segment 6. Sampled by A.Harris and J.Marr; shoreline fen

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Duncan Bay, 8 shoreline segments
Date: 8/8/04
Sampled by: J.Elias and J.Meeker (segments 3-5) and V.Hofman and J.Marr (segments 1, 2, 6-8)

	GENUS	SPECIES	PCORD	DUBY S1	DUBY S2	DUBY S3	DUBY S4	DUBY S5	DUBY S6	DUBY S7	DUBY S8	% Freq.
1	*Agrostis*	*hyemalis*	AGRHYE	Tr	Tr	Tr	Tr	Tr	Tr	Tr		87.50
2	*Alnus*	*incana*	ALNINC	Tr					Tr	Tr	Tr	50.00
3	*Anaphalis*	*margaritacea*	ANAMAR	Tr	Tr				Tr	Tr		50.00
4	*Andromeda*	*glaucophylla*	ANDGLA	Tr								12.50
5	*Aster*	*macrophyllus*	ASTMAC		Tr							12.50
6	*Aster*	*puniceus*	ASTPUN	Tr	Tr	Tr		Tr	Tr	Tr	Tr	87.50
7	*Aster*	*umbellatus*	ASTUMB	Tr					Tr			25.00
8	*Asteraceae*	spp.	ASTESP				Tr					12.50
9	*Calamagrostis*	*canadensis*	CALCAN		Tr	Tr	Tr	Tr	Tr	Tr	Tr	87.50
10	*Calla*	*palustris*	CALLAP								Tr	12.50
11	*Caltha*	*palustris*	CALPAL	Tr			Tr					25.00
12	*Campanula*	*aparinoides*	CAMAPA	Tr	Tr	Tr	Tr	Tr	Tr		Tr	87.50
13	*Carex*	*aquatilis*	CARAQU	Tr		Tr		3	2	Tr		62.50
14	*Carex*	*aurea*	CARAUR					Tr	Tr	Tr		37.50
15	*Carex*	*bebbii*	CARBEB	Tr						Tr		25.00
16	*Carex*	*chordorrhiza*	CARCHO	Tr								12.50
17	*Carex*	*flava*	CARFLA	Tr		Tr	Tr	Tr	Tr	Tr	Tr	87.50
18	*Carex*	*hystericina*	CARHYS		Tr		Tr	Tr		Tr	Tr	62.50
19	*Carex*	*lasiocarpa*	CARLAS	2							1	25.00
20	*Carex*	*leptalea*	CARLEP	Tr								12.50
21	*Carex*	*retrorsa*	CARRET							Tr		12.50
22	*Carex*	*rostrata*	CARROS	2				Tr	1		1	50.00
23	*Carex*	spp.	CARSPP		Tr							12.50
24	*Carex*	spp. (Ovales type)	CAROVA	Tr								12.50
25	*Carex*	spp. (Stellulatae type)	CARSTE	Tr			Tr			Tr		37.50
26	*Carex*	*stipata*	CARSTI	Tr						Tr		25.00
27	*Carex*	*stricta*	CARSTR	Tr						Tr		25.00
28	*Carex*	*utriculata*	CARUTR	Tr			Tr					25.00
29	*Carex*	*viridula*	CARVIR			Tr						12.50
30	*Chelone*	*glabra*	CHEGLA	Tr					Tr			25.00
31	*Cicuta*	*bulbifera*	CICBUL	Tr					Tr	Tr		37.50
32	*Cirsium*	*arvense*	CIRARV							Tr		12.50
33	*Dulichium*	*arundinaceum*	DULARU	Tr			Tr			Tr		37.50
34	*Eleocharis*	*palustris*	ELEPAL		Tr						Tr	25.00
35	*Eleocharis*	spp.	ELESPP	Tr								12.50
36	*Elymus*	*canadensis*	ELYCAN	Tr	Tr					Tr		37.50
37	*Elymus*	*trachycaulus*	ELYTRA					Tr				12.50

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Duncan Bay, 8 shoreline segments
Date: 8/8/04
Sampled by: J.Elias and J.Meeker (segments 3-5) and V.Hofman and J.Marr (segments 1, 2, 6-8)

	GENUS	SPECIES	PCORD	DUBY S1	DUBY S2	DUBY S3	DUBY S4	DUBY S5	DUBY S6	DUBY S7	DUBY S8	% Freq.
38	*Epilobium*	*angustifolium*	EPIANG	Tr	Tr							25.00
39	*Epilobium*	*leptophyllum*	EPILEP							Tr		12.50
40	*Epilobium*	spp.	EPISPP		Tr		Tr	Tr			Tr	50.00
41	*Epilobium*	spp. *(ciliatum or coloratum)*	EPISCC							Tr		12.50
42	*Equisetum*	*arvense*	EQUARV	Tr	Tr		Tr		Tr	Tr		62.50
43	*Equisetum*	*fluviatile*	EQUFLU						Tr		Tr	25.00
44	*Equisetum*	spp.	EQUSPP					Tr				12.50
45	*Eupatorium*	*maculatum*	EUPMAC	Tr	Tr	Tr	Tr	Tr	Tr	Tr	Tr	100.00
46	*Euthamia*	*graminifolia*	EUTGRA			Tr		Tr				25.00
47	*Fragaria*	*virginiana*	FRAVIR						Tr			12.50
48	*Galium*	*tinctorium*	GALTIN	Tr								12.50
49	*Galium*	*triflorum*	GALTRI	Tr								12.50
50	*Gentiana*	*rubricaulis*	GENRUB	Tr								12.50
51	*Glyceria*	*borealis*	GLYBOR	Tr	Tr				Tr	Tr		50.00
52	*Glyceria*	*canadensis*	GLYCAN			Tr	Tr					25.00
53	*Glyceria*	*striata*	GLYSTR	Tr	Tr			Tr	Tr	Tr	Tr	75.00
54	*Habenaria*	*hyperborea*	HABHYP	Tr			Tr	Tr	Tr		Tr	62.50
55	*Halenia*	*deflexa*	HALDEF			Tr						12.50
56	*Hieracium*	*kalmii*	HIEKAL						Tr			12.50
57	*Hieracium*	spp.	HIESPP	Tr	Tr				Tr	Tr		50.00
58	*Hypericum*	*boreale*	HYPBOR			Tr						12.50
59	*Impatiens*	*capensis*	IMPCAP		Tr	Tr		Tr	Tr	Tr	Tr	75.00
60	*Iris*	*versicolor*	IRIVER	Tr	Tr	Tr	Tr	Tr	Tr	Tr	Tr	100.00
61	*Juncus*	*brevicaudatus*	JUNBRE	Tr	Tr	1	1	Tr	Tr	Tr		87.50
62	*Juncus*	*effusus*	JUNEFF	Tr					Tr	Tr	Tr	50.00
63	*Juncus*	*nodosus*	JUNNOD				Tr	1	Tr	Tr		50.00
64	*Juncus*	*tenuis var. dudleyi*	JUNDUD						Tr			12.50
65	*Lactuca*	spp.	LATSPP		Tr	Tr				Tr	Tr	50.00
66	*Lycopodium*	*clavatum*	LYCCLA	Tr						Tr		25.00
67	*Lycopus*	*americanus*	LYCAME	Tr	Tr	Tr	Tr		Tr	Tr		75.00
68	*Lycopus*	*uniflorus*	LYCUNI	Tr	Tr				Tr	Tr	Tr	62.50
69	*Lysimachia*	*terrestris*	LYSTER	Tr	Tr	Tr	Tr		Tr		Tr	75.00
70	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr	Tr	Tr		Tr	Tr	Tr	Tr	87.50
71	*Mentha*	*arvensis*	MENARV	Tr		Tr		Tr		Tr		50.00
72	*Menyanthes*	*trifoliata*	MENTRI	Tr							Tr	25.00
73	*Myrica*	*gale*	MYRGAL	Tr	Tr	2			Tr	Tr	Tr	75.00
74	*Phalaris*	*arundinaceae*	PHAARU	Tr		Tr	Tr	Tr		Tr		62.50
75	*Phragmites*	*australis*	PHRAUS			2						12.50
76	*Physocarpus*	*opulifolius*	PHYOPU	Tr					Tr	Tr		37.50

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Duncan Bay, 8 shoreline segments
Date: 8/8/04
Sampled by: J.Elias and J.Meeker (segments 3-5) and V.Hofman and J.Marr (segments 1, 2, 6-8)

	GENUS	SPECIES	PCORD	DUBY S1	DUBY S2	DUBY S3	DUBY S4	DUBY S5	DUBY S6	DUBY S7	DUBY S8	% Freq.
77	*Polygala*	*paucifolia*	POLPAU	Tr								12.50
78	*Polygonum*	*amphibium*	POLAMP	Tr								12.50
79	*Potentilla*	*norvegica*	POTNOR	Tr	Tr			Tr	Tr		Tr	62.50
80	*Potentilla*	*palustris*	POTPAL	Tr								12.50
81	*Ranunculus*	*flammula*	RANFLA								Tr	12.50
82	*Rorippa*	spp.	RORSPP	Tr						Tr		25.00
83	*Rubus*	spp.	RUBSPP							Tr		12.50
84	*Rubus*	spp. (dewberry)	RUBDEW	Tr					Tr			25.00
85	*Rumex*	spp.	RUMSPP								Tr	12.50
86	*Scirpus*	*acutus*	SCIACU	Tr	Tr							25.00
87	*Scirpus*	*cyperinus*	SCICYP	Tr			Tr			Tr		37.50
88	*Scutellaria*	*galericulata*	SCUGAL	Tr	Tr					Tr	Tr	50.00
89	*Scutellaria*	*lateriflora*	SCULAT	Tr								12.50
90	*Sium*	*suave*	SIUSUA	Tr	Tr				Tr	Tr	Tr	62.50
91	*Solidago*	*spp.(umbel)*	SOLSPP		Tr						Tr	25.00
92	*Symplocarpus*	*foetidus*	SYMFOE	Tr								12.50
93	*Taraxacum*	*officinale*	TAROFF	Tr								12.50
94	*Thalictrum*	*dasycarpum*	THADAS	Tr	Tr	Tr			Tr	Tr	Tr	75.00
95	*Thuja*	*occidentalis*	THUOCC		Tr						Tr	25.00
96	*Triadenum*	*fraseri*	TRIFRA	Tr	Tr						Tr	37.50
97	*Typha*	spp.	TYPSPP	Tr				Tr	Tr		Tr	50.00
98	*Viola*	spp.	VIOSPP	Tr						Tr		25.00
			RICHNESS	65	34	24	22	25	39	46	34	

Segment 1 Segment is in inlet to bay; narrow and sheltered. Lots of aquatic and shoreline species.

Segment 2 no notes

Segment 3 Wind swept shoreline. Part of bay w/ wetland shelf (large reed bed) and steep sandy bank; part w/ overhanging MYRGAL on organic undercut ledge. Substr firm sand and some detritus.

Segment 4 Windswept area with firm substrate and reed beds; near narrows on west side. Sparse aquatics present.

Segment 5 Near narrows, E side. Wind swept bay with a deep trough down middle. Firm bottom. Most aquatics at ~ 1-1.5m H2O.

Segment 6 End of a bay and inlet. Sediment rocky and sandy in bay turning to silt on sand, firm to mucky in inlet. Some aquatic vegetation especially in inlet. ELEPAL beds in bay. Inlet lined with CARROS and CARAQU. TYPSPP present.

Segment 7 End of bay with a little beach. Sediment is sand with a little detritus; shallow shores, gradually sloping. Very little aquatic vegetation; fringe of shoreline veg. PHAARU present.

Segment 8 End of bay near inlet. Sediment is silty sand firm to soft. Old logs present. CARROS patches on sides of bay near inlet. A fair amount of NUPVAR. TYPSPP present. Beaver swimming around.

Additional species: Duncan Bay

99	*Eriophorum*	*gracile*	ERIGRA
100	*Typha*	*latifolia*	TYPLAT

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Lake Eva, 6 segments
Date: 8/4/04
Sampled by: J.Elias and J.Meeker (segs 1, 2-4) and V.Hofman and J.Marr (segs 1, 2, 5, 6)

	GENUS	SPECIES	PCORD	EVLK S1	EVLK S2	EVLK S3	EVLK S4	EVLK S5	EVLK S6	% Freq.
1	*Agrostis*	*hyemalis*	AGRHYE	Tr			Tr			33.3
2	*Andromeda*	*glaucophylla*	ANDGLA					Tr		16.7
3	*Calamagrostis*	*canadensis*	CALCAN	Tr	Tr		Tr	Tr	Tr	83.3
4	*Campanula*	*aparinoides*	CAMAPA				Tr	Tr	Tr	50.0
5	*Carex*	*canescens*	CARCAN	Tr						16.7
6	*Carex*	*hystericina*	CARHYS	Tr	Tr					33.3
7	*Carex*	*lasiocarpa*	CARLAS	Tr			1	Tr		50.0
8	*Carex*	*retrorsa*	CARRET				Tr			16.7
9	*Carex*	*rostrata*	CARROS		1					16.7
10	*Carex*	spp.	CARSPP		Tr					16.7
11	*Carex*	*stipata*	CARSTI	Tr		Tr				33.3
12	*Carex*	*viridula*	CARVIR		Tr					16.7
13	*Chamaedaphne*	*calyculata*	CHACAL					Tr		16.7
14	*Cicuta*	*bulbifera*	CICBUL					Tr		16.7
15	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr		Tr	Tr	Tr	83.3
16	*Eleocharis*	*acicularis*	ELEACI			2	Tr	1		50.0
17	*Eleocharis*	*palustris*	ELEPAL	Tr	1		Tr	2	Tr	83.3
18	*Epilobium*	spp.	EPISPP	Tr						16.7
19	*Equisetum*	*fluviatile*	EQUFLU				1			16.7
20	*Eupatorium*	*maculatum*	EUPMAC	Tr	Tr	Tr		Tr	Tr	83.3
21	*Euthamia*	*graminifolia*	EUTGRA		Tr				Tr	33.3
22	*Glyceria*	*borealis*	GLYBOR		Tr	Tr	Tr		Tr	66.7
23	*Glyceria*	*grandis*	GLYGRA	Tr						16.7
24	*Glyceria*	*striata*	GLYSTR	Tr						16.7
25	*Hippurus*	*vulgaris*	HIPVUL			Tr				16.7
26	*Impatiens*	*capensis*	IMPCAP						Tr	16.7
27	*Iris*	*versicolor*	IRIVER	Tr		Tr			Tr	50.0
28	*Juncus*	*brevicaudatus*	JUNBRE	Tr	Tr		Tr	Tr	Tr	83.3
29	*Juncus*	*nodosus*	JUNNOD	Tr	Tr		Tr			50.0
30	*Lycopus*	*americanus*	LYCAME				Tr		Tr	33.3
31	*Lycopus*	*uniflorus*	LYCUNI	Tr				Tr	Tr	50.0
32	*Lysimachia*	*terrestris*	LYSTER		Tr	Tr	Tr	Tr	Tr	83.3
33	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr	Tr	Tr		Tr	Tr	83.3
34	*Mentha*	*arvensis*	MENARV	Tr	Tr	Tr		Tr		66.7
35	*Panicum*	spp.	PANSPP					Tr		16.7
36	*Poa*	*palustris*	POAPAL					Tr		16.7
37	*Potentilla*	*palustris*	POTPAL				Tr	Tr	Tr	50.0
38	*Ranunculus*	*flammula*	RANFLA				Tr			16.7
39	*Rubus*	*spp. (dewberry)*	RUBDEW					Tr		16.7
40	*Sagittaria*	*latifolia*	SAGLAT				Tr			16.7
41	*Scirpus*	*cyperinus*	SCICYP	Tr	Tr					33.3
42	*Scutellaria*	*galericulata*	SCUGAL			Tr	Tr	Tr		50.0
43	*Scutellaria*	*lateriflora*	SCULAT				Tr			16.7
44	*Sium*	*suave*	SIUSUA	Tr	Tr	1	Tr	Tr	Tr	100.0
45	*Sparganium*	*spp.*	SPASPP					Tr		16.7
46	*Triadenum*	*fraseri*	TRIFRA	Tr			Tr	Tr	Tr	66.7
47	*Typha*	spp.	TYPSPP						Tr	16.7
48	*Viola*	spp.	VIOSPP						Tr	16.7
			RICHNESS	21	17	11	21	23	19	

Entire Lake Narrow wetland fringe along lake with small wetlands in bays. Several Isoetid shelves. Stream connects to "Eva Pond" with additional species included in Lake Eva data).

Segment 1 East bay of lake (rich). Narrow band of shoreline vegetation, no single dominant species. Sponges present (*Spongilla lacustris*).

Segment 2 Larger east bay of lake. Narrow fringe of shoreline species. Sponge present (*S. lacustris*).

Segment 3 Along south side of lake. Very narrow band of shoreline vegetation along steep rocky bank. Sponge present.

Segment 4 Western end of lake. Wave pounded shore, band of shoreline, then thick band of ELEPAL and EQUFLU, and then band of SPAFLU. Fragments of aquatics washed in.

Segment 5 Western end of lake. Shallow cove with rocky and silty muck bottom.

Segment 6 3 plants of TYPSPP, probably TYPLAT

Additional species: Lake Eva

49	*Typha*	*latifolia*	TYPLAT

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Eva Pond, 1 shoreline segment (entire lake)
Date: 8/4/04
Sampled by: J.Elias, V.Hofman, J.Marr and J.Meeker

	GENUS	SPECIES	PCORD	EVPD S1	% Frequency
1	*Alnus*	*incana*	ALNINC	Tr	100.0
2	*Andromeda*	*glaucophylla*	ANDGLA	Tr	100.0
3	*Calamagrostis*	*canadensis*	CALCAN	Tr	100.0
4	*Campanula*	*aparinoides*	CAMAPA	Tr	100.0
5	*Carex*	*aquatilis*	CARAQU	Tr	100.0
6	*Carex*	*diandra*	CARDIA	Tr	100.0
7	*Carex*	*lasiocarpa*	CARLAS	5	100.0
8	*Carex*	*limosa*	CARLIM	Tr	100.0
9	*Carex*	*utriculata*	CARUTR	Tr	100.0
10	*Chamaedaphne*	*calyculata*	CHACAL	Tr	100.0
11	*Cicuta*	*bulbifera*	CICBUL	Tr	100.0
12	*Drosera*	*rotundifolia*	DROROT	Tr	100.0
13	*Dulichium*	*arundinaceum*	DULARU	Tr	100.0
14	*Eleocharis*	*palustris*	ELEPAL	Tr	100.0
15	*Eriophorum*	spp.	ERISPP	Tr	100.0
16	*Eupatorium*	*maculatum*	EUPMAC	Tr	100.0
17	*Glyceria*	*borealis*	GLYBOR	Tr	100.0
18	*Iris*	*versicolor*	IRIVER	Tr	100.0
19	*Juncus*	*effusus*	JUNEFF	Tr	100.0
20	*Lycopus*	*americanus*	LYCAME	Tr	100.0
21	*Lycopus*	*uniflorus*	LYCUNI	Tr	100.0
22	*Lysimachia*	*terrestris*	LYSTER	Tr	100.0
23	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr	100.0
24	*Menyanthes*	*trifoliata*	MENTRI	Tr	100.0
25	*Sagittaria*	*latifolia*	SAGLAT	Tr	100.0
26	*Sagittaria*	spp.	SAGSPP	Tr	100.0
27	*Scirpus*	*acutus*	SCIACU	Tr	100.0
28	*Sparganium*	spp.	SPASPP	Tr	100.0
29	*moss*	spp.	MOSSPP	Tr	100.0
30	*Potentilla*	*palustris*	POTPAL	Tr	100.0
31	*Scirpus*	*cyperinus*	SCICYP	Tr	100.0
32	*Scutellaria*	*galericulata*	SCUGAL	Tr	100.0
33	*Triadenum*	*fraseri*	TRIFRA	Tr	100.0
34	*Typha*	*latifolia*	TYPLAT	1	100.0
35	*Vaccinium*	*macrocarpon*	VACMAC	Tr	100.0
			RICHNESS	35	

Segment 1 Entire lake and shoreline were sampled. Sponges present (*Spongilla lacustris* and others). False bottom in places; fringed with CARLAS floating peat mats with SPHSPP (which is grounded inland). POTNAT = 25% of lake cover. Lake drains to Lake Eva.

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Feldtmann Lake, 2 shoreline segments
Date: 6/29/04
Sampled by: V.Hofman and C.Tyrrell (segment 1) and V.Hofman and E.Judzeiwitz (segment 2)

	GENUS	SPECIES	PCORD	FDLK S1	FDLK S2	not sampled FDLK S3	% Frequency
1	*Calamagrostis*	*canadensis*	CALCAN		Tr		50.0
2	*Campanula*	*aparinoides*	CAMAPA	Tr	Tr		100.0
3	*Carex*	spp.	CARSPP	1	Tr		100.0
4	*Carex*	*vesicaria*	CARVES		1		50.0
5	*Dulichium*	*arundinaceum*	DULARU		Tr		50.0
6	*Equisetum*	*fluviatile*	EQUFLU		1		50.0
7	*Glyceria*	*borealis*	GLYBOR	Tr	Tr		100.0
8	*Iris*	*versicolor*	IRIVER		Tr		50.0
9	*Juncus*	spp.	JUNSPP		Tr		50.0
10	*Lycopus*	*uniflorus*	LYCUNI	Tr			50.0
11	*Lysimachia*	*thyrsiflora*	LYSTHY		Tr		50.0
12	*Mentha*	*arvensis*	MENARV	Tr	Tr		100.0
13	*Myrica*	*gale*	MYRGAL		Tr		50.0
14	*Poa*	spp.	POASPP	Tr			50.0
			RICHNESS	6	12		

Entire Lake Originally, the entire lake was sampled such that each large reed bed was given its own segment and the vegetation there was given a percent coverage. The two current segments were created from that data. Firm sandy substrate throughout. Little submergent vegetation, save for a few beds of POTAMP. There is +/- a fringe of ELEPAL around the entire lake. Heavy moose usage (7 in the water during sampling). Water is dark and difficult to see deeper than 1m. Water level appears 1-2" high, although shrub line is 1' above water level. (Emmet says that the beaver dam was repaired in the last several years and the water level is up, but may not be at the original high water mark.)

Segment 1 Northwestern end of lake. Substrate was firm gravel and coarse sand.

Segment 2 Along southern shore and includes a shallow little bay, which supports more vegetation. Substrate in bay is mucky, out of bay is gravel/ coarse sand. Several patches of floating and emergent vegetation.

Segment 3 Southwest end of lake, aquatic sampled only

Additional species: Feldtmann Lake

15	*Alnus*	*incana*	ALNINC
16	*Cyperaceae*	spp.	CYPSPP
17	*Eupatorium*	*maculatum*	EUPMAC

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Five Finger Bay, 2 shoreline segments
Date: 8/8/04
Sampled by: J.Elias and J.Meeker (segment 1) and V.Hofman and J.Marr (segment 2)

	GENUS	SPECIES	PCORD	FFBY S1	FFBY S2	% Frequency
1	*Achillea*	*millefolium*	ACHMIL		Tr	50.0
2	*Agrostis*	*hyemalis*	AGRHYE	Tr	Tr	100.0
3	*Anaphalis*	*margaritacea*	ANAMAR		Tr	50.0
4	*Aster*	*macrophyllus*	ASTMAC		Tr	50.0
5	*Aster*	*puniceus*	ASTPUN	Tr		50.0
6	*Calamagrostis*	*canadensis*	CALCAN		Tr	50.0
7	*Caltha*	*palustris*	CALPAL	Tr	Tr	100.0
8	*Carex*	*aquatilis*	CARAQU	Tr		50.0
9	*Carex*	*atratiformis*	CARATR		Tr	50.0
10	*Carex*	*aurea*	CARAUR	Tr		50.0
11	*Carex*	*flava*	CARFLA	Tr		50.0
12	*Carex*	*hystericina*	CARHYS	Tr	Tr	100.0
13	*Carex*	*lasiocarpa*	CARLAS	Tr		50.0
14	*Carex*	spp. (Ovales type)	CAROVA	Tr		50.0
15	*Carex*	*stipata*	CARSTI	Tr		50.0
16	*Carex*	*utriculata*	CARUTR	1		50.0
17	*Caryophyllaceae*	spp.	CAYSPP		Tr	50.0
18	*Castilleja*	*septentrionalis*	CASSEP		Tr	50.0
19	*Chelone*	*glabra*	CHEGLA		Tr	50.0
20	*Cirsium*	*arvense*	CIRARV		Tr	50.0
21	*Cirsium*	*vulgare*	CIRVUL		Tr	50.0
22	*Epilobium*	spp.	EPISPP	Tr		50.0
23	*Eupatorium*	*maculatum*	EUPMAC	Tr		50.0
24	*Euthamia*	*graminifolia*	EUTGRA	Tr		50.0
25	*Geocaulon*	*lividum*	GEOLIV		Tr	50.0
26	*Glyceria*	spp.	GLYSPP	Tr		50.0
27	*Halenia*	*deflexa*	HALDEF	Tr	Tr	100.0
28	*Hieracium*	spp.	HIESPP		Tr	50.0
29	*Hypericum*	spp.	HYPSPP		Tr	50.0
30	*Impatiens*	*capensis*	IMPCAP	Tr	Tr	100.0
31	*Iris*	*versicolor*	IRIVER	Tr		50.0
32	*Liliaceae*	spp.	LILSPP		Tr	50.0
33	*Lycopus*	*americanus*	LYCAME	Tr	Tr	100.0
34	*Lycopus*	*uniflorus*	LYCUNI		Tr	50.0
35	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr		50.0
36	*Mentha*	*arvensis*	MENARV	Tr	Tr	100.0
37	*Myrica*	*gale*	MYRGAL		Tr	50.0
38	*Phalaris*	*arundinacea*	PHAARU	Tr	Tr	100.0
39	*Physocarpus*	*opulifolius*	PHYOPU		Tr	50.0
40	*Pinguicula*	*vulgaris*	PINVUL		Tr	50.0
41	*Polygonum*	*sagittatum*	POLSAG	Tr		50.0
42	*Polygonum*	spp.	POLSPP		Tr	50.0
43	*Potentilla*	*anserina*	POTANS		Tr	50.0
44	*Potentilla*	*norvegica*	POTNOR		Tr	50.0
45	*Potentilla*	*palustris*	POTPAL		Tr	50.0
46	*Ranunculus*	spp.	RANSPP	Tr	Tr	100.0
47	*Rorippa*	spp.	RORSPP		Tr	50.0
48	*Scutellaria*	*galericulata*	SCUGAL	Tr		50.0
49	*Sium*	*suave*	SIUSUA	Tr		50.0
50	*Solidago*	spp.(umbel)	SOLSPP		Tr	50.0
51	*Sonchus*	spp.	SONSPP	Tr		50.0
52	*Thalictrum*	*dasycarpum*	THADAS	Tr	Tr	100.0
			RICHNESS	28	34	

Segment 1 Very narrow protected bay. Substrate firm. Steep bank with narrow fringe of wetland veg. except in end of bay where it is wider. Seiche activity observed.
Segment 2 Segment along southeast side of a cove. Substrate = firm sand.

Additional species: Five Finger Bay

53	*Typha*	spp.	TYPSPP

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Forbes Lake, 2 shoreline segments
Date: 8/12/04
Sampled by: V.Hofman, M.Jones and J.Marr

	GENUS	SPECIES	PCORD	FOLK S1	FOLK S2	% Frequency
1	*Andromeda*	*glaucophylla*	ANDGLA	Tr		50.0
2	*Aster*	*umbellatus*	ASTUMB	Tr	Tr	100.0
3	*Calamagrostis*	*canadensis*	CALCAN	Tr	Tr	100.0
4	*Campanula*	*aparinoides*	CAMAPA	Tr		50.0
5	*Carex*	*aquatilis*	CARAQU		Tr	50.0
6	*Carex*	*lasiocarpa*	CARLAS		1	50.0
7	*Carex*	*stricta*	CARSTR	Tr	Tr	100.0
8	*Chamaedaphne*	*calyculata*	CHACAL		Tr	50.0
9	*Chelone*	*glabra*	CHEGLA	Tr	Tr	100.0
10	*Drosera*	*rotundifolia*	DROROT		Tr	50.0
11	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr	100.0
12	*Equisetum*	*fluviatile*	EQUFLU	Tr	Tr	100.0
13	*Eupatorium*	*maculatum*	EUPMAC	Tr	Tr	100.0
14	*Habenaria*	*dilatata*	HABDIL	Tr	Tr	100.0
15	*Iris*	*versicolor*	IRIVER	Tr	Tr	100.0
16	*Lycopus*	*uniflorus*	LYCUNI		Tr	50.0
17	*Lysimachia*	spp.	LYSSPP	Tr	Tr	100.0
18	*Menyanthes*	*trifoliata*	MENTRI	Tr	Tr	100.0
19	*Myrica*	*gale*	MYRGAL	Tr		50.0
20	*Osmunda*	*regalis*	OSMREG		1	50.0
21	*Potentilla*	*palustris*	POTPAL		Tr	50.0
22	*Rhynchospora*	*alba*	RHYALB	Tr		50.0
23	*Sagittaria*	*latifolia*	SAGLAT	Tr		50.0
24	*Scirpus*	*hudsonianus*	SCIHUD	Tr	Tr	100.0
25	*Sium*	*suave*	SIUSUA		Tr	50.0
26	*Solidago*	*uliginosa*	SOLULI	Tr	Tr	100.0
27	*Symplocarpus*	*foetidus*	SYMFOE	Tr	Tr	100.0
28	*Thelypteris*	*palustris*	THEPAL	Tr		50.0
29	*Triadenum*	*fraseri*	TRIFRA	Tr		50.0
30	*Viburnum*	*edule*	VIBEDU		Tr	50.0
			RICHNESS	21	23	

Entire Lake Water is tannic colored. Periphyton and finger sponges present. *Calamagrostis* sp. (m3211).
Segment 1 Northeastern end of lake. Shore is a cedar swamp.
Segment 2 Southwestern end of lake, including several small bays. Part of shoreline was a rocky ledge; cedar swamp along other part. THUOCC trees along edge.

Additional species: Forbes Lake

31	*Alnus*	*incana*	ALNINC
32	*Calamagrostis*	spp.	CLGSPP
33	*Kalmia*	*polifolia*	KALPOL
34	*Ledum*	*groenlandicum*	LEDGRO
35	*Lysimachia*	*terrestris*	LYSTER
36	*Pogonia*	*ophioglossoides*	POGOPH
37	*Sarracenia*	*purpurea*	SARPUR
38	*Thuja*	*occidentalis*	THUOCC
39	*Typha*	*latifolia*	TYPLAT
40	*Vaccinium*	*oxycoccos*	VACOXY

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Hidden Lake, 1 shoreline segment (presence only)
Date: 7/4/2003
Sampled by: Emmet Judziewicz

	GENUS	SPECIES	PCORD	HILK S1	% Frequency
1	*Alnus*	*incana*	ALNINC	X	100.0
2	*Andromeda*	*glaucophylla*	ANDGLA	X	100.0
3	*Brasenia*	*schreberi*	BRASCH	X	100.0
4	*Calamagrostis*	*canadensis*	CALCAN	X	100.0
5	*Carex*	*aquatilis*	CARAQU	X	100.0
6	*Carex*	*buxbaumii*	CARBUX	X	100.0
7	*Carex*	*flava*	CARFLA	X	100.0
8	*Carex*	*intumescens*	CARINU	X	100.0
9	*Carex*	*lasiocarpa*	CARLAS	X	100.0
10	*Carex*	*limosa*	CARLIM	X	100.0
11	*Carex*	*livida*	CARLIV	X	100.0
12	*Carex*	*michauxiana*	CARMIC	X	100.0
13	*Carex*	*retrorsa*	CARRET	X	100.0
14	*Chamaedaphne*	*calyculata*	CHACAL	X	100.0
15	*Drosera*	*intermedia*	DROINT	X	100.0
16	*Drosera*	*rotundifolia*	DROROT	X	100.0
17	*Dulichium*	*arundinaceum*	DULARU	X	100.0
18	*Eleocharis*	*pauciflora*	ELEPAU	X	100.0
19	*Eleocharis*	*tenuis var. borealis*	ELETEN	X	100.0
20	*Equisetum*	*arvense*	EQUARV	X	100.0
21	*Equisetum*	*fluviatile*	EQUFLU	X	100.0
22	*Eriophorum*	*viridicarinatum*	ERIVIR	X	100.0
23	*Eupatorium*	*maculatum*	EUPMAC	X	100.0
24	*Gentiana*	*rubricaulis*	GENRUB	X	100.0
25	*Glyceria*	*striata*	GLYSTR	X	100.0
26	*Iris*	*versicolor*	IRIVER	X	100.0
27	*Juncus*	*brevicaudatus*	JUNBRE	X	100.0
28	*Liparis*	*loeselii*	LIPLOE	X	100.0
29	*Lysimachia*	*terrestris*	LYSTER	X	100.0
30	*Menyanthes*	*trifoliata*	MENTRI	X	100.0
31	*Myrica*	*gale*	MYRGAL	X	100.0
32	*Nuphar*	*variegata*	NUPVAR	X	100.0
33	*Picea*	*mariana*	PICMAR	X	100.0
34	*Potamogeton*	*natans*	POTNAT	X	100.0
35	*Potentilla*	*palustris*	POTPAL	X	100.0
36	*Ranunculus*	*flammula*	RANFLA	X	100.0
37	*Rubus*	*pubescens*	RUBPUB	X	100.0
38	*Sagittaria*	*latifolia*	SAGLAT	X	100.0
39	*Scirpus*	*hudsonianus*	SCIHUD	X	100.0
40	*Solidago*	*uliginosa*	SOLULI	X	100.0
41	*Thuja*	*occidentalis*	THUOCC	X	100.0
42	*Utricularia*	*cornuta*	UTRCOR	X	100.0
43	*Vaccinium*	*oxycoccos*	VACOXY	X	100.0
			RICHNESS	43	

Note X indicates presence but no abundance value available

Segment 1 Fen along shore of Hidden Lake

Additional species: Hidden Lake

44	*Poa*	*alpina*	POAALP

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Lane Cove, 5 shoreline segments
Date: 8/6/04
Sampled by: J.Elias and J.Meeker (segments 1-3) and V.Hofman and J.Marr (segments 4, 5)

	GENUS	SPECIES	PCORD	LNCO S1	LNCO S2	LNCO S3	LNCO S4	LNCO S5	% Freq.
1	*Agrostis*	*hyemalis*	AGRHYE	Tr	Tr	Tr			60.0
2	*Aster*	*puniceus*	ASTPUN	Tr	Tr	Tr	Tr	Tr	100.0
3	*Calamagrostis*	*canadensis*	CALCAN				1	1	40.0
4	*Caltha*	*palustris*	CALPAL				Tr	Tr	40.0
5	*Campanula*	*aparinoides*	CAMAPA	Tr		Tr			40.0
6	*Carex*	*aquatilis*	CARAQU	1	Tr	1	1	2	100.0
7	*Carex*	*aurea*	CARAUR					Tr	20.0
8	*Carex*	*flava*	CARFLA	Tr			Tr	Tr	60.0
9	*Carex*	*hystericina*	CARHYS	Tr					20.0
10	*Carex*	*retrorsa*	CARRET		Tr				20.0
11	*Carex*	*rostrata*	CARROS			1			20.0
12	*Carex*	spp. (Ovales type)	CAROVA					Tr	20.0
13	*Carex*	spp.	CARSPP					Tr	20.0
14	*Carex*	*stipata*	CARSTI		Tr			Tr	40.0
15	*Carex*	*utriculata*	CARUTR					1	20.0
16	*Carex*	*viridula*	CARVIR	Tr	Tr				40.0
17	*Cicuta*	*bulbifera*	CICBUL	Tr	Tr	Tr		Tr	80.0
18	*Eleocharis*	*palustris*	ELEPAL	1		Tr	Tr		60.0
19	*Eleocharis*	spp.	ELESPP	Tr					20.0
20	*Eleocharis*	*tenuis var. borealis*	ELETEN	Tr					20.0
21	*Elymus*	*canadensis*	ELYCAN				Tr		20.0
22	*Epilobium*	spp.	EPISPP	Tr	Tr				40.0
23	*Epilobium*	spp. *(ciliatum or coloratum)*	EPISCC				Tr		20.0
24	*Equisetum*	*arvense*	EQUARV					Tr	20.0
25	*Eupatorium*	*maculatum*	EUPMAC	Tr		Tr	1	Tr	80.0
26	*Euthamia*	*graminifolia*	EUTGRA	Tr					20.0
27	*Gentiana*	*rubricaulis*	GENRUB			Tr			20.0
28	*Glyceria*	*borealis*	GLYBOR		Tr	Tr		Tr	60.0
29	*Glyceria*	*grandis*	GLYGRA				1	2	40.0
30	*Glyceria*	*striata*	GLYSTR			Tr	Tr		40.0
31	*Halenia*	*deflexa*	HALDEF			Tr	Tr	Tr	60.0
32	*Heracleum*	*lanatum*	HERLAN				Tr		20.0
33	*Hieracium*	spp.	HIESPP				Tr		20.0
34	*Impatiens*	*capensis*	IMPCAP			Tr	Tr		40.0
35	*Juncus*	*brevicaudatus*	JUNBRE	Tr	Tr	1			60.0
36	*Juncus*	*effusus*	JUNEFF		Tr	Tr	Tr		60.0
37	*Juncus*	*nodosus*	JUNNOD	1	Tr			Tr	60.0
38	*Juncus*	*tenuis* var. *dudleyi*	JUNDUD					Tr	20.0
39	*Lactuca*	spp.	LATSPP				Tr		20.0
40	*Lycopus*	*americanus*	LYCAME	Tr				Tr	40.0
41	*Lycopus*	*uniflorus*	LYCUNI				Tr	Tr	40.0
42	*Lysimachia*	*terrestris*	LYSTER				Tr		20.0
43	*Lysimachia*	*thyrsiflora*	LYSTHY					Tr	20.0
44	*Mentha*	*arvensis*	MENARV	Tr					20.0
45	*Myrica*	*gale*	MYRGAL			Tr			20.0
46	*Phalaris*	*arundinacea*	PHAARU	Tr	Tr	Tr	Tr	Tr	100.0
47	*Poa*	*palustris*	POAPAL				Tr	Tr	40.0
48	*Potentilla*	*norvegica*	POTNOR					Tr	20.0
49	*Ranunculus*	spp.	RANSPP				Tr	Tr	40.0
50	*Sagittaria*	*latifolia*	SAGLAT				Tr		20.0
51	*Scirpus*	*cyperinus*	SCICYP				Tr		20.0
52	*Scirpus*	*microcarpus*	SCIMIC					Tr	20.0
53	*Scirpus*	*validus*	SCIVAL	Tr					20.0

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Lane Cove, 5 shoreline segments
Date: 8/6/04
Sampled by: J.Elias and J.Meeker (segments 1-3) and V.Hofman and J.Marr (segments 4, 5)

54	*Scutellaria*	*galericulata*	SCUGAL	Tr		Tr			40.0
55	*Sium*	*suave*	SIUSUA					Tr	20.0
56	*Sonchus*	spp.	SONSPP			Tr			20.0
57	*Symplocarpus*	*foetidus*	SYMFOE				Tr		20.0
58	*Thalictrum*	*dasycarpum*	THADAS				Tr	Tr	40.0
59	*Typha*	*latifolia*	TYPLAT	2					20.0
60	*Typha*	spp.	TYPSPP	Tr	Tr	Tr			60.0
			RICHNESS	23	14	20	26	28	

Entire Lake Aquatics, scant and on shelves.

Segment 1 Shallow bay with sand/silt substrate. Wetland margin with emergents. TYPSPP and TYPLAT present.

Segment 2 Passage behind a little island. TYPSPP 3 stems.

Segment 3

Narrow passageway with sand/silt substrate and steep bank. Narrow fringe of emergents and wetland species. TYPSPP present.

Segment 4 In bay; substrate along sides is rocky, at end silty sand firm to soft. Emergents and shoreline plants at end of bay.

Segment 5 *Pinguicula* on rocks, ~6 plants not in segments. Shallow cove < 2' deep at end of bay, surrounded by emergent*Poa/Carex* and upland w/ THUOCC, PHYOPU, ABIBAL. Substrate = sandy silt, firm to mucky soft. Some detritus. Most shoreline vegetation in water. Shore is moderate to steep.

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Moose Lake, 2 shoreline segments (presence only)
Date: 8/12/2003
Sampled by: J.Meeker and J.Elias (segment 1), E. Judziewicz (segment 2)

	GENUS	SPECIES	PCORD	MOLK S1	MOLK S2	% Freq.
1	*Agrostis*	*hyemalis*	AGRHYE	X		50.0
2	*Alnus*	*incana*	ALNINC	X	X	100.0
3	*Andromeda*	*glaucophylla*	ANDGLA	X	X	100.0
4	*Arethusa*	*bulbosa*	AREBUL		X	50.0
5	*Aster*	*lanceolatus*	ASTLAN		X	50.0
6	*Aster*	*puniceus*	ASTPUN	X	X	100.0
7	*Aster*	*umbellatus*	ASTUMB		X	50.0
8	*Bidens*	spp.	BIDSPP	X		50.0
9	*Calamagrostis*	*canadensis*	CALCAN	X	X	100.0
10	*Campanula*	*aparinoides*	CAMAPA	X		50.0
11	*Carex*	*cryptolepis*	CARCRY	X		50.0
12	*Carex*	*echinata*	CARECH	X		50.0
13	*Carex*	*flava*	CARFLA		X	50.0
14	*Carex*	*interior*	CARINT	X		50.0
15	*Carex*	*intumescens*	CARINU		X	50.0
16	*Carex*	*lasiocarpa*	CARLAS	X	X	100.0
17	*Carex*	*limosa*	CARLIM		X	50.0
18	*Carex*	*livida*	CARLIV	X	X	100.0
19	*Carex*	*michauxiana*	CARMIC	X	X	100.0
20	*Carex*	*utriculata*	CARUTR	X	X	100.0
21	*Chamaedaphne*	*calyculata*	CHACAL	X	X	100.0
22	*Cicuta*	*bulbifera*	CICBUL	X		50.0
23	*Drosera*	*intermedia*	DROINT	X	X	100.0
24	*Drosera*	*rotundifolia*	DROROT	X	X	100.0
25	*Dulichium*	*arundinaceum*	DULARU	X	X	100.0
26	*Eleocharis*	*ovata*	ELEOVA	X		50.0
27	*Eleocharis*	*palustris*	ELEPAL	X	X	100.0
28	*Eleocharis*	spp.	ELESPP	X		50.0
29	*Eleocharis*	*tenuis* var. *borealis*	ELETEN		X	50.0
30	*Equisetum*	spp.	EQUSPP		X	50.0
31	*Eriophorum*	spp.	ERISPP	X		50.0
32	*Eriophorum*	*viridicarinatum*	ERIVIR		X	50.0
33	*Eupatorium*	*maculatum*	EUPMAC	X	X	100.0
34	*Glyceria*	*canadensis*	GLYCAN	X	X	100.0
35	*Habenaria*	*clavellata*	HABCLA	X		50.0
36	*Hippurus*	*vulgaris*	HIPVUL	X	X	100.0
37	*Iris*	*versicolor*	IRIVER	X	X	100.0
38	*Juncus*	*brevicaudatus*	JUNBRE	X	X	100.0
39	*Juncus*	*effusus*	JUNEFF	X	X	100.0
40	*Juncus*	*nodosus*	JUNNOD	X		50.0
41	*Liparis*	*loeselii*	LIPLOE		X	50.0
42	*Lycopus*	*americanus*	LYCAME		X	50.0
43	*Lycopus*	*uniflorus*	LYCUNI	X		50.0
44	*Lysimachia*	*terrestris*	LYSTER	X	X	100.0
45	*Mentha*	*arvensis*	MENARV		X	50.0

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Moose Lake, 2 shoreline segments (presence only)
Date: 8/12/2003
Sampled by: J.Meeker and J.Elias (segment 1), E. Judziewicz (segment 2)

	GENUS	SPECIES	PCORD	MOLK S1	MOLK S2	% Freq.
46	*Menyanthes*	*trifoliata*	MENTRI	X	X	100.0
47	*Myrica*	*gale*	MYRGAL	X	X	100.0
48	*Nuphar*	*variegata*	NUPVAR		X	50.0
49	*Onoclea*	*sensibilis*	ONOSEN		X	50.0
50	*Polygonum*	*amphibium*	POLAMP		X	50.0
51	*Potamogeton*	*natans*	POTNAT		X	50.0
52	*Potentilla*	*norvegica*	POTNOR		X	50.0
53	*Potentilla*	*palustris*	POTPAL	X	X	100.0
54	*Rhynchospora*	*alba*	RHYALB	X		50.0
55	*Sagittaria*	*latifolia*	SAGLAT	X	X	100.0
56	*Salix*	*discolor*	SALDIS		X	50.0
57	*Sarracenia*	*purpurea*	SARPUR	X	X	100.0
58	*Scirpus*	*cyperinus*	SCICYP	X	X	100.0
59	*Scirpus*	*hudsonianus*	SCIHUD	X	X	100.0
60	*Scutellaria*	*lateriflora*	SCULAT		X	50.0
61	*Solidago*	*canadensis*	SOLCAN		X	50.0
62	*Solidago*	spp. (umbel)	SOLUMB	X		50.0
63	*Sparganium*	sp. (2 ranked)	SPASP2	X		50.0
64	*Spiranthes*	spp.	SPISPP	X		50.0
65	*Thalictrum*	*dasycarpum*	THADAS		X	50.0
66	*Triadenum*	*fraseri*	TRIFRA	X	X	100.0
67	*Typha*	*latifolia*	TYPLAT	X		50.0
68	*Utricularia*	*intermedia*	UTRINT	X	X	100.0
69	*Vaccinium*	*macrocarpon*	VACMAC	X		50.0
70	*Vaccinium*	*oxycoccos*	VACOXY		X	50.0
71	*Viola*	*macloskeyi*	VIOMAC		X	50.0
72	*Viola*	spp.	VIOSPP	X		50.0
			RICHNESS	49	52	

Note X indicates presence but no abundance value available
Segment 1 Originally Segment 2. Drawdown shoreline, quaking mat areas
Segment 2 Poor fen. Trampled area due to heavy moose useage.

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Lake Ojibway, 1 shoreline segment
Date: 8/14/04
Sampled by: V.Hofman, M.Jones, J.Meeker (segment 1)

	GENUS	SPECIES	PCORD	OJLK S1	% Frequency
1	*Aster*	*umbellatus*	ASTUMB	Tr	100.0
2	*Calamagrostis*	*canadensis*	CALCAN	Tr	100.0
3	*Carex*	*lasiocarpa*	CARLAS	3	100.0
4	*Carex*	*michauxiana*	CARMIC	Tr	100.0
5	*Carex*	*rostrata*	CARROS	3	100.0
6	*Carex*	spp. (Stellulatae type)	CARSTE	Tr	100.0
7	*Carex*	*utriculata*	CARUTR	Tr	100.0
8	*Chamaedaphne*	*calyculata*	CHACAL	Tr	100.0
9	*Danthonia*	*spicata*	DANSPI	Tr	100.0
10	*Drosera*	*intermedia*	DROINT	Tr	100.0
11	*Drosera*	*rotundifolia*	DROROT	Tr	100.0
12	*Dulichium*	*arundinaceum*	DULARU	2	100.0
13	*Habenaria*	*clavellata*	HABCLA	Tr	100.0
14	*Hypericum*	spp.	HYPSPP	Tr	100.0
15	*Iris*	*versicolor*	IRIVER	Tr	100.0
16	*Juncus*	*brevicaudatus*	JUNBRE	Tr	100.0
17	*Lycopus*	*uniflorus*	LYCUNI	Tr	100.0
18	*Lysimachia*	spp.	LYSSPP	Tr	100.0
19	*Menyanthes*	*trifoliata*	MENTRI	Tr	100.0
20	*Myrica*	*gale*	MYRGAL	1	100.0
21	*Rhynchospora*	*alba*	RHYALB	Tr	100.0
22	*Rhynchospora*	*fusca*	RHYFUS	Tr	100.0
23	*Sarracenia*	*purpurea*	SARPUR	Tr	100.0
24	*Vaccinium*	*angustifolium*	VACANG	Tr	100.0
			RICHNESS	24	

Entire Lake Lake is at or slightly above mean high water mark. Water is cold and dark colored. The lake has risen ~ 80cm in the last few decades (beaver dam), dead THUOCC standing in the water, therefore the vegetation of the floating CARLAS mats present are young.

Segment 1 Segment on north side of lake.

Segment 2 Aquatic segment only, substrate is muck. Water depth is 50 to 70 cm; cold and dark colored. Cedar snags present in water. CARLAS dominated shoreline.

Additional species: Lake Ojibway

25	*Carex*	*chordorrhiza*	CARCHO
26	*Carex*	*limosa*	CARLIM
27	*Eleocharis*	*acicularis*	ELEACI
28	*Glyceria*	*borealis*	GLYBOR
29	*Glyceria*	*canadensis*	GLYCAN
30	*Pogonia*	*ophioglossoides*	POGOPH
31	*Polygonum*	*amphibium*	POLAMP
32	*Sium*	*suave*	SIUSUA
33	*Typha*	*latifolia*	TYPLAT
34	*Utricularia*	*cornuta*	UTRCOR
35	*Vaccinium*	*macrocarpon*	VACMAC

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Patterson Lake, 2 shoreline segments
Date: 8/7/04
Sampled by: V.Hofman and J.Marr

	GENUS	SPECIES	PCORD	PALK S1	PALK S2	% Frequency
1	*Agrostis*	*hyemalis*	AGRHYE	Tr		50.0
2	*Alnus*	*incana*	ALNINC		1	50.0
3	*Andromeda*	*glaucophylla*	ANDGLA	Tr	Tr	100.0
4	*Calamagrostis*	*canadensis*	CALCAN	2	1	100.0
5	*Calla*	*palustris*	CALLAP		Tr	50.0
6	*Campanula*	*aparinoides*	CAMAPA	Tr	Tr	100.0
7	*Carex*	*aquatilis*	CARAQU	1		50.0
8	*Carex*	*chordorrhiza*	CARCHO	Tr	Tr	100.0
9	*Carex*	*diandra*	CARDIA	Tr		50.0
10	*Carex*	*lasiocarpa*	CARLAS	1	2	100.0
11	*Carex*	*oligosperma*	CAROLI		Tr	50.0
12	*Carex*	*rostrata*	CARROS		Tr	50.0
13	*Carex*	spp. (Stellulatae type)	CARSTE	Tr		50.0
14	*Carex*	*utriculata*	CARUTR	Tr		50.0
15	*Chamaedaphne*	*calyculata*	CHACAL		Tr	50.0
16	*Cicuta*	*bulbifera*	CICBUL	Tr		50.0
17	*Dulichium*	*arundinaceum*	DULARU	Tr	Tr	100.0
18	*Eleocharis*	*palustris*	ELEPAL	Tr		50.0
19	*Epilobium*	*leptophyllum*	EPILEP	Tr		50.0
20	*Eriophorum*	*gracile*	ERIGRA		Tr	50.0
21	*Glyceria*	*borealis*	GLYBOR	Tr		50.0
22	*Iris*	*versicolor*	IRIVER		Tr	50.0
23	*Juncus*	spp.	JUNSPP	Tr		50.0
24	*Liparis*	*loeselii*	LIPLOE	Tr		50.0
25	*Lycopus*	*uniflorus*	LYCUNI	Tr	Tr	100.0
26	*Lysimachia*	*terrestris*	LYSTER	Tr	Tr	100.0
27	*Menyanthes*	*trifoliata*	MENTRI	Tr	Tr	100.0
28	*Myrica*	*gale*	MYRGAL	1	1	100.0
29	*Polygonum*	*amphibium*	POLAMP	Tr		50.0
30	*Potentilla*	*palustris*	POTPAL	Tr	Tr	100.0
31	*Scutellaria*	*galericulata*	SCUGAL	Tr		50.0
32	*Sium*	*suave*	SIUSUA	Tr	Tr	100.0
33	*Triadenum*	*fraseri*	TRIFRA	Tr	Tr	100.0
34	*Typha*	spp.	TYPSPP	Tr		50.0
			RICHNESS	27	20	

Entire Lake Water is tannic brown, visibility ~ 1m. Lake has some bog mats along shoreline.
Segment 1 Substrate = soft to firm silty sand. Several beds of SCIACU, SPAFLU and POTAMP.
Segment 2 Segment at inlet. Substrate = silty sand with flocculent organics in stream. A lot of aquatics in stream.

Additional species: Patterson Lake

35	*Scirpus*	*cyperinus*	SCICYP
36	*Typha*	*latifolia*	TYPLAT

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Pickerel Cove, 6 shoreline segments
Date: 8/3/04
Sampled by: J.Elias, J.Meeker, V.Hofman and J.Marr (segments 1-4); J.Elias and J.Meeker (segment 6); V.Hofman and J.Marr (segment 5)

	GENUS	SPECIES	PCORD	PICO S1	PICO S2	PICO S3	PICO S4	PICO S5	PICO S6	% Freq.
1	*Agrostis*	*hyemalis*	AGRHYE	Tr	Tr	Tr	Tr	Tr	Tr	100.0
2	*Anaphalis*	*margaritacea*	ANAMAR	Tr	Tr					33.3
3	*Aster*	*puniceus*	ASTPUN	Tr						16.7
4	*Asteraceae*	spp.	ASTESP	Tr						16.7
5	*Calamagrostis*	*canadensis*	CALCAN	Tr				Tr		33.3
6	*Caltha*	*palustris*	CALPAL			Tr		Tr		33.3
7	*Campanula*	*aparinoides*	CAMAPA	Tr		Tr	Tr	Tr		66.7
8	*Carex*	*aquatilis*	CARAQU			2	2		3	50.0
9	*Carex*	*aurea*	CARAUR				Tr			16.7
10	*Carex*	*crinita*	CARCRI	Tr						16.7
11	*Carex*	*cryptolepis*	CARCRY			Tr				16.7
12	*Carex*	*flava*	CARFLA	Tr		1				33.3
13	*Carex*	*hystericina*	CARHYS	Tr	Tr	Tr				50.0
14	*Carex*	*lasiocarpa*	CARLAS					1	1	33.3
15	*Carex*	*spp.*	CARSPP				Tr		Tr	33.3
16	*Carex*	*stipata*	CARSTI	Tr		Tr				33.3
17	*Carex*	*utriculata*	CARUTR			2	1		2	50.0
18	*Castilleja*	*septentrionalis*	CASSEP	Tr						16.7
19	*Chrysanthemum*	*leucanthemum*	CHRLEU	Tr						16.7
20	*Cicuta*	*bulbifera*	CICBUL	Tr		Tr				33.3
21	*Eleocharis*	*acicularis*	ELEACI		Tr					16.7
22	*Eleocharis*	*palustris*	ELEPAL	Tr		2			Tr	50.0
23	*Epilobium*	spp.	EPISPP	Tr	Tr	Tr	Tr	Tr	Tr	100.0
24	*Equisetum*	*arvense*	EQUARV	1						16.7
25	*Equisetum*	*fluviatile*	EQUFLU		Tr		Tr			33.3
26	*Equisetum*	*palustre*	EQUPAL						Tr	16.7
27	*Equisetum*	spp.	EQUSPP	Tr		Tr				33.3
28	*Eupatorium*	*maculatum*	EUPMAC		Tr	Tr	Tr	Tr	Tr	83.3
29	*Euthamia*	*graminifolia*	EUTGRA			1	Tr			33.3
30	*Galium*	spp.	GALSPP		Tr					16.7
31	*Gentiana*	*rubricaulis*	GENRUB			Tr				16.7
32	*Glyceria*	*borealis*	GLYBOR			Tr	Tr		1	50.0
33	*Glyceria*	*striata*	GLYSTR	Tr						16.7
34	*Hieracium*	spp.	HIESPP	Tr		Tr				33.3
35	*Hypericum*	*boreale*	HYPBOR			Tr				16.7
36	*Hypericum*	*majus*	HYPMAJ			Tr				16.7
37	*Impatiens*	*capensis*	IMPCAP	Tr	Tr					33.3
38	*Iris*	*versicolor*	IRIVER	Tr				Tr		33.3
39	*Juncus*	*brevicaudatus*	JUNBRE	Tr		Tr	Tr		1	66.7
40	*Juncus*	*effusus*	JUNEFF			Tr	Tr		Tr	50.0
41	*Juncus*	*nodosus*	JUNNOD				Tr			16.7
42	*Juncus*	spp.	JUNSPP			Tr		1	Tr	50.0
43	*Juncus*	*tenuis* var. *dudleyi*	JUNDUD	Tr						16.7
44	*Liparis*	*loeselii*	LIPLOE			Tr				16.7
45	*Lycopus*	*americanus*	LYCAME	Tr		Tr				33.3
46	*Lycopus*	*uniflorus*	LYCUNI	Tr	Tr		Tr			50.0
47	*Lysimachia*	*terrestris*	LYSTER	Tr		Tr			Tr	50.0
48	*Lysimachia*	*thyrsiflora*	LYSTHY				Tr			16.7
49	*Mentha*	*arvensis*	MENARV	Tr		Tr	Tr			50.0
50	*Myrica*	*gale*	MYRGAL				Tr		Tr	33.3
51	*Phalaris*	*arundinacea*	PHAARU	Tr	Tr	Tr	Tr	Tr	Tr	100.0
52	*Ranunculus*	*flammula*	RANFLA				Tr			16.7
53	*Ranunculus*	*pennsylvanicus*	RANPEN	Tr						16.7
54	*Rumex*	spp.	RUMSPP					Tr		16.7
55	*Salix*	spp.	SALSPP		Tr					16.7
56	*Scirpus*	*atrovirens*	SCIATR				1			16.7
57	*Scirpus*	*cyperinus*	SCICYP	Tr		Tr	Tr			50.0
58	*Scutellaria*	*lateriflora*	SCULAT	Tr						16.7
59	*Sium*	*suave*	SIUSUA	Tr		Tr	Tr	Tr		66.7

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Pickerel Cove, 6 shoreline segments
Date: 8/3/04
Sampled by: J.Elias, J.Meeker, V.Hofman and J.Marr (segments 1-4); J.Elias and J.Meeker (segment 6);

60	*Sonchus*	spp.	SONSPP	Tr			Tr			33.3
61	*Taraxacum*	*officinale*	TAROFF	Tr		Tr				33.3
62	*Thalictrum*	*dasycarpum*	THADAS			Tr			Tr	33.3
63	*Thuja*	*occidentalis*	THUOCC	Tr						16.7
64	*Typha*	spp.	TYPSPP					Tr		16.7
65	*Viola*	spp.	VIOSPP			Tr	Tr			33.3
			RICHNESS	35	12	33	25	13	17	

Entire Lake Scattered PHAARU stems along northern shore.
Segment 1 Originally seg 2. Mostly rocky shore w/ small sandy end of bay. Segment is at sandy end.
Segment 2 Originally seg 3.
Segment 3 Originally seg 4. Two small baylets w/in bay, emergents in ends, sparse aquatics.
Segment 4 Originally seg 5. Lots of Periphyton. Ring of emergents, sparse submergents.
Segment 5 Originally seg 6. 20 TYPSPP stems
Segment 6 Originally seg 7.

Additional species: Pickerel Cove

66	*Carex*	spp. (Ovales type)	CAROVA
67	*Scutellaria*	*galericulata*	SCUGAL

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Robinson Bay, 7 shoreline segments
Date: 8/3/04 and 8/5/04
Sampled by: J.Elias and J.Meeker (segments 1-3, 7) and V.Hofman and J.Marr (segments 4-6)

	GENUS	SPECIES	PCORD	ROBY S1	ROBY S2	ROBY S3	ROBY S4	ROBY S5	ROBY S6	ROBY S7	% Freq.
1	*Abies*	*balsamea*	ABIBAL		Tr						14.29
2	*Agrostis*	*hyemalis*	AGRHYE		Tr	Tr	Tr		Tr	Tr	71.43
3	*Anaphalis*	*margaritacea*	ANAMAR	Tr	Tr		Tr		Tr		57.14
4	*Aster*	*macrophyllus*	ASTMAC						Tr		14.29
5	*Aster*	*puniceus*	ASTPUN		Tr		Tr		Tr		42.86
6	*Aster*	*umbellatus*	ASTUMB						Tr		14.29
7	*Asteraceae*	spp.	ASTESP						Tr		14.29
8	*Calamagrostis*	*canadensis*	CALCAN		Tr				Tr	2	42.86
9	*Calla*	*palustris*	CALLAP	Tr		Tr					28.57
10	*Caltha*	*palustris*	CALPAL						Tr	Tr	28.57
11	*Carex*	*aquatilis*	CARAQU			1			Tr	Tr	42.86
12	*Carex*	*aurea*	CARAUR						Tr	Tr	28.57
13	*Carex*	*hystericina*	CARHYS		Tr			Tr	Tr	1	57.14
14	*Carex*	*norvegica*	CARNOR						Tr		14.29
15	*Carex*	*retrorsa*	CARRET			Tr					14.29
16	*Carex*	spp.	CARSPP			Tr					14.29
17	*Carex*	spp. (Ovales type)	CAROVA		Tr				Tr	Tr	42.86
18	*Carex*	spp. (Stellulatae type)	CARSTE						Tr		14.29
19	*Carex*	*stipata*	CARSTI		Tr				Tr	Tr	42.86
20	*Carex*	*utriculata*	CARUTR						1	2	28.57
21	*Carex*	*viridula*	CARVIR		Tr	Tr			Tr	Tr	57.14
22	*Caryophyllaceae*	spp.	CAYSPP		Tr						14.29
23	*Castilleja*	*septentrionalis*	CASSEP		Tr				Tr	Tr	42.86
24	*Cicuta*	*bulbifera*	CICBUL			Tr			Tr	Tr	42.86
25	*Cinna*	*latifolia*	CINLAT						Tr		14.29
26	*Cirsium*	*arvense*	CIRARV	Tr	Tr		Tr		Tr		57.14
27	*Cirsium*	*vulgare*	CIRVUL				Tr	Tr	Tr		42.86
28	*Diervilla*	*lonicera*	DIELON						Tr		14.29
29	*Elymus*	*canadensis*	ELYCAN				Tr		Tr		28.57
30	*Epilobium*	*angustifolium*	EPIANG	Tr			Tr		Tr		42.86
31	*Epilobium*	*leptophyllum*	EPILEP						Tr		14.29
32	*Epilobium*	spp.	EPISPP	Tr		Tr	Tr	Tr		Tr	71.43
33	*Epilobium*	spp. *(ciliatum or coloratum)*	EPISCC						Tr		14.29
34	*Equisetum*	*arvense*	EQUARV		Tr		Tr		Tr	Tr	57.14
35	*Equisetum*	*scirpoides*	EQUSCI						Tr	Tr	28.57
36	*Eupatorium*	*maculatum*	EUPMAC	Tr	Tr	Tr	Tr		Tr	Tr	85.71
37	*Euthamia*	*graminifolia*	EUTGRA		Tr						14.29
38	*Fragaria*	*virginiana*	FRAVIR		Tr						14.29
39	*Galium*	spp.	GALSPP		Tr	Tr			Tr		42.86
40	*Gentiana*	*rubricaulis*	GENRUB			Tr			Tr		28.57
41	*Glyceria*	*borealis*	GLYBOR		Tr	Tr			Tr	Tr	57.14
42	*Glyceria*	spp.	GLYSPP		Tr						14.29
43	*Glyceria*	*striata*	GLYSTR						Tr		14.29
44	*Habenaria*	*hyperborea*	HABHYP	Tr					Tr		28.57
45	*Halenia*	*deflexa*	HALDEF	Tr	Tr				Tr	Tr	57.14
46	*Hieracium*	spp.	HIESPP		Tr		Tr				28.57
47	*Impatiens*	*capensis*	IMPCAP	Tr	Tr		Tr	Tr	Tr	Tr	85.71
48	*Iris*	*versicolor*	IRIVER			Tr					14.29
49	*Juncus*	*brevicaudatus*	JUNBRE		Tr	1			Tr	Tr	57.14
50	*Juncus*	*effusus*	JUNEFF			Tr				Tr	28.57
51	*Juncus*	*nodosus*	JUNNOD						Tr	Tr	28.57
52	*Juncus*	spp.	JUNSPP						Tr		14.29
53	*Lactuca*	spp.	LATSPP		Tr	Tr			Tr		42.86
54	*Linnaea*	*borealis*	LINBOR						Tr		14.29
55	*Lycopus*	*americanus*	LYCAME				Tr		Tr	Tr	42.86
56	*Lycopus*	*uniflorus*	LYCUNI		Tr			Tr	Tr		42.86
57	*Lysimachia*	spp.	LYSSPP			Tr					14.29
58	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr	Tr				Tr	Tr	57.14
59	*Melampyrum*	*lineare*	MELLIN						Tr		14.29
60	*Mentha*	*arvensis*	MENARV		Tr		Tr		Tr	Tr	57.14
61	*Phalaris*	*arundinacea*	PHAARU	Tr	Tr	Tr	Tr	Tr	Tr	Tr	100.00

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Robinson Bay, 7 shoreline segments
Date: 8/3/04 and 8/5/04
Sampled by: J.Elias and J.Meeker (segments 1-3, 7) and V.Hofman and J.Marr (segments 4-6)

	GENUS	SPECIES	PCORD	ROBY S1	ROBY S2	ROBY S3	ROBY S4	ROBY S5	ROBY S6	ROBY S7	% Freq.
62	*Poa*	*palustris*	POAPAL				Tr	Tr	Tr		42.86
63	*Poa*	spp.	POASPP	Tr	Tr						28.57
64	*Potentilla*	*norvegica*	POTNOR	Tr	Tr				Tr		42.86
65	*Potentilla*	spp.	PTNSPP							Tr	14.29
66	*Prenanthes*	spp.	PRESPP							Tr	14.29
67	*Ranunculus*	*macounii*	RANMAC						Tr		14.29
68	*Ranunculus*	spp.	RANSPP		Tr		Tr	Tr	Tr		57.14
69	*Rorippa*	spp.	RORSPP				Tr	Tr	Tr		42.86
70	*Rumex*	*crispus*	RUMCRI							Tr	14.29
71	*Rumex*	spp.	RUMSPP					Tr	Tr		28.57
72	*Scirpus*	*cyperinus*	SCICYP							Tr	14.29
73	*Scutellaria*	*galericulata*	SCUGAL				Tr			Tr	28.57
74	*Sium*	*suave*	SIUSUA		Tr	Tr			Tr		42.86
75	*Solidago*	spp.(umbel)	SOLSPP				Tr				14.29
76	*Sonchus*	spp.	SONSPP	Tr							14.29
77	*Sparganium*	*eurycarpum*	SPAEUR							Tr	14.29
78	*Stellaria*	spp.	STESPP						Tr		14.29
79	*Thalictrum*	*dasycarpum*	THADAS		Tr	Tr					28.57
80	*Viola*	spp.	VIOSPP		Tr						14.29
			RICHNESS	14	34	20	20	10	56	32	

Segment 1 Bay with few emergents in narrow band. Most submergents deeper than 2.5m. A lot of Periphyton. Substrate rocky. POTPEC was found floating and not included in data.

Segment 2 South side of bay, behind small island. Narrow band of mixed forbs, etc. No clear dominant species. SIUSUA was *Angelica* sp. in original data.

Segment 3 Western small bay behind a small island. Much woody debris, sparse aquatics. All shoreline vegetation is at end of bay, more than a narrow ban more of a small wetland. *Alisma spp.* was found but not collected.

Segment 4 CASSEP on rocks. Rocky substrate with sandy patches at end of cove (location of all aquatic spp.). Med/steep drop along sides of coves. Rock shoreline, save the beach at the end; surrounded by cedar / boreal uplands and rocky elevation.

Segment 5 TRISPIC on rocks, somewhat sheltered area, rocky to sandy silt shore, with abrupt to gradual drop offs, the later w/ POTRIC and MYRSPP. Shore is rocky and generally 3" higher than the water except for one lower area w/ shore plants.

Segment 6 Rocky (plum size) to sand and silt. Soft sedimentation in end of cove, which is vegetated w/ CARUTR, CALCAN. Very little aquatic veg Shallow, deepest area is ~1m deep.

Segment 7 A wind and wave swept narrow bay w/ firm substrate. Detritus and patch of wetland at the end. North facing side w/ little wetland veg. and south side more open w/ more veg. A few PHAARU stems.

Additonal species: Robinson Bay

81	*Trisetum*	*spicatum*	TRISPI

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Lake Scholts, 1 shoreline segment
Date: 8/7/2003
Sampled by J.Meeker and J.Elias

	GENUS	SPECIES	PCORD	SCHLK S1	% Frequency
1	*Agrostis*	*hyemalis*	AGRHYE	Tr	100.0
2	*Calamagrostis*	*canadensis*	CALCAN	Tr	100.0
3	*Campanula*	*aparinoides*	CAMAPA	Tr	100.0
4	*Carex*	*aquatilis*	CARAQU	Tr	100.0
5	*Carex*	*buxbaumii*	CARBUX	Tr	100.0
6	*Carex*	*cryptolepis*	CARCRY	1	100.0
7	*Carex*	*flava*	CARFLA	1	100.0
8	*Carex*	*lasiocarpa*	CARLAS	2	100.0
9	*Chamaedaphne*	*calyculata*	CHACAL	Tr	100.0
10	*Cicuta*	*bulbifera*	CICBUL	Tr	100.0
11	*Drosera*	*rotundifolia*	DROROT	Tr	100.0
12	*Dulichium*	*arundinaceum*	DULARU	Tr	100.0
13	*Epilobium*	*ciliatum*	EPICIL	Tr	100.0
14	*Euthamia*	*graminifolia*	EUTGRA	1	100.0
15	*Habenaria*	*clavellata*	HABCLA	Tr	100.0
16	*Hypericum*	*canadense*	HYPCAN	1	100.0
17	*Iris*	*versicolor*	IRIVER	Tr	100.0
18	*Juncus*	*brevicaudatus*	JUNBRE	Tr	100.0
19	*Juncus*	*pelocarpus*	JUNPEL	Tr	100.0
20	*Lycopus*	*americanus*	LYCAME	Tr	100.0
21	*Lysimachia*	*terrestris*	LYSTER	Tr	100.0
22	*Myrica*	*gale*	MYRGAL	Tr	100.0
23	*Potentilla*	*palustris*	POTPAL	Tr	100.0
24	*Rhynchospora*	*alba*	RHYALB	Tr	100.0
25	*Thuja*	*occidentalis*	THUOCC	Tr	100.0
26	*Typha*	*latifolia*	TYPLAT	Tr	100.0
27	*Utricularia*	*intermedia*	UTRINT	Tr	100.0
28	*Viola*	*macloskeyi*	VIOMAC	Tr	100.0
			RICHNESS	28	

Entire Lake linear lake with steep sides on south side.

Segment 1

Originally segment 2. Sedge meadow; along linear lake with steep sides on south side. Located on west half of north side.

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Stickleback Lake, 1 shoreline segment (entire lake)
Date: 7/12/04
Sampled by: V.Hofman and J.Marr

	GENUS	SPECIES	PCORD	STLK S1	% Frequency
1	*Abies*	*balsamea*	ABIBAL	Tr	100.0
2	*Alnus*	*incana*	ALNINC	Tr	100.0
3	*Andromeda*	*glaucophylla*	ANDGLA	Tr	100.0
4	*Betula*	*pumila*	BETPUM	Tr	100.0
5	*Calamagrostis*	*canadensis*	CALCAN	1	100.0
6	*Campanula*	*aparinoides*	CAMAPA	Tr	100.0
7	*Carex*	*buxbaumii*	CARBUX	Tr	100.0
8	*Carex*	*chordorrhiza*	CARCHO	Tr	100.0
9	*Carex*	*diandra*	CARDIA	Tr	100.0
10	*Carex*	*intumescens*	CARINU	Tr	100.0
11	*Carex*	*lasiocarpa*	CARLAS	1	100.0
12	*Carex*	*limosa*	CARLIM	Tr	100.0
13	*Carex*	*livida*	CARLIV	Tr	100.0
14	*Carex*	spp. (Stellulatae type)	CARSTE	Tr	100.0
15	*Carex*	spp.	CARSPP	Tr	100.0
16	*Carex*	*stipata*	CARSTI	Tr	100.0
17	*Carex*	*trisperma*	CARTRI	Tr	100.0
18	*Carex*	*utriculata*	CARUTR	Tr	100.0
19	*Chamaedaphne*	*calyculata*	CHACAL	1	100.0
20	*Cicuta*	*bulbifera*	CICBUL	1	100.0
21	*Cornus*	*sericea*	CORSER	Tr	100.0
22	*Diervilla*	*lonicera*	DIELON	Tr	100.0
23	*Dulichium*	*arundinaceum*	DULARU	1	100.0
24	*Eleocharis*	*acicularis*	ELEACI	Tr	100.0
25	*Eleocharis*	*tenuis* var. *borealis*	ELETEN	Tr	100.0
26	*Epilobium*	spp.	EPISPP	Tr	100.0
27	*Equisetum*	*fluviatile*	EQUFLU	1	100.0
28	*Equisetum*	*sylvaticum*	EQUSYL	Tr	100.0
29	*Eupatorium*	*maculatum*	EUPMAC	Tr	100.0
30	*Galium*	spp.	GALSPP	Tr	100.0
31	*Galium*	spp. *(tinctorium/trifidum)*	GALSTT	Tr	100.0
32	*Glyceria*	*borealis*	GLYBOR	1	100.0
33	*Iris*	*versicolor*	IRIVER	Tr	100.0
34	*Juncus*	spp.	JUNSPP	Tr	100.0
35	*Lamiaceae*	spp.	LAMSPP	1	100.0
36	*Ledum*	*groenlandicum*	LEDGRO	Tr	100.0
37	*Lonicera*	*caerulea*	LONCAE	Tr	100.0
38	*Lycopus*	*uniflorus*	LYCUNI	1	100.0
39	*Lysimachia*	*terrestris*	LYSTER	1	100.0
40	*Lysimachia*	*thyrsiflora*	LYSTHY	Tr	100.0
41	*Menyanthes*	*trifoliata*	MENTRI	Tr	100.0
42	*Myrica*	*gale*	MYRGAL	1	100.0
43	*Onoclea*	*sensibilis*	ONOSEN	Tr	100.0
44	*Picea*	*mariana*	PICMAR	1	100.0
45	*Poa*	*palustris*	POAPAL	Tr	100.0
46	*Potentilla*	*palustris*	POTPAL	Tr	100.0
47	*Rhamnus*	*alnifolia*	RHAALN	Tr	100.0
48	*Rubus*	*pubescens*	RUBPUB	Tr	100.0
49	*Salix*	*pedicellaris*	SALPED	Tr	100.0
50	*Scutellaria*	*galericulata*	SCUGAL	Tr	100.0
51	*Smilacina*	*trifolia*	SMITRI	Tr	100.0
52	*Sparganium*	spp.	SPASPP	Tr	100.0
53	*Symplocarpus*	*foetidus*	SYMFOE	Tr	100.0
54	*Thalictrum*	*dasycarpum*	THADAS	1	100.0
55	*Thelypteris*	*palustris*	THEPAL	Tr	100.0
56	*Thuja*	*occidentalis*	THUOCC	1	100.0
57	*Triadenum*	*fraseri*	TRIFRA	Tr	100.0
58	*Trientalis*	*borealis*	TRIBOR	Tr	100.0
59	*unknown*	spp. *(herbaceous)*	UNKHER	Tr	100.0
60	*Vaccinium*	*oxycoccos*	VACOXY	Tr	100.0
61	*Viola*	spp.	VIOSPP	Tr	100.0
			RICHNESS	61	

Segment 1 Surveyed entire lake. Northeast end shore is bog mat with flocculent organic sediment. Remaining shoreline is steep banks and upland veg. 1 foot above water level. Rocky substrate for 1 m or less, becoming organic and somewhat flocculent. Liverwort sp. was found (M3061).

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Stockly Bay, 2 shoreline segments
Date: 8/6/04
Sampled by: V.Hofman and J.Marr

	GENUS	SPECIES	PCORD	STBY S1	STBY S2	% Frequency
1	*Agrostis*	*hyemalis*	AGRHYE	Tr	Tr	100.0
2	*Anaphalis*	*margaritacea*	ANAMAR	Tr	Tr	100.0
3	*Aster*	*puniceus*	ASTPUN	Tr	Tr	100.0
4	*Asteraceae*	spp.	ASTESP		Tr	50.0
5	*Beckmannia*	*syzigachne*	BECSYZ		Tr	50.0
6	*Caltha*	*palustris*	CALPAL	Tr	Tr	100.0
7	*Carex*	*aurea*	CARAUR	Tr	Tr	100.0
8	*Carex*	*flava*	CARFLA	Tr	Tr	100.0
9	*Carex*	*hystericina*	CARHYS		Tr	50.0
10	*Carex*	*norvegica*	CARNOR		Tr	50.0
11	*Carex*	*retrorsa*	CARRET		Tr	50.0
12	*Carex*	*stipata*	CARSTI	Tr	Tr	100.0
13	*Carex*	*utriculata*	CARUTR	Tr		50.0
14	*Castilleja*	*septentrionalis*	CASSEP	Tr	Tr	100.0
15	*Cinna*	*latifolia*	CINLAT	Tr		50.0
16	*Cirsium*	*arvense*	CIRARV		Tr	50.0
17	*Deschampsia*	*flexuosa*	DESFLE		Tr	50.0
18	*Dryopteris*	spp.	DRYSPP		Tr	50.0
19	*Dulichium*	*arundinaceum*	DULARU		Tr	50.0
20	*Eleocharis*	spp.	ELESPP		Tr	50.0
21	*Epilobium*	spp. *(ciliatum or coloratum)*	EPISCC	Tr	Tr	100.0
22	*Equisetum*	*arvense*	EQUARV	Tr	Tr	100.0
23	*Eupatorium*	*maculatum*	EUPMAC	Tr		50.0
24	*Galium*	*triflorum*	GALTRI	Tr		50.0
25	*Glyceria*	*grandis*	GLYGRA	1	1	100.0
26	*Glyceria*	*striata*	GLYSTR	Tr		50.0
27	*Habenaria*	*hyperborea*	HABHYP		Tr	50.0
28	*Halenia*	*deflexa*	HALDEF	Tr	Tr	100.0
29	*Hieracium*	*aurantiacum*	HIEAUR	Tr		50.0
30	*Hieracium*	spp.	HIESPP	Tr		50.0
31	*Juncus*	*effusus*	JUNEFF	Tr	Tr	100.0
32	*Impatiens*	*capensis*	IMPCAP	Tr	Tr	100.0
33	*Iris*	*versicolor*	IRIVER	Tr	Tr	100.0
34	*Juncus*	*brevicaudatus*	JUNBRE	Tr	1	100.0
35	*Lactuca*	spp.	LATSPP	Tr		50.0
36	*Lycopodium*	*clavatum*	LYCCLA		Tr	50.0
37	*Lycopus*	*americanus*	LYCAME	Tr		50.0
38	*Lysimachia*	spp.	LYSSPP		Tr	50.0
39	*Mentha*	*arvensis*	MENARV	Tr	Tr	100.0
40	*Phalaris*	*arundinacea*	PHAARU	Tr	Tr	100.0
41	*Poa*	*palustris*	POAPAL	Tr		50.0
42	*Polygonum*	*sagittatum*	POLSAG	Tr	Tr	100.0
43	*Potentilla*	*norvegica*	POTNOR	Tr	Tr	100.0
44	*Ranunculus*	*flammula*	RANFLA		Tr	50.0
45	*Ranunculus*	*pennsylvanicus*	RANPEN	Tr		50.0
46	*Ranunculus*	spp.	RANSPP	Tr	Tr	100.0
47	*Rorippa*	spp.	RORSPP		Tr	50.0
48	*Rubus*	spp.	RUBSPP	Tr		50.0
49	*Rubus*	spp. (dewberry)	RUBDEW		Tr	50.0
50	*Scirpus*	*cyperinus*	SCICYP		Tr	50.0
51	*Sonchus*	spp.	SONSPP		Tr	50.0
52	*Symplocarpus*	*foetidus*	SYMFOE		Tr	50.0
53	*Thalictrum*	*dasycarpum*	THADAS	Tr		50.0
54	*Thelypteris*	*phegopteris*	THEPHE	Tr		50.0
55	*Trisetum*	*spicatum*	TRISPI	Tr		50.0
56	*Typha*	spp.	TYPSPP	Tr	Tr	100.0
57	*Viola*	spp.	VIOSPP	Tr		50.0
			RICHNESS	38	41	

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Stockly Bay, 2 shoreline segments
Date: 8/6/04
Sampled by: V.Hofman and J.Marr

Segment 1 End of bay. Substrate = firm sand with rocky shoreline. Shoreline is a steep mossy bank with upland veg that slightly overhangs exposed boulders.

Segment 2 Segment in bay. Sides of bay has steep mossy overhanging banks with upland species and rocky substrate. At the end of bay is a shallow vegetated area; substrate is silty sand, firm to soft.

Additional species: Stockly Bay

58	*Abies*	*balsamea*	ABIBAL
59	*Acer*	*spicatum*	ACESPI
60	*Alnus*	*viridis*	ALNVIR
61	*Aralia*	*nudicaulis*	ARANUD
62	*Aster*	*macrophyllus*	ASTMAC
63	*Physocarpus*	*opulifolius*	PHYOPU
64	*Thuja*	*occidentalis*	THUOCC
65	*Viburnum*	*edule*	VIBEDU

Appendix B. Isle Royale 2003-2005 Shoreline Segments

S Site: Sumner Lake, 1 shoreline segment
Date: 8/15/04
Sampled by: V.Hofman, J.Marr and J.Meeker

	GENUS	SPECIES	PCORD	SULK S1	% Frequency
1	*Andromeda*	*glaucophylla*	ANDGLA	Tr	100.0
2	*Aster*	*umbellatus*	ASTUMB	Tr	100.0
3	*Calamagrostis*	*canadensis*	CALCAN	2	100.0
4	*Campanula*	*aparinoides*	CAMAPA	Tr	100.0
5	*Carex*	*lasiocarpa*	CARLAS	2	100.0
6	*Carex*	*limosa*	CARLIM	Tr	100.0
7	*Dulichium*	*arundinaceum*	DULARU	Tr	100.0
8	*Equisetum*	*fluviatile*	EQUFLU	Tr	100.0
9	*Eupatorium*	*maculatum*	EUPMAC	Tr	100.0
10	*Iris*	*versicolor*	IRIVER	Tr	100.0
11	*Menyanthes*	*trifoliata*	MENTRI	Tr	100.0
12	*Myrica*	*gale*	MYRGAL	Tr	100.0
13	*Parnassia*	*palustris*	PARPAL	Tr	100.0
14	*Potentilla*	*palustris*	POTPAL	Tr	100.0
15	*Rhynchospora*	*alba*	RHYALB	1	100.0
16	*Sarracenia*	*purpurea*	SARPUR	Tr	100.0
17	*Spiranthes*	spp.	SPISPP	Tr	100.0
18	*Triadenum*	*fraseri*	TRIFRA	Tr	100.0
			RICHNESS	18	

Entire Lake A small lake surrounded by SPHSPP dominated peat mat. Water is very dark colored. Periphyton present. Narrow shoreline band of CARSTR, CALCAN, etc.

Segment 1

Segment along sedge mat. Sparse aquatic cover. Substrate is very flocculent organic matter.

Additional species: Sumner Lake

19	*Carex*	*rostrata*	CARROS
20	*Carex*	*stricta*	CARSTR
21	*Chamaedaphne*	*calyculata*	CHACAL
22	*Drosera*	*rotundifolia*	DROROT
23	*Eleocharis*	*tenuis* var. *borealis*	ELETEN
24	*Habenaria*	*hyperborea*	HABHYP
25	*Juncus*	*brevicaudatus*	JUNBRE
26	*Lycopus*	*uniflorus*	LYCUNI
27	*Lysimachia*	*terrestris*	LYSTER
28	*Mentha*	*arvensis*	MENARV
29	*Pogonia*	*ophioglossoides*	POGOPH
30	*Sium*	*suave*	SIUSUA
31	*Typha*	*latifolia*	TYPLAT
32	*Vaccinium*	spp. *(cranberry)*	VACCRA

Appendix B3 – Species and Cover Classes for Peatland Segments

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date: 8/7/2004 Sampled by: J.Elias, J.Meeker TRS: T66N R33W S06			Date: 8/7/2004 Sampled by: J.Elias, J.Meeker TRS: T66N R33W S06			Date: 8/7/2004 Sampled by: J.Elias, J.Meeker TRS: T66N R33W S06		
		Ahmik Lake 1			**Ahmik Lake 2**			**Ahmik Lake 3**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Agrostis*	*hyemalis*								Tr	Tr
2 *Calamagrostis*	*canadensis*		Tr	Tr	1	Tr	2	2	2	1
3 *Campanula*	*aparinoides*	Tr	1	1	Tr	Tr	1	Tr	Tr	Tr
4 *Carex*	*chordorrhiza*	Tr	Tr	1	Tr	1	1			1
5 *Carex*	*diandra*	1	Tr	1		Tr	Tr			
6 *Carex*	*interior*					Tr	Tr			
7 *Carex*	*lasiocarpa*	3	3	4	4	5	4	4	3	3
8 *Carex*	*limosa*						Tr			
9 *Carex*	*rostrata*			Tr		Tr	1			
10 *Carex*	*utriculata*									1
11 *Chamaedaphne*	*calyculata*	1	2	1			Tr	2	2	1
12 *Cicuta*	*bulbifera*		Tr	Tr	Tr	Tr	Tr			
13 *Dulichium*	*arundinaceum*	1	2	2	Tr	1	2	Tr	Tr	Tr
14 *Eleocharis*	*tenuis* var. *borealis*					Tr	Tr			
15 *Equisetum*	*fluviatile*	Tr	1	1			Tr		Tr	Tr
16 *Eriophorum*	*gracile*				Tr	Tr	Tr			
17 *Galium*	spp.	Tr	Tr	Tr		Tr	Tr			
18 *Glyceria*	*canadensis*								Tr	1
19 *Iris*	*versicolor*	1	1	1		Tr	1		1	1
20 *Lycopus*	*americanus*		Tr	Tr			Tr	Tr	Tr	Tr
21 *Lycopus*	*uniflorus*	Tr	Tr	Tr						
22 *Lysimachia*	*terrestris*	Tr	Tr	Tr		Tr	Tr		Tr	Tr
23 *Lysimachia*	*thyrsiflora*	Tr	Tr	Tr	Tr	Tr	Tr			
24 *Menyanthes*	*trifoliata*	1	1	1	Tr	Tr	1		Tr	Tr
25 *moss*	spp.		Tr	Tr						
26 *Myrica*	*gale*	1	1	2			1		2	2
27 *Polygonum*	spp.		Tr	Tr		Tr	Tr			
28 *Potentilla*	*palustris*	1	1	1	1	1	1	1	Tr	1
29 *Sagittaria*	*latifolia*	1	Tr	Tr	Tr	Tr	Tr			
30 *Scirpus*	*cyperinus*							2	1	1
31 *Scutellaria*	*galericulata*		Tr	Tr	Tr	Tr	Tr			
32 *Sium*	*suave*			Tr		Tr	Tr			
33 *Sparganium*	*minimum*					Tr	Tr			
34 *Triadenum*	*fraseri*	1	Tr	Tr	Tr	Tr	1	Tr	Tr	Tr
35 *Typha*	spp.		Tr	Tr						
36 *Utricularia*	*intermedia*		Tr	Tr		Tr	Tr			
37 *Viola*	spp.							1	Tr	1
RICHNESS		17	25	27	13	24	29	10	17	19

Ahmik Lake 1

Add'l spp: none

Notes: (from Ahmik PP2 notes) CARLAS dominated "peatland" between two lakes - receives (ground? and) lake water. No *Sphagnum* , a few shrubs, some dead conifers. H2O apparently flows into Ahmik, from Patterson.Exhibing nice shoreline flora (and shrubs) ~ 60 cm above current lake level (suggesting that H2O level of lake is down).

Ahmik Lake 2

Add'l spp: none

Notes: CARLAS dominated "peatland" between two lakes - receives (ground? and) lake water. No *Sphagnum* , a few shrubs, some dead conifers. H2O apparently flows into Ahmik, from Patterson. Exhibing nice shoreline flora (and shrubs) ~ 60 cm above current lake level (suggesting that H2O level of lake is down

Ahmik Lake 3

Add'l spp: none

		Date:	8/12/2004		Date:	8/10/2004	
		Sampled by:	V.Hofman, M.Jones, J.Marr		Sampled by:	V.Hofman, M.Jones, J.Marr	
		TRS:	T66N R34W S28		TRS:	T66N R34W S28	
		Benson Lake 1			**Benson Lake 2**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Alnus*	*incana*	1	Tr	Tr			Tr
2 *Aronia*	spp. *(A. prunifolia?)*			Tr			
3 *Aster*	*puniceus*					Tr	Tr
4 *Calamagrostis*	*canadensis*			Tr		Tr	Tr
5 *Campanula*	*aparinoides*	Tr	Tr	Tr	Tr	Tr	Tr
6 *Carex*	*buxbaumii*						Tr
7 *Carex*	*flava*				Tr	Tr	Tr
8 *Carex*	*lasiocarpa*	4	4	4	5	5	5
9 *Carex*	*livida*	Tr	Tr	Tr			
10 *Carex*	*rostrata*		Tr	Tr			
11 *Carex*	*stricta*	Tr	Tr	Tr			
12 *Chamaedaphne*	*calyculata*	1	Tr	1			
13 *Cicuta*	*bulbifera*				Tr	Tr	Tr
14 *Cornus*	*sericea*				Tr	Tr	Tr
15 *Dulichium*	*arundinaceum*		Tr	Tr	1	1	1
16 *Equisetum*	*fluviatile*	Tr	Tr	Tr	Tr	1	2
17 *Eupatorium*	*maculatum*		Tr	Tr		1	1
18 *Habenaria*	*dilatata*					Tr	Tr
19 *Iris*	*versicolor*	Tr	1	Tr	Tr	1	Tr
20 *Juncus*	*brevicaudatus*		Tr	Tr			
21 *Lycopus*	*uniflorus*					Tr	Tr
22 *Lysimachia*	spp.				Tr	Tr	Tr
23 *Lysimachia*	*terrestris*	1	Tr	Tr			Tr
24 *Menyanthes*	*trifoliata*						1
25 *Myrica*	*gale*		2	2		Tr	1
26 *Nuphar*	*variegata*			Tr			
27 *Osmunda*	*regalis*			Tr		1	1
28 *Potamogeton*	*gramineus*		Tr	Tr			
29 *Potentilla*	*palustris*	Tr		Tr		Tr	Tr
30 *Sagittaria*	spp.					Tr	Tr
31 *Salix*	*pedicellaris*			Tr			
32 *Scutellaria*	*galericulata*				Tr	Tr	Tr
33 *Symplocarpus*	*foetidus*						Tr
34 *Thalictrum*	*dasycarpum*					1	Tr
35 *Triadenum*	*fraseri*	Tr	Tr	Tr	Tr	Tr	Tr
36 *unknown*	spp. (herbaceous)			Tr			
37 *Utricularia*	*intermedia*		Tr	Tr		Tr	Tr
38 *Viola*	spp.					Tr	Tr
RICHNESS		11	17	24	11	23	28

Benson Lake 1 Add'l spp: ASTUMB

Wet sedge meadow along lake edge (shoreline marsh), dominated with CARLAS. Beaver dam present; area probably was filled in w/ current sedge mat. Ericaceous shrubs (MYRGAL) in CARLAS at water level. LARLAR and THUOCC trees present.

Benson Lake 2 Add'l spp: none

Sedge meadow sitting on organic substrate. Small islands of shrubs (ALNINC and ericaceous spp.). Standing water up to 4" present (rained most of the day). Possible old beaver activity flooded area; dead trees along edge. LARLAR and THUOCC trees present outside of plot.

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Date: 8/11/2004 Sampled by: J.Meeker, M.Jones, A.Harris TRS: T66N R34W S21			Date: 8/11/2004 Sampled by: J.Meeker, M.Jones, A.Harris TRS: T66N R34W S21			Date: 8/11/2004 Sampled by: J.Meeker, M.Jones, A.Harris TRS: T66N R34W S21		
			Daisy Farm Boardwalk 1			**Daisy Farm Boardwalk 2**			**Daisy Farm Boardwalk 3**		
GENUS	**SPECIES**	**PCORD**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Acer*	*rubrum*	ACERUB								Tr	Tr
2 *Alnus*	*incana*	ALNINC								1	2
3 *Andromeda*	*glaucophylla*	ANDGLA		Tr	1	1	1	Tr			
4 *Aster*	*puniceus*	ASTPUN								Tr	Tr
5 *Aster*	*umbellatus*	ASTUMB								Tr	1
6 *Betula*	*papyrifera*	BETPAP			Tr			1			Tr
7 *Calamagrostis*	*canadensis*	CALCAN			Tr				2	3	3
8 *Campanula*	*aparinoides*	CAMAPA							1	1	1
9 *Carex*	*interior*	CARINT							2	1	1
10 *Carex*	*lasiocarpa*	CARLAS							2	3	1
11 *Carex*	*michauxiana*	CARMIC							3	2	2
12 *Carex*	*oligosperma*	CAROLI	2	3	3	3	2	2			
13 *Carex*	*pauciflora*	CARPAU		Tr	Tr						
14 *Carex*	*paupercula*	CARPAP	Tr	Tr	Tr						
15 *Chamaedaphne*	*calyculata*	CHACAL	4	4	4	3	4	4	Tr	Tr	1
16 *Cicuta*	*bulbifera*	CICBUL								Tr	Tr
17 *Comandra*	*umbellata*	COMUMB						Tr			
18 *Drosera*	*rotundifolia*	DROROT			Tr		Tr	Tr			
19 *Dulichium*	*arundinaceum*	DULARU							2	1	1
20 *Equisetum*	*fluviatile*	EQUFLU							3	2	3
21 *Eriophorum*	*vaginatum*	ERIVAG			Tr		1	1			
22 *Eupatorium*	*maculatum*	EUPMAC								Tr	Tr
23 *Galium*	spp.	GALSPP								Tr	Tr
24 *Habenaria*	*clavellata*	HABCLA				1	Tr	Tr	1	1	1
25 *Habenaria*	*psycodes*	HABPSY									Tr
26 *Iris*	*versicolor*	IRIVER							Tr	1	1
27 *Kalmia*	*polifolia*	KALPOL	2	2	2	1	1	2			
28 *Ledum*	*groenlandicum*	LEDGRO		Tr	2	2	2	2			
29 *Lycopus*	*uniflorus*	LYCUNI							Tr	Tr	Tr
30 *Lysimachia*	*terrestris*	LYSTER							2	2	2
31 *Melampyrum*	*lineare*	MELLIN					Tr	Tr			
32 *moss*	spp.	MOSSPP						Tr			
33 *Picea*	*mariana*	PICMAR			Tr		2	2			Tr
34 *Potentilla*	*palustris*	POTPAL							Tr	Tr	Tr
35 *Sarracenia*	*purpurea*	SARPUR	1	1	1	1	1	1			
36 *Scutellaria*	*galericulata*	SCUGAL									Tr
37 *Smilacina*	*trifolia*	SMITRI		Tr	Tr	1	Tr	2			
38 *Solidago*	*uliginosa*	SOLULI								Tr	Tr

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Daisy Farm Boardwalk 1			Daisy Farm Boardwalk 2			Daisy Farm Boardwalk 3		
GENUS	**SPECIES**	**PCORD**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
39 *Sphagnum*	spp.	SPHSPP	5	5	5	5	5	5			
40 *Symplocarpus*	*foetidus*	SYMFOE			Tr			Tr			
41 *Triadenum*	*fraseri*	TRIFRA							Tr	Tr	Tr
42 *Vaccinium*	*angustifolium*	VACANG						Tr			
43 *Vaccinium*	*oxycoccos*	VACOXY	3	3	3	2	2	3			
44 *Viola*	spp.	VIOSPP					Tr	Tr	Tr	1	1
	RICHNESS		7	11	17	10	15	20	15	23	27

Daisy Farm Boardwalk 1 — Add'l spp: none
Notes: Acid bog. Open in small depression (100m wide), other edges of depression more fen like.

Daisy Farm Boardwalk 2 — Add'l spp: none
Notes: Acid bog depression with scattered trees (PICMAR 4-6m tall) along boardwalk. Reindeer moss (*Cladina rangiferina (L.) Nyl.)* in plot.

Daisy Farm Boardwalk 3 — Add'l spp: none
Notes: Sedge meadow near edge of open area along boardwalk. Appears to have influence of ground or surface water.

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date: 8/4/2004			Date: 8/4/2004		
		Sampled by: V.Hofman, J.Meeker			Sampled by: J. Elias, J.Marr		
		TRS: T66N R34W S17			TRS: T66N R34W S17		
		Eva Pond 1			**Eva Pond 2**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Alnus*	*incana*		1	1		1	1
2 *Andromeda*	*glaucophylla*	1	Tr	1	1	1	1
3 *Aster*	*umbellatus*					Tr	1
4 *Betula*	*papyrifera*					1	1
5 *Calamagrostis*	*canadensis*	Tr	Tr	1		1	2
6 *Campanula*	*aparinoides*	Tr	1	1	Tr	1	1
7 *Carex*	*chordorrhiza*	1	Tr	1	1	1	Tr
8 *Carex*	*diandra*						1
9 *Carex*	*lasiocarpa*	2	4	4	3	4	5
10 *Carex*	*limosa*	1	Tr	Tr	Tr	1	Tr
11 *Chamaedaphne*	*calyculata*	1	1	1	1	1	1
12 *Cicuta*	*bulbifera*			Tr			
13 *Cornus*	*sericea*		2	2			Tr
14 *Drosera*	*rotundifolia*		Tr	Tr	1	1	1
15 *Dulichium*	*arundinaceum*		Tr	Tr	Tr	1	1
16 *Eleocharis*	*tenuis* var. *borealis*		Tr	Tr			
17 *Epilobium*	spp.		Tr	Tr			
18 *Equisetum*	*fluviatile*	1	1	1	1	2	2
19 *Eupatorium*	*maculatum*		Tr	Tr		1	1
20 *Fraxinus*	*nigra*		Tr	Tr			
21 *Habenaria*	*clavellata*		Tr	Tr			
22 *Habenaria*	*hyperborea*						Tr
23 *Habenaria*	*psycodes*						1
24 *Iris*	*versicolor*	1	1	1	1	1	1
25 *Larix*	*laricina*		Tr	1			
26 *Lycopus*	*americanus*		Tr	Tr		Tr	Tr
27 *Lycopus*	*uniflorus*	Tr	Tr	Tr	1	1	1
28 *Lysimachia*	spp.				1	1	1
29 *Lysimachia*	*terrestris*	Tr	Tr	Tr			
30 *Lysimachia*	*thyrsiflora*			Tr			
31 *Menyanthes*	*trifoliata*	2	2	1	1	2	3
32 *Potentilla*	*palustris*	2	1	1	1	1	1
33 *Rhynchospora*	*alba*						1
34 *Rubus*	spp. (dewberry)	Tr	Tr	Tr		1	Tr
35 *Salix*	*pedicellaris*		1	Tr			
36 *Scutellaria*	*galericulata*		Tr	Tr			Tr
37 *Solidago*	spp. (red stem)		Tr	Tr			

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Eva Pond 1			Eva Pond 2		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
38 *Sphagnum*	spp.	1	1	1	5	3	4
39 *Thalictrum*	spp.					Tr	Tr
40 *Thalictrum*	*dasycarpum*	Tr	Tr	Tr			
41 *Thuja*	*occidentalis*	Tr	1	1			
42 *Triadenum*	*fraseri*	Tr	Tr	Tr	1	Tr	Tr
43 *Trientalis*	*borealis*		Tr	Tr			
44 *Utricularia*	*intermedia*						Tr
45 *Vaccinium*	spp.	Tr	Tr	Tr	3	2	3
46 *Viola*	spp.		Tr	Tr	Tr	1	1
RICHNESS		19	35	37	18	26	33

Eva Pond 1

Add'l spp.: none

Notes: Plot is on grounded SPHSPP mat near edge of floating portion of mat. Outer area w/ dead trees and THUOCC (~ 30' high) and ALNINC regeneration. Plot is CARLAS dominated w/ SPHSPP hummocks w/ some upland and shrub species. H2O just below surface.

Eva Pond 2

Add'l spp: none

Notes: Grass/sedge meadow around "bog" pond, surrounded by upland (e.g. PICGLA, PINSTR, BETSPP, ABIBAL, and THUOCC). Sparce large hummocks and mudflats present in area. Plot on edge of pond. HABPSY was Psycodes in orig. notes.

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date: 8/10/2004 Sampled by: V.Hofman, M.Jones, J.Marr TRS: T66N R34W S28			Date: 8/10/2004 Sampled by: V.Hofman, M.Jones, J.Marr TRS: T66N R34W S28			Date: 8/10/2004 Sampled by: V.Hofman, M.Jones, J.Marr TRS: T66N R34W S28		
		Forbes Lake 1			**Forbes Lake 2**			**Forbes Lake 3**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Abies*	*balsamea*		Tr	Tr					1	1
2 *Acer*	*rubrum*						Tr			
3 *Alnus*	*incana*	2	2	1		1	1			Tr
4 *Amelanchier*	*spp.*			Tr						
5 *Andromeda*	*glaucophylla*			Tr		Tr	1	2	2	2
6 *Aster*	*puniceus*			Tr				Tr	Tr	Tr
7 *Aster*	*umbellatus*		Tr	Tr				Tr	1	1
8 *Betula*	*papyrifera*			Tr			Tr		1	1
9 *Calamagrostis*	*canadensis*		Tr	Tr						Tr
10 *Campanula*	*aparinoides*	Tr	Tr	Tr				Tr	Tr	Tr
11 *Carex*	*aurea*	Tr	Tr	Tr						
12 *Carex*	*chordorrhiza*		Tr	Tr						
13 *Carex*	*gracillima*			Tr						
14 *Carex*	*lasiocarpa*	Tr	Tr	1				3	4	4
15 *Carex*	*limosa*								Tr	Tr
16 *Carex*	*pauciflora*					Tr	1			
17 *Carex*	spp.				Tr	Tr	1			
18 *Carex*	spp. (Stellulatae type)	Tr	Tr	Tr						
19 *Carex*	*stricta*	2	4	4		Tr	Tr			
20 *Carex*	*trisperma*				Tr	Tr	Tr			
21 *Chamaedaphne*	*calyculata*	Tr	Tr	Tr	2	4	4	1	2	2
22 *Chelone*	*glabra*			Tr						
23 *Clintonia*	*borealis*		Tr	Tr						
24 *Coptis*	*trifolia*			Tr						
25 *Cornus*	*canadensis*			Tr		Tr	Tr			
26 *Cornus*	*sericea*		1	1						Tr
27 *Drosera*	*rotundifolia*	Tr	Tr	Tr	Tr	Tr	Tr		Tr	Tr
28 *Dryopteris*	*cristata*									Tr
29 *Dulichium*	*arundinaceum*								Tr	Tr
30 *Equisetum*	*arvense*			Tr						
31 *Equisetum*	*fluviatile*	Tr	Tr	Tr					Tr	1
32 *Eupatorium*	*maculatum*	1	1	Tr					Tr	Tr
33 *Fragaria*	*virginiana*			Tr						
34 *Fraxinus*	*nigra*									Tr
35 *Galium*	*triflorum*			Tr						
36 *Gaultheria*	*hispidula*					Tr	Tr			
37 *Geocaulon*	*lividum*				Tr	1	1			
38 *Glyceria*	*striata*		Tr	Tr						
39 *Habenaria*	*clavellata*						Tr			
40 *Habenaria*	*dilatata*	Tr	Tr	Tr						Tr
41 *Iris*	*versicolor*	1	Tr	Tr		Tr	Tr			
42 *Juniperus*	*communis*									Tr

		Forbes Lake 1			Forbes Lake 2			Forbes Lake 3		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
43 *Kalmia*	*polifolia*		Tr	Tr	Tr	Tr	1			
44 *Ledum*	*groenlandicum*	Tr	1	1	1	1	1			
45 *Linnaea*	*borealis*	Tr	Tr	Tr						
46 *Lonicera*	spp.									Tr
47 *Lycopus*	*uniflorus*			Tr						
48 *Lysimachia*	spp.	Tr	Tr	Tr					Tr	Tr
49 *Maianthemum*	*canadense*		Tr	Tr						
50 *Melampyrum*	*lineare*					Tr	Tr			
51 *Menyanthes*	*trifoliata*							1	2	2
52 *moss*	spp.	2	1	1						
53 *Osmunda*	*regalis*		1	1						
54 *Picea*	*mariana*		1	1		2	1			1
55 *Poa*	*palustris*		Tr	Tr						
56 *Potentilla*	*palustris*									Tr
57 *Prenanthes*	*alba*	1	Tr	Tr						
58 *Pyrola*	spp.								Tr	Tr
59 *Rhamnus*	*alnifolia*	2	1	1						
60 *Rhynchospora*	*alba*								1	1
61 *Rubus*	spp. (dewberry)	Tr	Tr	Tr						
62 *Salix*	*pedicellaris*						Tr	2	1	1
63 *Salix*	spp.									Tr
64 *Sarracenia*	*purpurea*		Tr	Tr		Tr	Tr	1	Tr	Tr
65 *Scheuchzeria*	*palustris*						Tr			
66 *Scirpus*	*hudsonianus*							Tr	2	1
67 *Scutellaria*	*galericulata*	Tr	Tr	Tr						
68 *Smilacina*	*trifolia*			Tr	Tr	Tr	Tr			
69 *Solidago*	*uliginosa*	1	Tr	Tr				Tr	Tr	Tr
70 *Sorbus*	*decora*		Tr	1						
71 *Sphagnum*	spp.				5	5	5	3	2	3
72 *Spiranthes*	*cernua*								Tr	Tr
73 *Symplocarpus*	*foetidus*	1	2	2	1	1	1			
74 *Thelypteris*	*palustris*	Tr	Tr	Tr						
75 *Thuja*	*occidentalis*		2	2					Tr	Tr
76 *Triadenum*	*fraseri*							Tr	Tr	Tr
77 *Trientalis*	*borealis*		Tr	Tr						
78 *Vaccinium*	*angustifolium*					Tr	Tr			
79 *Vaccinium*	*oxycoccos*				1	1	1			
80 *Vaccinium*	spp.		Tr	Tr						
81 *Viola*	spp.	Tr	Tr	Tr					Tr	Tr
RICHNESS		24	41	54	11	22	27	13	26	37

POTPAL, CICBUL, EPIANG; along lake: VACANG, LEMTRI, DULARU, CARLAC, SPAMIN, MENTRI, TRIFRA, CARLEP, SPHSPP, GAUHIS.

Forbes 1 Add'l spp:

No SPHSPP, sedge meadow along side of lake. Rich CARSPP and herbaceous mat w/ an abundant THUOCC, PICMAR and shrubs. CARSTR hummocks supported upland species. Standing water between hummocks. Near site has SPHSPP (none in plot) and additional species.

Forbes 2 Add'l spp: HABDIL, RHYALB, POGOPH, MYRGAL, RHYFUS, SCIHUD, UTRCOR, CARLIM

Ericaceous shrub and SPHSPP dominated mat along lake (a poor fen). Trees, shrubs and bog species present. Low SPHSPP hummocks. No standing water present.

Forbes 3 Add'l spp: OSMREG, CHEGLA, MYRGAL, LYSTER, THEPAL, HABHYP, POLAMP, PREALB.

Wet sedge meadow w/ ericaceous shrub hummocks w/ SPHSPP present. Scattered ABIBAL, PICMAR, and LARLAR; all 1-3m high. At west end of treed wet meadow area. Water is just below soil surface.

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date: 7/5/2004			Date: 7/5/2004		
		Sampled by: V.Hofman, J. Smith			Sampled by: V.Hofman, J. Smith		
		TRS: T64N R38W S20			TRS: T64N R38W S21		
		Huginnin Cove 1			**Huginnin Cove 2**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Betula*	*pumila*		Tr	Tr			Tr
2 *Calamagrostis*	*canadensis*	2	2	2	2	2	3
3 *Campanula*	*aparinoides*		1	2	3	3	2
4 *Carex*	*canescens*					1	Tr
5 *Carex*	*diandra*					1	1
6 *Carex*	*lacustris*	1	2	1			
7 *Carex*	*lasiocarpa*	3	2	3	3	3	3
8 *Carex*	spp.					Tr	Tr
9 *Carex*	*stricta*		2	2			
10 *Carex*	*utriculata*					1	2
11 *Dulichium*	*arundinaceum*				1	2	2
12 *Eleocharis*	spp.				Tr	Tr	1
13 *Eleocharis*	*tenuis* var. *borealis*		1	Tr			
14 *Epilobium*	*leptophyllum*					Tr	1
15 *Epilobium*	*spp. (ciliatum or coloratum)*			Tr			
16 *Equisetum*	*fluviatile*	3	3	3			Tr
17 *Galium*	spp. *(tinctorium/trifidum)*					Tr	Tr
18 *Glyceria*	*canadensis*						Tr
19 *Iris*	*versicolor*		2	2	Tr	2	2
20 *Lysimachia*	*thyrsiflora*	3	3	3		1	3
21 *Potentilla*	*norvegica*						Tr
22 *Potentilla*	*palustris*			Tr	3	3	3
23 *Rubus*	*idaeus*						1
24 *Salix*	spp.						1
25 *Scirpus*	*cyperinus*				1	2	2
26 *Scutellaria*	*galericulata*	3	3	3	1	1	3
27 *Sium*	*suave*		Tr	1			
	RICHNESS	6	12	14	9	16	22

Huginnin Cove 1 Add'l spp: none

Notes: Open sedge meadow with small Alnus shrubs and old Cedar snags. CARLAS, CALCAN, CARSTR dominated. Wet, hummocky, and lots of downed logs. 2 Photos. Originally Huginnin North 1

Huginnin Cove 2 Add'l spp: none

Notes:

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Date:	6/27/2003		Date:	6/27/2003		Date:	6/27/2003	
			Sampled by:	E.Judziewicz, F.Daniel		Sampled by:	E.Judziewicz, F.Daniel		Sampled by:	E.Judziewicz, F.Daniel	
			TRS:	T66N R34W S1		TRS:	T66N R34W S1		TRS:	T66N R34W S1	
			Lane Cove 1			**Lane Cove 2**			**Lane Cove 3**		
Habitat Description:			White Cedar Swamp			Boreal Rich Fen			Active Beaver Dam		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1	*Abies*	*balsamea*		3	1					Tr	Tr
2	*Acer*	*spicatum*									
3	*Agrostis*	*gigantea*							1	1	1
4	*Alnus*	*incana*		Tr	Tr						
5	*Anaphalis*	*margaritacea*									
6	*Andromeda*	*glaucophylla*				1	1	1			
7	*Aralia*	*nudicaulis*		Tr	Tr						
8	*Aster*	*macrophyllus*			Tr						
9	*Aster*	*puniceus*									
10	*Aster*	*umbellatus*		1	Tr						
11	*Athyrium*	*filix-femina*									
12	*Betula*	*papyrifera*									
13	*Botrychium*	*multifidum*									
14	*Calamagrostis*	*canadensis*							5	5	5
15	*Callitriche*	*palustris*							Tr	Tr	Tr
16	*Caltha*	*palustris*	4	3	3						
17	*Campanula*	*aparinoides*		Tr	Tr						
18	*Cardamine*	*pensylvanica*									
19	*Carex*	*aquatilis*									
20	*Carex*	*arctata*		Tr	Tr						
21	*Carex*	*brunnescens*									
22	*Carex*	*canescens*									
23	*Carex*	*chordorrhiza*					2	2			
24	*Carex*	*disperma*									
25	*Carex*	*echinata*									
26	*Carex*	*gracillima*									
27	*Carex*	*intumescens*							1	1	1
28	*Carex*	*lacustris*									
29	*Carex*	*lasiocarpa*				5	5	3			
30	*Carex*	*leptalea*									
31	*Carex*	*livida*				2	2	2			
32	*Carex*	*retrorsa*									
33	*Carex*	*stipata*									1
34	*Carex*	*stricta*									1
35	*Carex*	*trisperma*	3	1	1						
36	*Carex*	*utriculata*								Tr	Tr
37	*Carex*	*vesicaria*							1	1	1
38	*Chelone*	*glabra*	Tr	Tr	Tr						
39	*Cinna*	*latifolia*			Tr						
40	*Cirsium*	*arvense*									
41	*Clematis*	*virginiana*									
42	*Clintonia*	*borealis*		1	1						
43	*Coptis*	*trifolia*									
44	*Corallorhiza*	*trifida*			Tr						

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Lane Cove 1			Lane Cove 2			Lane Cove 3		
Habitat Description:			White Cedar Swamp			Boreal Rich Fen			Active Beaver Dam		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
45	*Cornus*	*canadensis*	1	1	1						
46	*Cornus*	*sericea*		Tr	Tr		Tr	Tr			
47	*Diervilla*	*lonicera*									
48	*Drosera*	*linearis*					1	2			
49	*Dryopteris*	*carthusiana*			Tr						
50	*Dryopteris*	*cristata*		1	Tr						
51	*Dryopteris*	*intermedia*									
52	*Dulichium*	*arundinaceum*					1	Tr	Tr	Tr	Tr
53	*Eleocharis*	*tenuis var. borealis*				3	3	2			
54	*Epilobium*	*angustifolium*									
55	*Equisetum*	*arvense*									
56	*Equisetum*	*fluviatile*		1	1	1	1	1	1	1	1
57	*Equisetum*	*palustre*									
58	*Equisetum*	*scirpoides*									
59	*Equisetum*	*sylvaticum*									
60	*Eupatorium*	*maculatum*	Tr	1	1					Tr	Tr
61	*Fragaria*	*virginiana*	Tr	Tr	Tr						
62	*Fraxinus*	*nigra*									
63	*Galium*	*tinctorium*									
64	*Galium*	*triflorum*		Tr	1						
65	*Gaultheria*	*hispidula*									
66	*Gentiana*	*rubricaulis*					1	Tr			
67	*Gymnocarpium*	*dryopteris*									
68	*Habenaria*	*dilatata*					Tr	1			
69	*Habenaria*	*hyperborea*		Tr	Tr						
70	*Heracleum*	*lanatum*									
71	*Hieracium*	*pilosella*									
72	*Impatiens*	*capensis*	Tr	Tr	Tr						
73	*Iris*	*versicolor*	1	1	1		1	Tr	1	1	1
74	*Juncus*	*effusus*							1	1	1
75	*Lactuca*	*canadensis*									
76	*Lathyrus*	*ochroleucus*									
77	*Lilium*	*philadelphicum*									
78	*Linnaea*	*borealis*	Tr	1	Tr						
79	*Lonicera*	*canadensis*		Tr	Tr						
80	*Lonicera*	*dioica*		Tr	Tr						
81	*Lycopodium*	*lucidulum*			Tr						
82	*Lycopodium*	*obscurum*									
83	*Lycopus*	*uniflorus*			Tr						
84	*Lysimachia*	*terrestris*				1	1	1			
85	*Lysimachia*	*thyrsiflora*									
86	*Maianthemum*	*canadense*									
87	*Mentha*	*arvensis*									
88	*Menyanthes*	*trifoliata*				4	4	4			
89	*Mitella*	*nuda*			Tr						
90	*Moneses*	*uniflora*		1	Tr						

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Lane Cove 1			Lane Cove 2			Lane Cove 3		
Habitat Description:			White Cedar Swamp			Boreal Rich Fen			Active Beaver Dam		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
91	*Picea*	*glauca*									
92	*Poa*	*palustris*									
93	*Polygala*	*paucifolia*			1						
94	*Polygonum*	*amphibium*									
95	*Populus*	*tremuloides*									
96	*Potamogeton*	*natans*							1	1	1
97	*Potentilla*	*norvegica*									
98	*Potentilla*	*palustris*					Tr	Tr			
99	*Prenanthes*	*alba*									
100	*Prunus*	*virginiana*									
101	*Pteridium*	*aquilinum*									
102	*Pyrola*	*elliptica*									
103	*Pyrola*	*secunda*									
104	*Ranunculus*	*abortivus*									
105	*Ranunculus*	*hispidus*									
106	*Ribes*	*triste*									
107	*Rubus*	*idaeus*									
108	*Rubus*	*pubescens*	1	3	1						
109	*Sagittaria*	*latifolia*							1	1	1
110	*Salix*	*discolor*								1	1
111	*Sambucus*	*racemosa*									
112	*Scirpus*	*atrovirens*									2
113	*Scirpus*	*cespitosus*						2			
114	*Scirpus*	*cyperinus*									
115	*Scirpus*	*hudsonianus*					Tr	2			
116	*Scutellaria*	*lateriflora*	Tr	Tr	Tr						
117	*Smilacina*	*trifolia*	1	1	Tr						
118	*Solidago*	*canadensis*									
119	*Solidago*	*uliginosa*		Tr	Tr		Tr	1			
120	*Sorbus*	*decora*									
121	*Streptopus*	*amplexifolius*									
122	*Streptopus*	*roseus*									
123	*Symplocarpus*	*foetidus*	5	4	4					Tr	Tr
124	*Taraxacum*	*officinale*									
125	*Taxus*	*canadensis*			1						
126	*Thalictrum*	*dasycarpum*		1	1				1	1	1
127	*Thelypteris*	*palustris*	Tr	1	1						
128	*Thuja*	*occidentalis*		5	5			Tr			
129	*Trientalis*	*borealis*		Tr	Tr						
130	*Trifolium*	*pratense*									
131	*Trillium*	*cernuum*									
132	*Utricularia*	*intermedia*							Tr	Tr	Tr
133	*Vaccinium*	*myrtilloides*		Tr	Tr						
134	*Viburnum*	*edule*									
135	*Viola*	*blanda*	Tr	1	1						
136	*Viola*	*macloskeyi*					1	Tr			
RICHNESS			15	35	44	7	18	20	13	18	21

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Date: 6/27/2003			Date: 6/27/2003			Date: 6/27/2003		
			Sampled by: E.Judziewicz, F.Daniel			Sampled by: E.Judziewicz, F.Daniel			Sampled by: E.Judziewicz, F.Daniel		
			TRS: T66N R34W S1			TRS: T66N R34W S12			TRS: T66N R34W S12		
			Lane Cove 4			**Lane Cove 5**			**Lane Cove 6**		
	Habitat Description:		Black Ash Swamp			Bluejoint Meadow			Bluejoint Meadow		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1	*Abies*	*balsamea*		1	1						
2	*Acer*	*spicatum*			Tr						
3	*Agrostis*	*gigantea*						1			
4	*Alnus*	*incana*		1	1		1	Tr			
5	*Anaphalis*	*margaritacea*									
6	*Andromeda*	*glaucophylla*									
7	*Aralia*	*nudicaulis*		Tr	3						
8	*Aster*	*macrophyllus*									
9	*Aster*	*puniceus*		1	1						Tr
10	*Aster*	*umbellatus*									
11	*Athyrium*	*filix-femina*		1	1					Tr	Tr
12	*Betula*	*papyrifera*									
13	*Botrychium*	*multifidum*									
14	*Calamagrostis*	*canadensis*	1	2	2	5	5	5	5	5	5
15	*Callitriche*	*palustris*									
16	*Caltha*	*palustris*		1	1						
17	*Campanula*	*aparinoides*				Tr	1	1			Tr
18	*Cardamine*	*pensylvanica*									Tr
19	*Carex*	*aquatilis*									
20	*Carex*	*arctata*			Tr						
21	*Carex*	*brunnescens*									
22	*Carex*	*canescens*		1	1		1	2			
23	*Carex*	*chordorrhiza*									
24	*Carex*	*disperma*									
25	*Carex*	*echinata*		Tr	1	Tr	Tr	1			
26	*Carex*	*gracillima*									
27	*Carex*	*intumescens*	Tr	Tr	Tr						
28	*Carex*	*lacustris*									
29	*Carex*	*lasiocarpa*									
30	*Carex*	*leptalea*		Tr	Tr						
31	*Carex*	*livida*									
32	*Carex*	*retrorsa*									Tr
33	*Carex*	*stipata*					1	2			
34	*Carex*	*stricta*									1
35	*Carex*	*trisperma*									
36	*Carex*	*utriculata*									Tr
37	*Carex*	*vesicaria*									Tr
38	*Chelone*	*glabra*									
39	*Cinna*	*latifolia*									
40	*Cirsium*	*arvense*									Tr
41	*Clematis*	*virginiana*									
42	*Clintonia*	*borealis*			Tr						
43	*Coptis*	*trifolia*			Tr						
44	*Corallorhiza*	*trifida*									

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Lane Cove 4			Lane Cove 5			Lane Cove 6		
Habitat Description:			Black Ash Swamp			Bluejoint Meadow			Bluejoint Meadow		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
45	*Cornus*	*canadensis*		1	1						
46	*Cornus*	*sericea*	3	3	1						
47	*Diervilla*	*lonicera*									
48	*Drosera*	*linearis*									
49	*Dryopteris*	*carthusiana*		Tr	1						
50	*Dryopteris*	*cristata*									
51	*Dryopteris*	*intermedia*			Tr						
52	*Dulichium*	*arundinaceum*						1			
53	*Eleocharis*	*tenuis var. borealis*						1			
54	*Epilobium*	*angustifolium*									
55	*Equisetum*	*arvense*							Tr	1	1
56	*Equisetum*	*fluviatile*									
57	*Equisetum*	*palustre*	1	1	2						
58	*Equisetum*	*scirpoides*									
59	*Equisetum*	*sylvaticum*				1	Tr	Tr			
60	*Eupatorium*	*maculatum*									
61	*Fragaria*	*virginiana*									
62	*Fraxinus*	*nigra*	1	4	5						
63	*Galium*	*tinctorium*		Tr	Tr						
64	*Galium*	*triflorum*		Tr	Tr						
65	*Gaultheria*	*hispidula*									
66	*Gentiana*	*rubricaulis*									
67	*Gymnocarpium*	*dryopteris*		1	1						
68	*Habenaria*	*dilatata*									
69	*Habenaria*	*hyperborea*					Tr	Tr			
70	*Heracleum*	*lanatum*									
71	*Hieracium*	*pilosella*									Tr
72	*Impatiens*	*capensis*									Tr
73	*Iris*	*versicolor*	1	2	2	1	Tr	1	Tr	1	Tr
74	*Juncus*	*effusus*									
75	*Lactuca*	*canadensis*						1		Tr	Tr
76	*Lathyrus*	*ochroleucus*									
77	*Lilium*	*philadelphicum*									
78	*Linnaea*	*borealis*									
79	*Lonicera*	*canadensis*			Tr						
80	*Lonicera*	*dioica*									
81	*Lycopodium*	*lucidulum*									
82	*Lycopodium*	*obscurum*									
83	*Lycopus*	*uniflorus*		1	1						
84	*Lysimachia*	*terrestris*						1			Tr
85	*Lysimachia*	*thyrsiflora*									Tr
86	*Maianthemum*	*canadense*	1	1	1						
87	*Mentha*	*arvensis*									
88	*Menyanthes*	*trifoliata*									
89	*Mitella*	*nuda*		Tr	1						
90	*Moneses*	*uniflora*									

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Lane Cove 4			Lane Cove 5			Lane Cove 6		
Habitat Description:			Black Ash Swamp			Bluejoint Meadow			Bluejoint Meadow		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
91	*Picea*	*glauca*		Tr	Tr						
92	*Poa*	*palustris*				1	Tr	1			
93	*Polygala*	*paucifolia*			Tr						
94	*Polygonum*	*amphibium*									
95	*Populus*	*tremuloides*		Tr	5	1	Tr	Tr			
96	*Potamogeton*	*natans*									
97	*Potentilla*	*norvegica*									
98	*Potentilla*	*palustris*									
99	*Prenanthes*	*alba*									
100	*Prunus*	*virginiana*									
101	*Pteridium*	*aquilinum*									
102	*Pyrola*	*elliptica*		1	1						
103	*Pyrola*	*secunda*			Tr						
104	*Ranunculus*	*abortivus*									
105	*Ranunculus*	*hispidus*							Tr	Tr	1
106	*Ribes*	*triste*			1						
107	*Rubus*	*idaeus*									Tr
108	*Rubus*	*pubescens*	3	1	3						
109	*Sagittaria*	*latifolia*									1
110	*Salix*	*discolor*									
111	*Sambucus*	*racemosa*									
112	*Scirpus*	*atrovirens*									2
113	*Scirpus*	*cespitosus*									
114	*Scirpus*	*cyperinus*					1	1			
115	*Scirpus*	*hudsonianus*									
116	*Scutellaria*	*lateriflora*									
117	*Smilacina*	*trifolia*									
118	*Solidago*	*canadensis*						Tr			Tr
119	*Solidago*	*uliginosa*									
120	*Sorbus*	*decora*									
121	*Streptopus*	*amplexifolius*									
122	*Streptopus*	*roseus*			1						
123	*Symplocarpus*	*foetidus*	Tr	3	1						
124	*Taraxacum*	*officinale*									Tr
125	*Taxus*	*canadensis*									
126	*Thalictrum*	*dasycarpum*									
127	*Thelypteris*	*palustris*									
128	*Thuja*	*occidentalis*									
129	*Trientalis*	*borealis*			Tr						
130	*Trifolium*	*pratense*									
131	*Trillium*	*cernuum*									
132	*Utricularia*	*intermedia*									
133	*Vaccinium*	*myrtilloides*									
134	*Viburnum*	*edule*									
135	*Viola*	*blanda*			Tr						
136	*Viola*	*macloskeyi*									
RICHNESS			9	28	40	7	12	18	4	6	23

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Date: 6/27/2003			Date: 6/27/2003			Date: 6/27/2003			Date: 6/27/2003		
			Sampled by: E.Judziewicz, F.Daniel			Sampled by: E.Judziewicz, F.Daniel			Sampled by: E.Judziewicz, F.Daniel			Sampled by: E.Judziewicz, F.Daniel		
			TRS: T66N R34W S12			TRS: T66N R34W S12			TRS: T66N R33W S7			TRS: T66N R33W S7		
			Lane Cove 7			**Lane Cove 8**			**Lane Cove 9**			**Lane Cove 10**		
	Habitat Description:		Bluejoint/ Alder Thicket			Bluejoint meadow			Alder Thicket			Alder/ Black Ash - Conifer Swamp		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1	*Abies*	*balsamea*						1					3	3
2	*Acer*	*spicatum*												
3	*Agrostis*	*gigantea*												
4	*Alnus*	*incana*			1					4	5	Tr	4	5
5	*Anaphalis*	*margaritacea*		Tr	Tr			Tr						
6	*Andromeda*	*glaucophylla*												
7	*Aralia*	*nudicaulis*	1	1	Tr	1	Tr	1					Tr	Tr
8	*Aster*	*macrophyllus*	3	1	Tr	1	Tr	1						
9	*Aster*	*puniceus*					1	1			Tr			
10	*Aster*	*umbellatus*		3	4					Tr	1			
11	*Athyrium*	*filix-femina*		3	1		1	Tr					1	1
12	*Betula*	*papyrifera*			Tr								Tr	Tr
13	*Botrychium*	*multifidum*		Tr	Tr									
14	*Calamagrostis*	*canadensis*	1	3	2	3	5	5	1	1	1	1	3	3
15	*Callitriche*	*palustris*						Tr						
16	*Caltha*	*palustris*								1	1		4	3
17	*Campanula*	*aparinoides*												
18	*Cardamine*	*pensylvanica*												
19	*Carex*	*aquatilis*			2									
20	*Carex*	*arctata*	1	1	Tr	1	1	1					1	Tr
21	*Carex*	*brunnescens*							1	Tr	1			
22	*Carex*	*canescens*												
23	*Carex*	*chordorrhiza*												
24	*Carex*	*disperma*												1
25	*Carex*	*echinata*											1	1
26	*Carex*	*gracillima*									Tr			
27	*Carex*	*intumescens*								Tr	1			
28	*Carex*	*lacustris*						Tr						
29	*Carex*	*lasiocarpa*										5	2	1
30	*Carex*	*leptalea*					1	Tr		1	Tr			
31	*Carex*	*livida*												
32	*Carex*	*retrorsa*												
33	*Carex*	*stipata*					Tr	1			Tr			
34	*Carex*	*stricta*												
35	*Carex*	*trisperma*												
36	*Carex*	*utriculata*												
37	*Carex*	*vesicaria*						1						
38	*Chelone*	*glabra*								1	1			
39	*Cinna*	*latifolia*												
40	*Cirsium*	*arvense*												
41	*Clematis*	*virginiana*									Tr			
42	*Clintonia*	*borealis*				Tr	Tr	1			Tr		1	Tr
43	*Coptis*	*trifolia*											1	1
44	*Corallorhiza*	*trifida*												

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Lane Cove 7			Lane Cove 8			Lane Cove 9			Lane Cove 10		
Habitat Description:			Bluejoint/ Alder Thicket			Bluejoint meadow			Alder Thicket			Alder/ Black Ash - Conifer Swamp		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
45	*Cornus*	*canadensis*					Tr	1					1	3
46	*Cornus*	*sericea*						Tr					Tr	1
47	*Diervilla*	*lonicera*	1	Tr	Tr			Tr						
48	*Drosera*	*linearis*												
49	*Dryopteris*	*carthusiana*					Tr	Tr			1		Tr	1
50	*Dryopteris*	*cristata*												
51	*Dryopteris*	*intermedia*												
52	*Dulichium*	*arundinaceum*												
53	*Eleocharis*	*tenuis var. borealis*						Tr						
54	*Epilobium*	*angustifolium*						Tr						
55	*Equisetum*	*arvense*												
56	*Equisetum*	*fluviatile*												
57	*Equisetum*	*palustre*				1	2	2						
58	*Equisetum*	*scirpoides*												Tr
59	*Equisetum*	*sylvaticum*							2	3	3			
60	*Eupatorium*	*maculatum*	Tr	1	Tr		1	1		1	Tr	1	1	Tr
61	*Fragaria*	*virginiana*												
62	*Fraxinus*	*nigra*		1	Tr									
63	*Galium*	*tinctorium*												Tr
64	*Galium*	*triflorum*					Tr	Tr	1	Tr	1			
65	*Gaultheria*	*hispidula*											Tr	Tr
66	*Gentiana*	*rubricaulis*												
67	*Gymnocarpium*	*dryopteris*									Tr		1	1
68	*Habenaria*	*dilatata*												
69	*Habenaria*	*hyperborea*									Tr		Tr	Tr
70	*Heracleum*	*lanatum*		Tr	Tr		Tr	Tr			Tr			
71	*Hieracium*	*pilosella*												
72	*Impatiens*	*capensis*				Tr	1	3	4	4	4			
73	*Iris*	*versicolor*				Tr	Tr	Tr	Tr	Tr	Tr			
74	*Juncus*	*effusus*												
75	*Lactuca*	*canadensis*								1	1			
76	*Lathyrus*	*ochroleucus*		Tr	Tr									
77	*Lilium*	*philadelphicum*	Tr	Tr	Tr									
78	*Linnaea*	*borealis*												Tr
79	*Lonicera*	*canadensis*									Tr			
80	*Lonicera*	*dioica*												
81	*Lycopodium*	*lucidulum*											Tr	Tr
82	*Lycopodium*	*obscurum*		Tr	Tr									
83	*Lycopus*	*uniflorus*					Tr	Tr			Tr			
84	*Lysimachia*	*terrestris*					Tr	Tr			Tr			
85	*Lysimachia*	*thyrsiflora*												
86	*Maianthemum*	*canadense*		Tr	Tr	1	Tr	1			1		Tr	Tr
87	*Mentha*	*arvensis*						Tr						
88	*Menyanthes*	*trifoliata*												
89	*Mitella*	*nuda*						Tr						
90	*Moneses*	*uniflora*												

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Lane Cove 7			Lane Cove 8			Lane Cove 9			Lane Cove 10		
Habitat Description:			Bluejoint/ Alder Thicket			Bluejoint meadow			Alder Thicket			Alder/ Black Ash - Conifer Swamp		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
91	*Picea*	*glauca*						1					Tr	1
92	*Poa*	*palustris*						Tr						
93	*Polygala*	*paucifolia*												
94	*Polygonum*	*amphibium*		Tr	Tr									
95	*Populus*	*tremuloides*					Tr	Tr						
96	*Potamogeton*	*natans*												
97	*Potentilla*	*norvegica*									Tr			
98	*Potentilla*	*palustris*												
99	*Prenanthes*	*alba*		Tr	Tr									
100	*Prunus*	*virginiana*				3	1	Tr			Tr			
101	*Pteridium*	*aquilinum*		Tr	Tr									
102	*Pyrola*	*elliptica*												
103	*Pyrola*	*secunda*												
104	*Ranunculus*	*abortivus*								1	1			
105	*Ranunculus*	*hispidus*		Tr	Tr		1	1			Tr			
106	*Ribes*	*triste*		Tr	Tr								Tr	Tr
107	*Rubus*	*idaeus*	Tr	Tr	Tr	1	Tr	1	Tr	Tr	Tr			
108	*Rubus*	*pubescens*	Tr	3	1	Tr	1	1	Tr	1	3	1	3	1
109	*Sagittaria*	*latifolia*												
110	*Salix*	*discolor*		Tr	Tr									
111	*Sambucus*	*racemosa*									Tr			
112	*Scirpus*	*atrovirens*						Tr						
113	*Scirpus*	*cespitosus*												
114	*Scirpus*	*cyperinus*												
115	*Scirpus*	*hudsonianus*												
116	*Scutellaria*	*lateriflora*		Tr	Tr			Tr		Tr	Tr			
117	*Smilacina*	*trifolia*												
118	*Solidago*	*canadensis*										1	Tr	Tr
119	*Solidago*	*uliginosa*												
120	*Sorbus*	*decora*									Tr			Tr
121	*Streptopus*	*amplexifolius*												Tr
122	*Streptopus*	*roseus*						Tr					Tr	Tr
123	*Symplocarpus*	*foetidus*			Tr						1		4	4
124	*Taraxacum*	*officinale*			Tr		Tr	Tr						
125	*Taxus*	*canadensis*											1	1
126	*Thalictrum*	*dasycarpum*	4	3	3	3	3	4	Tr	4	4			
127	*Thelypteris*	*palustris*				1	Tr	Tr						Tr
128	*Thuja*	*occidentalis*											1	Tr
129	*Trientalis*	*borealis*											Tr	Tr
130	*Trifolium*	*pratense*						Tr						
131	*Trillium*	*cernuum*								Tr	1			
132	*Utricularia*	*intermedia*												
133	*Vaccinium*	*myrtilloides*												
134	*Viburnum*	*edule*					Tr	Tr						
135	*Viola*	*blanda*					Tr	1	1	Tr	1			Tr
136	*Viola*	*macloskeyi*												
RICHNESS			10	26	31	14	30	47	10	21	40	6	30	38

		Date:	7/3/2004		Date:	7/3/2004		Date:	7/3/2004	
		Sampled by:	E.Judziewicz, C.Tyrell		Sampled by:	E.Judziewicz, C.Tyrell		Sampled by:	E.Judziewicz, C.Tyrell	
		TRS:	T64N, R38W, S26 SE1/4		TRS:	T64N, R38W, S26 SE1/4		TRS:	T64N, R38W, S26 SE1/4	
		Lily Lake 1			**Lily Lake 2**			**Lily Lake 3**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Andromeda*	*glaucophylla*		1	1	3	1	1			
2 *Arethusa*	*bulbosa*					Tr	1			
3 *Calopogon*	*tuberosus*					Tr	Tr			
4 *Carex*	*limosa*			1	3	2	2	3	5	5
5 *Carex*	*pauciflora*	5	5	3				1	2	2
6 *Carex*	*paupercula*						Tr			
7 *Chamaedaphne*	*calyculata*	4	4	4	3	3	3	3	3	4
8 *Cypripedium*	*acaule*		Tr	Tr						
9 *Drosera*	*intermedia*				2	5	5			
10 *Drosera*	*rotundifolia*	2	2	3	1	2	1	1	1	2
11 *Eleocharis*	spp.			1	1	Tr	1		1	2
12 *Kalmia*	*polifolia*		1	3	Tr	1	3	3	3	4
13 *Larix*	*laricina*		1	Tr		Tr	1			
14 *Lycopodium*	*inundatum*			Tr	3	3	4			
15 *Menyanthes*	*trifoliata*				3	3	4			
16 *Myrica*	*gale*	3	4	4	Tr	3	4	3	3	4
17 *Picea*	*mariana*			1		Tr	1			
18 *Pogonia*	*ophioglossoides*					Tr	1			
19 *Rhynchospora*	*fusca*				1	3	2			
20 *Sarracenia*	*purpurea*	Tr	3	3	1	3	4	1	3	4
21 *Scheuchzeria*	*palustris*	1	2	2					Tr	Tr
22 *Scirpus*	*hudsonianus*				2	2	2			
23 *Sphagnum*	spp.	5	5	5	3	3	4	5	5	5
24 *Vaccinium*	*oxycoccos*	3	3	3	2	3	3	2	3	3
RICHNESS		8	12	16	15	20	21	9	11	11

Lily Lake 1	Add'l spp:	SYMFOE, CARBRU, CARDIS, CARLAS, CARPAP, CARSTI, CARTRI, CARVIR, RHYSPP, RHYFUS, SCIHUD, GAUHIS, LEDGRO, VACMYR, LYCUNI, UTRCOR, SMITRI, MENTRI, NUPVAR, CALTUB, POGOPH, POTNAT, GALTRI, ALNINC. Bog mat around a small lake. Plots on west side of lake.
Lily Lake 2	Add'l spp:	Xyris montana (very immature) Bog mat around a small lake. Plots on west side of lake.
Lily Lake 3	Add'l spp:	THUOCC, CAREXI, CARSPP (CARROS or CARUTR), CARSTR, SCICES, EQUFLU, IRIVER, THEPAL. Bog mat around a small lake. Plots on west side of lake.

Appendix B: Isle Royale 2003-2005Peatland Sampling Data

			Date: 8/1/2005			Date: 8/1/2005			Date: 8/2/2005		
			Sampled by: J.Marr, M.Jones			Sampled by: J.Marr, M.Jones			Sampled by: A.Harris, J.Marr		
			TRS: T66N R35W S35			TRS: T66N R35W S35			TRS: T66N R35W S35		
			McCargoe Cove 1			**McCargoe Cove 2**			**McCargoe Cove 3**		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1	*Agrostis*	*hyemalis*		Tr	1						
2	*Betula*	*papyrifera*								Tr	Tr
3	*Calamagrostis*	*canadensis*		Tr	1				Tr	1	1
4	*Campanula*	*aparinoides*		Tr	Tr				Tr	Tr	Tr
5	*Carex*	*bebbii*	1	Tr	1						
6	*Carex*	*diandra*							2	Tr	Tr
7	*Carex*	*lasiocarpa*			1	5	5	5	2	4	5
8	*Carex*	*rostrata*							1	2	2
9	*Carex*	spp. (Stellulatae type)	Tr	Tr	Tr						
10	*Carex*	*stricta*								Tr	Tr
11	*Dulichium*	*arundinaceum*	Tr	Tr	Tr			Tr	Tr	1	1
12	*Eleocharis*	*palustris*									Tr
13	*Equisetum*	*fluviatile*				1	1	1			Tr
14	*Eupatorium*	*maculatum*			Tr					Tr	Tr
15	*Glyceria*	*canadensis*		Tr	Tr						
16	*Impatiens*	*capensis*			Tr						
17	*Iris*	*versicolor*									Tr
18	*Juncus*	*brevicaudatus*		Tr	Tr			Tr			Tr
19	*Juncus*	*effusus*	Tr	Tr	Tr						
20	*Lycopus*	*uniflorus*		Tr	Tr				Tr	Tr	Tr
21	*Lysimachia*	*terrestris*							Tr	Tr	Tr
22	*Menyanthes*	*trifoliata*						Tr			
23	*moss*	spp.							Tr	Tr	Tr
24	*Nuphar*	*variegata*									Tr
25	*Poa*	*palustris*	Tr	Tr	1						
26	*Polygonum*	*amphibium*			Tr					Tr	Tr
27	*Potamogeton*	*gramineus*					1	1			
28	*Potentilla*	*norvegica*		Tr	Tr						
29	*Potentilla*	*palustris*					Tr	Tr	1	1	Tr
30	*Rhynchospora*	*fusca*						Tr			
31	*Sagittaria*	*latifolia*									Tr
32	*Salix*	*petiolaris*									Tr
33	*Scirpus*	*cyperinus*	5	5	5						Tr
34	*Scutellaria*	*galericulata*								Tr	Tr
35	*Sium*	*suave*							Tr	Tr	Tr
36	*Sparganium*	*minimum*									Tr
37	*Triadenum*	*fraseri*		Tr	Tr				Tr	Tr	Tr
38	*Typha*	*latifolia*								Tr	1
39	*Utricularia*	*intermedia*				1	1	1		1	1
40	*Viola*	spp.							Tr	Tr	Tr
	RICHNESS		6	14	18	3	5	9	13	20	29

McCargoe Cove 1	originally Plot 1	drained beaver pond, grass/sedge dominated, standing dead conifers, mucky wet soil
	Add'l spp:	POTGRA, UTRIINT, GLYBOR, SAGLAT, SCUGAL in wetter area
McCargoe Cove 2	originally Plot 2	old beaver pond, now CARLAS dominted, no mosses, some staning water and dead conifers
	Add'l spp:	IMPCAP, SCUGAL, AGRHYM
McCargoe Cove 3		Wet valley btw ridges on trail to Chicken Bone, semi floating mat of CARLAS, no recent beaver activity
	originally Chickebone Trail Plot	however, an old dam 60m east of plot.
	Add'l spp:	none

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Date: 7/16/2004 Sampled by: V.Hofman, J.Marr TRS: T64N R37W S05			Date: 7/16/2004 Sampled by: V.Hofman, J.Marr TRS: T64N R37W S07			Date: 7/16/2004 Sampled by: V.Hofman, J.Marr TRS: T64N R37W S07		
			Minong 1			**Minong 2**			**Minong 3**		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1	*Alnus*	*incana*									
2	*Anaphalis*	*margaritacea*						Tr			
3	*Andromeda*	*glaucophylla*									
4	*Anemone*	*canadensis*									
5	*Aster*	*lanceolatus*								1	Tr
6	*Aster*	*puniceus*					1	Tr			
7	*Aster*	*umbellatus*					1	3		Tr	3
8	*Asteraceae*	spp.						Tr		1	Tr
9	*Betula*	*papyrifera*						Tr			
10	*Botrychium*	*multifidum*				1	Tr	Tr			
11	*Calamagrostis*	*canadensis*	3	2	2	2	3	3	Tr	Tr	Tr
12	*Calla*	*palustris*		1	1					1	1
13	*Campanula*	*aparinoides*				3	1	1		1	1
14	*Carex*	*bebbii*									
15	*Carex*	*canescens*									
16	*Carex*	*chordorrhiza*							1	3	2
17	*Carex*	*lacustris*									
18	*Carex*	*lasiocarpa*				3	3	3	Tr	3	5
19	*Carex*	*paupercula*									
20	*Carex*	*rostrata*			2				3	3	2
21	*Carex*	spp. (Stellulatae type)		Tr	Tr		1	2		1	1
22	*Carex*	*stricta*									
23	*Carex*	*utriculata*	3	3	3			1	Tr	2	1
24	*Chamaedaphne*	*calyculata*									
25	*Dryopteris*	spp.									
26	*Dulichium*	*arundinaceum*	2	5	3						
27	*Eleocharis*	*palustris*		Tr	Tr			Tr			
28	*Epilobium*	*leptophyllum*						1			
29	*Epilobium*	spp.		Tr	Tr						
30	*Equisetum*	*arvense*									
31	*Equisetum*	*fluviatile*									
32	*Eriophorum*	*vaginatum*									
33	*Fragaria*	*virginiana*									
34	*Galium*	spp. *(tinctorium/trifidum)*	1	2	2						
35	*Gaultheria*	*hispidula*									
36	*Gentiana*	*rubricaulis*									
37	*Glyceria*	*borealis*			Tr						
38	*Glyceria*	*grandis*	3	2	1						
39	*Glyceria*	spp.					Tr	2			
40	*Habenaria*	*hyperborea*					Tr	Tr			
41	*Impatiens*	*capensis*	Tr	1	1						

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Minong 1			Minong 2			Minong 3		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
42	*Iris*	*versicolor*	3	3	3	3	3	3		1	1
43	*Juncus*	*effusus*			Tr						
44	*Kalmia*	*polifolia*									
45	*Lactuca*	*canadensis*					1	Tr			
46	*Lamiaceae*	spp.		1	Tr						
47	*Ledum*	*groenlandicum*									
48	*Lonicera*	spp.						Tr			
49	*Lycopus*	*uniflorus*	3	4	3	Tr	1	1		1	Tr
50	*Lysimachia*	spp.									
51	*Lysimachia*	*terrestris*				Tr	1	Tr		1	3
52	*Lysimachia*	*thyrsiflora*						1			
53	*Menyanthes*	*trifoliata*						1			
54	*Ophioglossum*	*vulgatum* var. *pseudopodum*				Tr	Tr	Tr			
55	*Osmunda*	*regalis*						Tr		Tr	Tr
56	*Picea*	*mariana*					Tr	Tr			Tr
57	*Picea*	spp.									
58	*Poa*	*palustris*									
59	*Polygonum*	*amphibium*									
60	*Populus*	*tremuloides*						Tr			
61	*Potamogeton*	*gramineus*							3	3	1
62	*Potentilla*	*norvegica*		1	Tr		1	1			1
63	*Potentilla*	*palustris*					3	3			
65	*Rhamnus*	*alnifolia*									Tr
66	*Rubus*	*pubescens*									Tr
67	*Sagittaria*	spp.		1	1						
68	*Salix*	*pedicellaris*									
69	*Salix*	*petiolaris*									
70	*Salix*	spp.						Tr		Tr	1
71	*Scirpus*	*atrovirens*						1			
72	*Scirpus*	*cyperinus*		Tr	Tr						
73	*Scutellaria*	*galericulata*				Tr	Tr	Tr			
74	*Sium*	*suave*	1	3	4						
75	*Sparganium*	*minimum*							1	1	1
76	*Sphagnum*	spp.									
77	*Symplocarpus*	*foetidus*									
78	*Taraxacum*	*officinale*					Tr	Tr			
79	*Thuja*	*occidentalis*					Tr	Tr		Tr	Tr
80	*Trientalis*	*borealis*									
81	*Typha*	spp.									1
82	*unknown*	spp. (herbaceous)	Tr	Tr	Tr	Tr	1	1			Tr
83	*Utricularia*	*intermedia*							3	3	2
84	*Utricularia*	*minor*	1	Tr	Tr				Tr	Tr	Tr
85	*Vaccinium*	*oxycoccos*									
86	*Viola*	spp.				Tr	1	1		1	1
	RICHNESS		11	19	22	11	22	35	9	22	28

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Date: 7/16/2004 Sampled by: V.Hofman, J.Marr TRS: T64N R37W S07			Date: 7/17/2004 Sampled by: V.Hofman, J.Marr TRS: T64N R38W S14			Date: 7/17/2004 Sampled by: V.Hofman, J.Marr TRS: T64N R38W S14		
			Minong 4			**Minong 5**			**Minong 6**		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1	*Alnus*	*incana*			Tr		1	1			
2	*Anaphalis*	*margaritacea*									
3	*Andromeda*	*glaucophylla*	3	4	3						
4	*Anemone*	*canadensis*									
5	*Aster*	*lanceolatus*									
6	*Aster*	*puniceus*					Tr	Tr			
7	*Aster*	*umbellatus*					Tr	Tr			
8	*Asteraceae*	spp.									
9	*Betula*	*papyrifera*						1			
10	*Botrychium*	*multifidum*									
11	*Calamagrostis*	*canadensis*					1	2	3	3	3
12	*Calla*	*palustris*									
13	*Campanula*	*aparinoides*		Tr	Tr	1	2	2		Tr	Tr
14	*Carex*	*bebbii*									
15	*Carex*	*canescens*									
16	*Carex*	*chordorrhiza*		1	1			Tr	2	Tr	Tr
17	*Carex*	*lacustris*					Tr	Tr	3	3	3
18	*Carex*	*lasiocarpa*	3	5	5	5	5	5			
19	*Carex*	*paupercula*									
20	*Carex*	*rostrata*									
21	*Carex*	spp. (Stellulatae type)			Tr						
22	*Carex*	*stricta*			Tr				3	3	3
23	*Carex*	*utriculata*					1	1			
24	*Chamaedaphne*	*calyculata*	4	4	4						
25	*Dryopteris*	spp.									
26	*Dulichium*	*arundinaceum*									
27	*Eleocharis*	*palustris*									
28	*Epilobium*	*leptophyllum*									
29	*Epilobium*	spp.									
30	*Equisetum*	*arvense*				2	1	1			
31	*Equisetum*	*fluviatile*	2	3	3						
32	*Eriophorum*	*vaginatum*									
33	*Fragaria*	*virginiana*									
34	*Galium*	spp. *(tinctorium/trifidum)*									
35	*Gaultheria*	*hispidula*									
36	*Gentiana*	*rubricaulis*					1	Tr			
37	*Glyceria*	*borealis*									
38	*Glyceria*	*grandis*									
39	*Glyceria*	spp.									
40	*Habenaria*	*hyperborea*									
41	*Impatiens*	*capensis*									

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Minong 4			Minong 5			Minong 6		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
42	*Iris*	*versicolor*	1	2	1	3	3	3		Tr	1
43	*Juncus*	*effusus*									
44	*Kalmia*	*polifolia*			Tr						
45	*Lactuca*	*canadensis*									
46	*Lamiaceae*	spp.					Tr	Tr			Tr
47	*Ledum*	*groenlandicum*									
48	*Lonicera*	spp.									
49	*Lycopus*	*uniflorus*						1			
50	*Lysimachia*	spp.		Tr	Tr						
51	*Lysimachia*	*terrestris*			1		Tr	1		Tr	Tr
52	*Lysimachia*	*thyrsiflora*				Tr	1	1	3	1	Tr
53	*Menyanthes*	*trifoliata*						1			
54	*Ophioglossum*	*vulgatum* var. *pseudopodum*									
55	*Osmunda*	*regalis*									
56	*Picea*	*mariana*									
57	*Picea*	spp.					Tr	Tr			
58	*Poa*	*palustris*									
59	*Polygonum*	*amphibium*					1	1	Tr	3	1
60	*Populus*	*tremuloides*									
61	*Potamogeton*	*gramineus*									
62	*Potentilla*	*norvegica*									
63	*Potentilla*	*palustris*			Tr		1	1		1	Tr
65	*Rhamnus*	*alnifolia*									
66	*Rubus*	*pubescens*			Tr		1	Tr			
67	*Sagittaria*	spp.									
68	*Salix*	*pedicellaris*		Tr	3						
69	*Salix*	*petiolaris*						1			
70	*Salix*	spp.						1		Tr	Tr
71	*Scirpus*	*atrovirens*									
72	*Scirpus*	*cyperinus*									
73	*Scutellaria*	*galericulata*				1	3	3		Tr	Tr
74	*Sium*	*suave*									
75	*Sparganium*	*minimum*									
76	*Sphagnum*	spp.	2	2	2						
77	*Symplocarpus*	*foetidus*									
78	*Taraxacum*	*officinale*									
79	*Thuja*	*occidentalis*			Tr						
80	*Trientalis*	*borealis*			1						
81	*Typha*	spp.									
82	*unknown*	spp. (herbaceous)									
83	*Utricularia*	*intermedia*	1	1	1						
84	*Utricularia*	*minor*			Tr						
85	*Vaccinium*	*oxycoccos*									
86	*Viola*	spp.			Tr						
RICHNESS			7	11	22	6	19	25	6	12	13

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Date: 7/17/2004 Sampled by: V.Hofman, J.Marr TRS: T64N R38W S12			Date: 7/17/2004 Sampled by: V.Hofman, J.Marr TRS: T64N R38W S11		
			Minong 7			**Minong 8**		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1	*Alnus*	*incana*						
2	*Anaphalis*	*margaritacea*						
3	*Andromeda*	*glaucophylla*						
4	*Anemone*	*canadensis*					1	Tr
5	*Aster*	*lanceolatus*						
6	*Aster*	*puniceus*				1	3	3
7	*Aster*	*umbellatus*						
8	*Asteraceae*	spp.						
9	*Betula*	*papyrifera*			Tr			
10	*Botrychium*	*multifidum*						
11	*Calamagrostis*	*canadensis*				2	3	3
12	*Calla*	*palustris*						
13	*Campanula*	*aparinoides*				3	3	3
14	*Carex*	*bebbii*					1	Tr
15	*Carex*	*canescens*		Tr	1			
16	*Carex*	*chordorrhiza*						
17	*Carex*	*lacustris*						
18	*Carex*	*lasiocarpa*						
19	*Carex*	*paupercula*		1	2			
20	*Carex*	*rostrata*						
21	*Carex*	spp. (Stellulatae type)					Tr	1
22	*Carex*	*stricta*	3	3	3	3	3	3
23	*Carex*	*utriculata*						Tr
24	*Chamaedaphne*	*calyculata*	4	4	5			
25	*Dryopteris*	spp.			1			
26	*Dulichium*	*arundinaceum*						
27	*Eleocharis*	*palustris*						
28	*Epilobium*	*leptophyllum*						
29	*Epilobium*	spp.						
30	*Equisetum*	*arvense*						
31	*Equisetum*	*fluviatile*						
32	*Eriophorum*	*vaginatum*		Tr	2			
33	*Fragaria*	*virginiana*				3	1	1
34	*Galium*	spp. *(tinctorium/trifidum)*						
35	*Gaultheria*	*hispidula*		Tr	Tr			
36	*Gentiana*	*rubricaulis*						
37	*Glyceria*	*borealis*						
38	*Glyceria*	*grandis*						
39	*Glyceria*	spp.						
40	*Habenaria*	*hyperborea*					Tr	1
41	*Impatiens*	*capensis*						

			Minong 7			Minong 8		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
42	*Iris*	*versicolor*		1	Tr		1	2
43	*Juncus*	*effusus*					Tr	1
44	*Kalmia*	*polifolia*		1	Tr			
45	*Lactuca*	*canadensis*						
46	*Lamiaceae*	spp.						
47	*Ledum*	*groenlandicum*		3	1			
48	*Lonicera*	spp.						
49	*Lycopus*	*uniflorus*						Tr
50	*Lysimachia*	spp.						
51	*Lysimachia*	*terrestris*						
52	*Lysimachia*	*thyrsiflora*						
53	*Menyanthes*	*trifoliata*						
54	*Ophioglossum*	*vulgatum* var. *pseudopodum*						
55	*Osmunda*	*regalis*						
56	*Picea*	*mariana*			1			
57	*Picea*	spp.						
58	*Poa*	*palustris*						1
59	*Polygonum*	*amphibium*				Tr	1	1
60	*Populus*	*tremuloides*						
61	*Potamogeton*	*gramineus*						
62	*Potentilla*	*norvegica*						
63	*Potentilla*	*palustris*						
65	*Rhamnus*	*alnifolia*						
66	*Rubus*	*pubescens*						
67	*Sagittaria*	spp.						
68	*Salix*	*pedicellaris*						
69	*Salix*	*petiolaris*						
70	*Salix*	spp.						
71	*Scirpus*	*atrovirens*						
72	*Scirpus*	*cyperinus*					1	2
73	*Scutellaria*	*galericulata*					1	3
74	*Sium*	*suave*						
75	*Sparganium*	*minimum*						
76	*Sphagnum*	spp.	4	4	4			
77	*Symplocarpus*	*foetidus*		Tr	1			
78	*Taraxacum*	*officinale*					1	1
79	*Thuja*	*occidentalis*						
80	*Trientalis*	*borealis*			Tr			
81	*Typha*	spp.						
82	*unknown*	spp. (herbaceous)						
83	*Utricularia*	*intermedia*						
84	*Utricularia*	*minor*						
85	*Vaccinium*	*oxycoccos*		Tr	2			
86	*Viola*	spp.						Tr
	RICHNESS		3	12	16	6	15	19

Minong 1	Add'l spp:	none
	Notes:	Old beaver meadow w/ a few large snags. Surrounded by PICSPP and upland trees and shrubs. H2O up to a foot in depth. Upland spp. coming down into area but not in plot.
Minong 2	Add'l spp:	none
	Notes:	CARSPP and CALCAN beaver meadow remnant. Scattered snags, 2-10' THUOCC, PICSPP, and ALNINC. Mostly dry with little standing H2O. Non-*Sphagnum* moss present. Upland species on old logs. Originally Minong 2A
Minong 3	Add'l spp:	none
	Notes:	Originally Minong 2B
Minong 4	Add'l spp:	none
	Notes:	Wet sedge meadow, possible from beaver activity (snags present). *Sphagnum* hummocks and ericaceous shrubs, ALNINC, and THUOCC (5-10' tall) present. Edges have more trees and shrubs. H2O about a 1' deep (rained last night). Originally Minong 3.
Minong 5	Add'l spp.:	CARSTE, CAROVA, POAPAL, POPTRE, TYPSPP, PINSTR, VIOSPP, LACSPP, SPIALB, CARSTR, THUOCC, POTNOR, DRYCRI,
	Notes:	Wet sedge meadow (CARLAS, IRIVER) with standing H2O up to 6". Few hummocks w/ CALCAN and other species. Edge of wetland w/ shrubs and trees. Originally Minong 4A
Minong 6	Add'l spp.:	GALSPP, SCIMIC, THADAS.
	Notes:	Tall CARSTR and CALCAN wet meadow. Water present in between hummocks. SALSPP and ALNINC present along edge of wetland. Originally Minong 4B
Minong 7	Add'l spp:	none
	Notes:	Old beaver meadow; open area near wetter sedge and CHACAL dominated areas, surrounded by uplands. Transition area has PICMAR and ALNINC. Snags present. *Sphagnum* dominated throughout. Origninally Minong 5.
Minong 8	Add'l spp:	HIESPP, ALNINC, SALSPP, PICGLA, CICBUL, THUOCC, RUBPUB, EPISPP, GLYSTR, ELESPP, BETPAP, CARCAN, ASTUMB, LACSPP.
	Notes:	Old beaver meadow in later stages of recession. Evidence of an old dam. CALCAN and Carex spp. dominated. Few shrubs (ALNINC & SALSPP), small PICSPP trees and snags present. Variety of upland and wetland plants. Originally Minong 6.

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date: 8/7/2005			Date: 8/7/2005		
		Sampled by: J. Marr, M.Jones			Sampled by: J.Marr, M.Jones		
		TRS: T64N R36W S09			TRS: T64N R36W S08		
		Mud Lake 1			**Mud Lake 2**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Alnus*	*incana*						Tr
2 *Andromeda*	*glaucophylla*		1	1			
3 *Betula*	*papyrifera*		1	1			
4 *Calamagrostis*	*canadensis*				1	2	1
5 *Campanula*	*aparinoides*					Tr	Tr
6 *Carex*	*lasiocarpa*				3	4	4
7 *Carex*	*oligosperma*		2	2			
8 *Carex*	*rostrata*				1	1	2
9 *Carex*	spp. (Stellulatae type)				Tr	Tr	Tr
10 *Chamaedaphne*	*calyculata*	5	5	5			Tr
11 *Dulichium*	*arundinaceum*				2	1	1
12 *Equisetum*	*fluviatile*				Tr	1	1
13 *Eriophorum*	*vaginatum*	Tr	1	1			
14 *Gaultheria*	*hispida*		Tr	Tr			
15 *Geocaulon*	*lividum*			Tr			
16 *Glyceria*	*canadensis*						Tr
17 *Iris*	*versicolor*					Tr	Tr
18 *Kalmia*	*polifolia*	1	2	2			
19 *Larix*	*laricina*		Tr	Tr			
20 *Ledum*	*groenlandicum*	1	2	2			
21 *Lycopus*	*uniflorus*					Tr	Tr
22 *Lysimachia*	*terrestris*				Tr	Tr	Tr
23 *Myrica*	*gale*		Tr	2	2	3	3
24 *Picea*	*mariana*	2	2	2			
25 *Potentilla*	*palustris*					Tr	1
26 *Sarracenia*	*purpurea*			Tr			
27 *Sphagnum*	*spp.*	5	5	5			
28 *Symplocarpus*	*foetidus*			Tr			
29 *Thalictrum*	*dasycarpum*					Tr	Tr
30 *Thuja*	*occidentalis*						Tr
31 *Triadenum*	*fraseri*					Tr	Tr
32 *Utricularia*	*intermedia*				1	1	1
33 *Vaccinium*	*myrtilloides*			Tr			
34 *Vaccinium*	*oyxcoccus*	1	1	1			
RICHNESS		7	13	17	9	15	19

Mud Lake 1 Add'l spp: none

Ericad/SPH dominated opening w/ scattered PICMAR (3-5 inch dbh)

Mud Lake 2 Add'l spp: none

CARLAS dominated w/ standing dead THUOCC in area, no SPH, CHACAL on hummocks

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date: 8/14/2004			Date: 8/14/2004			Date: 8/14/2004		
		Sampled by: A.Harris, J.Marr			Sampled by: A.Harris, J.Marr			Sampled by: V.Hofman, M.Jones, J.Meeker		
		TRS: T66N R34W S22			TRS: T66N R34W S22			TRS: T66N R34W S22		
		Lake Ojibway 1			**Lake Ojibway 2**			**Lake Ojibway 3**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Acer*	*rubrum*	1	Tr	Tr		Tr	Tr		Tr	Tr
2 *Alnus*	*incana*			Tr		1	1		1	1
3 *Andromeda*	*glaucophylla*									Tr
4 *Aster*	*puniceus*						Tr			
5 *Aster*	*umbellatus*	Tr	Tr	Tr	Tr	Tr	1			
6 *Calamagrostis*	*canadensis*			Tr	Tr	Tr	Tr			
7 *Campanula*	*aparinoides*					Tr	Tr			
8 *Carex*	*canescens*			Tr						
9 *Carex*	*lasiocarpa*	3	4	4	2	3	4	1	1	Tr
10 *Carex*	*rostrata*			Tr						
11 *Carex*	spp.			Tr						
12 *Carex*	spp. (Stellulatae type)		Tr	Tr			Tr			
13 *Carex*	*stricta*						Tr			
14 *Carex*	*utriculata*	1	1	Tr		Tr	Tr			
15 *Chamaedaphne*	*calyculata*	2	2	1			1	4	5	5
16 *Cladium*	spp.			Tr						
17 *Cornus*	*canadensis*						Tr			
18 *Cornus*	*sericea*						Tr			
19 *Drosera*	*intermedia*		Tr	Tr			Tr			
20 *Drosera*	*rotundifolia*					Tr	Tr	Tr	Tr	Tr
21 *Dryopteris*	*cristata*						Tr			
22 *Dulichium*	*arundinaceum*	Tr	1	2	Tr	1	1	1	1	Tr
23 *Equisetum*	*fluviatile*	1	2	2	Tr	Tr	1			Tr
24 *Eriophorum*	*tenellum*					Tr	Tr			
25 *Habenaria*	spp.						Tr			
26 *Iris*	*versicolor*	Tr	Tr	Tr	Tr	Tr	Tr	1	Tr	Tr
27 *Juncus*	*pelocarpus*			Tr						
28 *Linnaea*	*borealis*						Tr			
29 *Lycopus*	*uniflorus*	Tr	Tr	Tr	Tr	Tr	Tr		Tr	Tr
30 *Lysimachia*	spp.				Tr	Tr	Tr			
31 *Lysimachia*	*terrestris*						Tr			
32 *Menyanthes*	*trifoliata*	Tr	Tr	1	2	1	1	1	Tr	Tr
33 *moss*	spp.	1	1	1	Tr	Tr	1			
34 *Myrica*	*gale*	3	4	3	4	4	3	2	2	1
35 *Nymphaea*	*odorata*		Tr	Tr						
36 *Orchidaceae*	*spp.*		Tr	Tr						
37 *Pogonia*	*ophioglossoides*		Tr	Tr					Tr	Tr
38 *Potentilla*	*palustris*	Tr	Tr	Tr	Tr	Tr	Tr		Tr	Tr
39 *Rhynchospora*	*alba*		Tr	Tr	Tr	2	2	1	Tr	Tr
40 *Rubus*	*pubescens*						Tr			
41 *Sarracenia*	*purpurea*		Tr	Tr					Tr	Tr

		Lake Ojibway 1			Lake Ojibway 2			Lake Ojibway 3		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
42 *Scheuchzeria*	*palustris*							Tr	2	2
43 *Smilacina*	*trifolia*								Tr	Tr
44 *Solidago*	*uliginosa*	Tr	Tr	Tr		Tr	Tr			
45 *Sphagnum*	*spp.*		1	1		1	1	4	4	5
46 *Symplocarpus*	*foetidus*					Tr	Tr			
47 *Triadenum*	*fraseri*	Tr	Tr	Tr			Tr			
48 *Trientalis*	*borealis*						Tr			
49 *Utricularia*	*intermedia*		Tr	Tr		Tr	Tr		Tr	Tr
50 *Vaccinium*	*macrocarpon*								Tr	Tr
51 *Viola*	*spp.*		Tr	Tr		Tr	Tr		Tr	Tr
RICHNESS		15	25	32	13	24	38	10	20	22

Lake Ojibway 1 Add'l spp.: ERITEN, CAMAPA, SYMFOE.
Floating CARLAS mat, approximately 10m from edge of water at eastern end of lake. The water has risen ~ 80cm in the last few decades, dead THUOCC stands in the water. Therefore the veg of this peatland is fairly young.

Lake Ojibway 2 Add'l spp.: TYPSPP
Peatland at east end of lake, ~ 2m east of WP1. Grounded peat mat. Slightly drier than WP1. A few upland species under shrubs and on logs.

Lake Ojibway 3 Add'l spp.: UTRVUL
Originally Lake Ojibway PP1 (of VH, MJ, JEM). Floating SPHSPP mat in middle of lake. A few small LARLAR trees on mat. TYPSPP present on lake.

		Date: 8/7/2004 Sampled by: V.Hofman, J.Marr TRS: T66N R34W S01			Date: 8/7/2004 Sampled by: V.Hofman, J.Marr TRS: T66N R34W S01		
		Patterson 1			**Patterson 2**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Alnus*	*incana*						Tr
2 *Andromeda*	*glaucophylla*						Tr
3 *Calamagrostis*	*canadensis*			Tr			Tr
4 *Campanula*	*aparinoides*						Tr
5 *Carex*	*chordorrhiza*	Tr	1	Tr	Tr	Tr	Tr
6 *Carex*	*lasiocarpa*	3	4	5	1	2	2
7 *Carex*	*rostrata*		1	Tr			
8 *Carex*	spp. (Stellulatae type)						Tr
9 *Carex*	*stricta*						1
10 *Chamaedaphne*	*calyculata*			1	2	1	3
11 *Dulichium*	*arundinaceum*					Tr	Tr
12 *Equisetum*	*fluviatile*	1	1	1	1	2	1
13 *Iris*	*versicolor*			Tr			Tr
14 *Lysimachia*	spp.		Tr	Tr	Tr	Tr	Tr
15 *moss*	spp.	1	Tr	Tr			
16 *Myrica*	*gale*	2	2	2	2	2	3
17 *Potentilla*	*palustris*		Tr	Tr	1	Tr	Tr
18 *Salix*	*pedicellaris*	Tr	Tr	Tr		Tr	Tr
19 *Sphagnum*	spp.				Tr	2	2
20 *Triadenum*	*fraseri*		Tr	Tr			Tr
RICHNESS		6	10	13	8	10	18

Patterson 1	Add'l spp:	ALNINC, CAMAMP, CARSTR, VACOXY, DULARU, SCHPAL, CARSTE, CARLAC, LYCUNI.
Patterson 2	Add'l spp:	Floating sedge mat along edge of of lake. Few old dead trees present along w/ shrubs and small trees along upland edge. VACOXY, POLAMP, LYSTER. A firm mat on edge of lake and inlet/outlet. Untreed sedge meadow w/ scattered shrubs (ericaceous and ALNINC) and SPHSPP hummocks. Snags present. H2O just below surface.

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date: 7/6/2004 Sampled by: V.Hofman TRS: T63N R38W S06			Date: 7/11/2004 Sampled by: V.Hofman, J.Marr TRS: T63N R37W S02			Date: 8/16/2004 Sampled by: V.Hofman, J.Marr, J.Meeker TRS: T66N R34W S22			Date: 8/13/2004 Sampled by: V.Hofman, M.Jones, J.Marr TRS: T66N R34W S21/28		
		Grace Creek 1			**SE Checker Point 1**			**Mt. Ojibway Trail 1**			**Angleworm Lake 1**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Agrostis*	*hyemalis*								1	Tr			
2 *Alnus*	*incana*								Tr	1			1
3 *Andromeda*	*glaucophylla*				1	3	3					Tr	Tr
4 *Aster*	*puniceus*									Tr			
5 *Aster*	*umbellatus*									Tr			
6 *Calamagrostis*	*canadensis*		2	2					Tr	Tr			Tr
7 *Campanula*	*aparinoides*			1					Tr	Tr			
8 *Carex*	*chordorrhiza*										Tr	Tr	Tr
9 *Carex*	*exilis*					1	2						
10 *Carex*	*lasiocarpa*	5	5	3	2	2	2				3	3	3
11 *Carex*	*limosa*					1	1						
12 *Carex*	*livida*				3	2	2						
13 *Carex*	*rostrata*											Tr	Tr
14 *Carex*	spp. (Ovales type)								Tr	Tr			
15 *Carex*	spp. (Stellulatae type)								Tr	Tr	Tr	Tr	Tr
16 *Carex*	*stipata*								Tr	Tr			
17 *Carex*	*stricta*		2	3				4	4	4			1
18 *Carex*	*utriculata*	2	3	2				Tr	Tr	Tr			
19 *Chamaedaphne*	*calyculata*					Tr	1					1	2
20 *Cicuta*	*bulbifera*								Tr	Tr			
21 *Cornus*	*canadensis*												Tr
22 *Drosera*	*linearis*				Tr	Tr	1						
23 *Drosera*	*rotundifolia*				1	1	2					Tr	Tr
24 *Dulichium*	*arundinaceum*							2	1	2	Tr	1	1
25 *Eleocharis*	*acicularis*									1			
26 *Eleocharis*	*palustris*									Tr			
27 *Eleocharis*	spp.					1	1						
28 *Eleocharis*	*tenuis* var. *borealis*		1	2	1	1	1						
29 *Equisetum*	*fluviatile*	1	3	2	1	Tr	1					Tr	Tr
30 *Euthamia*	*graminifolia*									Tr			
31 *Galium*	*tinctorium*								Tr	Tr			
32 *Glyceria*	*canadensis*		2	2				1	1	2			
33 *Habenaria*	spp.					Tr	Tr						
34 *Hypericum*	*majus*								Tr	Tr			
35 *Impatiens*	*capensis*								Tr	Tr			
36 *Iris*	*versicolor*		1	2	Tr	Tr	Tr	Tr	Tr	Tr			Tr
37 *Juncus*	*brevicaudatus*							Tr	Tr	Tr			
38 *Juncus*	*effusus*								Tr	Tr			
39 *Lactuca*	*biennis*									Tr			
40 *Ledum*	*groenlandicum*												Tr
41 *Lycopus*	*americanus*								Tr	Tr			
42 *Lycopus*	*uniflorus*					Tr	1	Tr	Tr	Tr			
43 *Lysimachia*	*terrestris*							Tr	Tr	Tr			
44 *Lysimachia*	*thyrsiflora*	1	3	3									
45 *Menyanthes*	*trifoliata*				3	4	4				2	1	2

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Grace Creek 1			SE Checker Point 1			Mt. Ojibway Trail 1			Angleworm Lake 1		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
46 *moss*	spp.				4	4	4						
47 *Myrica*	*gale*				4	5	5				4	4	4
48 *Osmunda*	*regalis*											Tr	1
49 *Polygonum*	*amphibium*	3	1	1									
50 *Potentilla*	*norvegica*								1	Tr			
51 *Potentilla*	*palustris*			3									
52 *Rhynchospora*	*fusca*						Tr						
53 *Sagittaria*	*latifolia*							Tr	1	Tr			
54 *Salix*	spp.			Tr									
55 *Sarracenia*	*purpurea*					4	4						
56 *Scirpus*	*cyperinus*								Tr	Tr			
57 *Scirpus*	spp.		Tr	1									
58 *Scutellaria*	*galericulata*			3					Tr	Tr			
59 *Sium*	*suave*								Tr	Tr			
60 *Sparganium*	*angustifolium*							1	Tr	Tr			
61 *Sparganium*	*minimum*							Tr	Tr	Tr			
62 *Sphagnum*	spp.											3	2
63 *Spiraea*	*alba*			1									
64 *Thalictrum*	*dasycarpum*			Tr						Tr			
65 *Triadenum*	*fraseri*								Tr	Tr			
66 *Trientalis*	*borealis*												Tr
67 *Triglochin*	*maritimum*					1	1						
68 *unknown*	spp. (herbaceous)							Tr	Tr	Tr			
69 *Utricularia*	*cornuta*						Tr						
70 *Utricularia*	*intermedia*	Tr	Tr	Tr	1	1	2				Tr	1	Tr
71 *Vaccinium*	*angustifolium*												Tr
72 *Vaccinium*	spp.				Tr	Tr	Tr						
73 *Viola*	spp.			Tr									
RICHNESS		6	12	19	13	21	23	12	30	37	7	14	22

Grace Crk Meadow @ Trail		Sedge meadow, surrounded by ericacious shrubs and Alnus. CARLAS dominated in wetter areas with GLYCAN and CARSTR along edge. 1 Photo.
	Add'l spp:	MYRGAL, CARCHO
SE of Checker Point		Floating peat mat (non-sphagnum) along side lake. No shrubs save MYRGAL at <1'. H2O up to 8" where standing.
	Add'l spp:	RHAALN, SOLULI, DULARU, RHYALB, SCIHUD, AREBUL, CARBUX, SCICES.
Mt. Ojibwe Trail 1		Fresh (non-*Sphagnum*) meadow, along stream that experiences fluctuations due to past beaver activity. Based on sedge tussocks, beaver activity 30-40 years old, due to good expression of hummocks. Sampled open area. ALNINC present along edge.
	Add'l spp:	none
Angleworm Lake 1		CARLAS and MYRGAL dominated, floating mat connected to grounded mat; *Sphagnum* moss and ericaceous shrubs present. Water at surface.
	Add'l spp:	none

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date: 7/11/2004 Sampled by: V.Hofman, J.Marr TRS: T63N R37W S03			Date: 7/11/2004 Sampled by: V.Hofman, J.Marr TRS: T63N R37W S03		
		Siskiwit Beaver Wetland 1			**Siskiwit Beaver Wetland 2**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Alnus*	*incana*			1			
2 *Betula*	*papyrifera*			Tr			
3 *Calamagrostis*	*canadensis*	3	3	3	1	1	2
4 *Campanula*	*aparinoides*	2	3	3	2	3	3
6 *Carex*	*chordorrhiza*				Tr	2	1
7 *Carex*	*lasiocarpa*	5	5	5	5	5	5
5 *Carex*	spp.						Tr
8 *Carex*	*utriculata*				1	2	2
9 *Cicuta*	*bulbifera*						Tr
10 *Equisetum*	*fluviatile*	Tr	Tr	1	2	3	3
11 *Glyceria*	*canadensis*				Tr	1	1
12 *Hieracium*	*aurantiacum*		Tr	Tr			
13 *Iris*	*versicolor*	Tr	2	2		Tr	1
14 *Lysimachia*	spp.		1	1	Tr	3	3
15 *Lysimachia*	*terrestris*			1			Tr
16 *Lysimachia*	*thyrsiflora*						1
17 *Menyanthes*	*trifoliata*					4	4
18 *Picea*	*mariana*			Tr			
19 *Polygonum*	*amphibium*						3
20 *Potentilla*	*norvegica*		Tr	Tr			Tr
21 *Potentilla*	*palustris*		4	3	3	4	4
22 *Rubus*	spp.			Tr			
23 *Salix*	spp.			Tr			
24 *Scutellaria*	*galericulata*		1	Tr			3
25 *Triadenum*	*fraseri*					1	Tr
26 *Utricularia*	*intermedia*					Tr	1
27 *Viola*	spp.		1	1			
RICHNESS		5	11	17	9	13	20

Siskwit Beaver Wetland 1 — Old beaver meadow dominanted by CALCAN and CARLAS. Hummocky, mostly dry w/ occasional snags, few shrubs and young PICSPP.

Add'l spp: LYSTHY, CARSTE, CARUTR, ATRSPP, ASTPUN, CARCHO.

Siskwit Beaver Wetland 2 — Old beaver meadow. Hummocky, CARLAS dominated, moist w/ H2O 6" deep in places, near open H2O pools.

Add'l spp: CARCRY

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Date: 6/30/2004 Sampled by: V.Hofman, E.Judziewicz, C.Tyrell TRS: T63N, R38W, S10			Date: 6/30/2004 Sampled by: V.Hofman, E.Judziewicz, C.Tyrell TRS: T63N, R38W, S10			Date: 6/30/2004 Sampled by: V.Hofman, E.Judziewicz, C.Tyrell TRS: T63N, R38W, S10		
			Siskiwit Fen 1			**Siskiwit Fen 2**			**Siskiwit Fen 3**		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1	*Andromeda*	*glaucophylla*	Tr	Tr	Tr		Tr	1		Tr	1
2	*Arethusa*	*bulbosa*			Tr		Tr	1			
3	*Betula*	*pumila*			Tr		Tr	1			1
4	*Calamagrostis*	spp.				1	Tr	1			
5	*Carex*	*exilis*	1	2	3	3	5	5	2	3	3
6	*Carex*	*lasiocarpa*		1	2	2	2	2			
7	*Carex*	*livida*			Tr		Tr	1		Tr	Tr
8	*Carex*	*paupercula*	2	Tr	1	Tr	1	2			
9	*Chamaedaphne*	*calyculata*			Tr			Tr			
10	*Drosera*	*anglica*	Tr	2	2		Tr	Tr		1	2
11	*Drosera*	*rotundifolia*	1	2	1	1	2	1	3	Tr	Tr
12	*Eleocharis*	spp.							5	5	3
13	*Equisetum*	*fluviatile*	1	1	2	1	2	2			
14	*Eriophorum*	spp.	1	3	3	Tr	1	Tr			
15	*Larix*	*laricina*						Tr			
16	*Liparis*	*loeselii*			Tr						
17	*Menyanthes*	*trifoliata*	3	4	4				3	3	4
18	*Myrica*	*gale*	Tr	1	3	3	3	3		1	1
19	*Osmunda*	*regalis*			Tr						
20	*Parnassia*	*palustris*			Tr	1	1	1		Tr	Tr
21	*Potentilla*	*fruticosa*	Tr	Tr	1	Tr	3	3		1	1
22	*Rhamnus*	*alnifolia*					Tr	1			
23	*Rhynchospora*	*fusca*	1	1	1						
24	*Sarracenia*	*purpurea*	Tr	3	3	1	3	3	1	1	3
25	*Scheuchzeria*	*palustris*									Tr
26	*Scirpus*	*cespitosus*	3	3	2						
27	*Scirpus*	*hudsonianus*			Tr	2	3	3	3	3	3
28	*Solidago*	*uliginosa*		1	1	3	3	3		1	3
29	*Symplocarpus*	*foetidus*					1	1			
30	*Thuja*	*occidentalis*			Tr		Tr	1			1
31	*Tofieldia*	*glutinosa*		1	2			Tr		Tr	1
32	*Trientalis*	*borealis*						Tr			
33	*Triglochin*	*maritimum*			Tr						
34	*Utricularia*	*intermedia*		1	2	Tr	Tr	1	2	3	3
35	*Vaccinium*	*oxycoccos*	Tr	Tr	1	Tr	1	1			
RICHNESS			14	18	28	15	23	27	7	15	18

Siskiwit Fen 1	Add'l spp:	none
		Rich fen
Siskiwit Fen 2	Add'l spp:	none
		Rich fen.
Siskiwit Fen 3	Add'l spp:	none
		Rich fen.

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date:	8/6/2005		Date:	8/8/2005	
		Sampled by:	A.Harris, J.Meeker, J.Marr, M.Jones		Sampled by:	J. Marr, J. Meeker	
		TRS:	T64N R36W S04		TRS:	T65N R35W S31	
		SISKIWIT LAKE 1			**SISKIWIT LAKE 2**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Agrostis*	*hyemalis*		Tr	Tr			
2 *Alnus*	*incana*	2	2	3			
3 *Aster*	*lateriflorus*			Tr			
4 *Aster*	*umbellatus*		1	1			
5 *Calamagrostis*	*canadensis*	1	1	2		Tr	Tr
6 *Caltha*	*palustris*			Tr			
7 *Campanula*	*aparinoides*	Tr	Tr	1			
8 *Carex*	*livida*				1	2	1
9 *Carex*	*oligosperma*				2	1	2
10 *Carex*	*rostrata*						Tr
11 *Carex*	spp. (Stellulatae type)			Tr	1	1	1
12 *Carex*	*stipata*	Tr	Tr	Tr			
13 *Carex*	*stricta*	2	5	4			
14 *Carex*	*viridula*				1	2	2
15 *Cicuta*	*bulbifera*	Tr	Tr	Tr			
16 *Eleocharis*	*tenuis*				Tr	2	2
17 *Equisetum*	*fluviatile*		Tr	Tr			
18 *Eriophorum*	*tenellum*						Tr
19 *Eupatorium*	*maculatum*	1	2	3			
20 *Euthamia*	*graminifolia*					Tr	Tr
21 *Galium*	*asperellum*	Tr	1	1			
22 *Glyceria*	*canadensis*		i	Tr			
23 *Glyceria*	*striata*		Tr	Tr			
24 *Habenaria*	*hyperborea*		Tr	Tr			
25 *Impatiens*	*capensis*			Tr			
26 *Iris*	*versicolor*	Tr	Tr	Tr			
27 *Juncus*	*brevicaudatus*		Tr	Tr	2	2	2
28 *Juncus*	*effusus*	Tr	1	Tr			
29 *Juncus*	*nodosus*					Tr	Tr
30 *Lycopus*	*uniflorus*			Tr	Tr	Tr	Tr
31 *Lysimachia*	*terrestris*	Tr	1	Tr			
32 *Mentha*	*arvensis*	Tr	Tr	Tr			
33 *Myrica*	*gale*			Tr		1	2
34 *Poa*	*palustris*			Tr			
35 *Potamogeton*	*gramineus*						Tr
36 *Potentilla*	*palustris*						Tr
37 *Prenanthes*	*alba*		Tr	Tr			
38 *Rubus*	spp.	Tr	Tr	Tr			
39 *Scirpus*	*cyperinus*		1	1			
40 *Scutellaria*	*galericulata*		Tr	Tr			
41 *Symplocarpus*	*foetidus*	1	2	2			
42 *Thalictrum*	*dasycarpum*	1	2	1			Tr
43 *Triadenum*	*fraseri*			Tr	Tr	Tr	Tr
44 *Viola*	spp.	Tr	Tr	Tr			Tr
RICHNESS		16	26	34	8	12	18

Siskiwit Lake 1	Siskiwit Lake	Along boardwalk portion of Ishpeming Trail, edge of THUOCC swamp
	Add'l spp:	none
Siskiwit Lake 2	Siskiwit River Plot	connected hydrologically to stream connecting Sisk. Lk. To Lk. Superior. Muck soils, no SPH
		Surrounding forest of THUOCC, ABIBAL, edged by MYRGAL, ALNRUG
	Add'l spp:	none

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

		Date: 7/12/2004 Sampled by: V.Hofman, J.Marr TRS: T63N R37W S10			Date: 7/12/2004 Sampled by: V.Hofman, J.Marr TRS: T63N R37W S10		
		Stickleback Lake 1			**Stickleback Lake 2**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Abies*	*balsamea*						1
2 *Andromeda*	*glaucophylla*	1	3	3	1	1	3
3 *Arethusa*	*bulbosa*			1		1	1
4 *Betula*	*pumila*	1	3	3		3	1
5 *Carex*	*chordorrhiza*	1	Tr	1			
6 *Carex*	*exilis*				5	3	2
7 *Carex*	*lasiocarpa*	2	2	2			
8 *Carex*	*limosa*	2	2	2		2	2
9 *Carex*	*livida*	3	3	3		2	3
10 *Carex*	spp.		2	2			1
11 *Chamaedaphne*	*calyculata*	1	3	3		3	1
12 *Drosera*	*rotundifolia*	Tr	1	1	3	3	3
13 *Eriophorum*	*viridicarinatum*		1	2			
14 *Equisetum*	*fluviatile*	3	3	3		2	2
15 *Habenaria*	*dilatata*		Tr	1		1	Tr
16 *Habenaria*	spp.		Tr	Tr			
17 *Iris*	*versicolor*			1			
18 *Kalmia*	*polifolia*		1	1		Tr	1
19 *Larix*	*laricina*		Tr	1			Tr
20 *Ledum*	*groenlandicum*		1	Tr			
21 *Liparis*	*loeselii*		Tr	1			Tr
22 *Menyanthes*	*trifoliata*	4	3	4	4	4	4
23 *Myrica*	*gale*		3	4	1	3	4
24 *Picea*	*mariana*		Tr	1			
25 *Pogonia*	*ophioglossoides*					1	1
26 *Rhynchospora*	*fusca*				3	3	3
27 *Sarracenia*	*purpurea*		3	3	1	3	3
28 *Scirpus*	*hudsonianus*		5	5	3	3	3
29 *Smilacina*	*trifolia*		1	Tr			
30 *Sphagnum*	spp.	2	2	3	3	3	3
31 *Thuja*	*occidentalis*			Tr			Tr
32 *Triglochin*	*maritimum*						Tr
33 *Utricularia*	*intermedia*	Tr	1	2	Tr	2	2
34 *Utricularia*	*minor*				1	1	Tr
35 *Vaccinium*	*oxycoccos*		3	2	2	2	2
RICHNESS		12	26	29	12	21	27

Stickleback Lake 1 Add'l spp: PYRSPP, TRIMAR, ELETEN, MAICAN

Bog mat at east end of lake. Open with scattered PICMAR trees (15m tall), snags and low ericaceous shrubs.

Stickleback Lake 2 Add'l spp: none

Bog mat near lake. Standing water, CARSPP dominated, few ericacious shrubs and trees. SPHSPP present throughout.

		Date:	8/15/2004		Date:	8/15/2004	
		Sampled by:	V.Hofman, J.Marr, J.Meeker		Sampled by:	V.Hofman, J.Marr, J.Meeker	
		TRS:	T66N R34W S34		TRS:	T66N R34W S33	
		Sumner Lake 1			**Sumner Lake 2**		
GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1 *Alnus*	*incana*		1	Tr	1	1	1
2 *Aster*	*umbellatus*		Tr	Tr	Tr	Tr	Tr
3 *Calamagrostis*	*canadensis*				1	Tr	Tr
4 *Calopogon*	*tuberosus*	Tr	Tr	Tr		Tr	Tr
5 *Campanula*	*aparinoides*				Tr	Tr	Tr
6 *Carex*	*lasiocarpa*	2	1	2	1	3	4
7 *Carex*	*limosa*	Tr	Tr	Tr			Tr
8 *Carex*	*livida*		Tr	Tr	1	1	Tr
9 *Chamaedaphne*	*calyculata*	2	2	2	1	2	3
10 *Cornus*	*sericea*						Tr
11 *Drosera*	*intermedia*	Tr	1	1			
12 *Drosera*	*rotundifolia*	Tr	Tr	Tr	Tr	Tr	Tr
13 *Equisetum*	*fluviatile*				Tr	Tr	Tr
14 *Iris*	*versicolor*				Tr	1	Tr
15 *Larix*	*laricina*			Tr		1	2
16 *Lycopus*	*uniflorus*	Tr	Tr	Tr			
17 *Maianthemum*	*canadense*				1	Tr	Tr
18 *Menyanthes*	*trifoliata*	2	2	1	1	1	1
19 *Myrica*	*gale*	1	1	1			
20 *Parnassia*	*palustris*		Tr	Tr		Tr	Tr
21 *Pogonia*	*ophioglossoides*		Tr	Tr			
22 *Potentilla*	*palustris*			Tr			
23 *Rhynchospora*	*alba*	2	3	2	Tr	1	Tr
24 *Rhynchospora*	*fusca*	Tr	2	1			
25 *Rubus*	spp. (dewberry)		Tr	Tr			
26 *Sarracenia*	*purpurea*	Tr	Tr	1	Tr	Tr	Tr
27 *Scheuchzeria*	*palustris*			Tr			
28 *Scirpus*	*cespitosus*			2			
29 *Scirpus*	*hudsonianus*	Tr	1	Tr		1	1
30 *Sphagnum*	spp.	4	2	3	3	3	4
31 *Triglochin*	*maritimum*		Tr	Tr			
32 *Utricularia*	*cornuta*		Tr	Tr	Tr	Tr	Tr
33 *Utricularia*	*intermedia*		Tr	Tr		Tr	Tr
34 *Vaccinium*	*macrocarpon*	Tr	Tr	Tr			
35 *Vaccinium*	*oxycoccos*				Tr	Tr	Tr
36 *Viola*	spp.				Tr	Tr	Tr
RICHNESS		15	24	28	18	23	25

Sumner Lake 1 Add'l spp: IRIVER, CALCAN, ANDGLA

Moderate fen w/ SPHSPP hummocks and a few trees and ALNINC shrubs. Along lakeshore on northeast end. Water is at or just below SPHSPP level.

Sumner Lake 2 Add'l spp: POTPAL

Moderate fen w/ SPHSPP hummocks, LARLAR trees, and ALNINC shrubs. At northwest corner of lake. Tall snags along edge of fen mat and upland, possibly due to old beaver activity. Water is at or just below SPHSPP level.

Appendix B: Isle Royale 2003-2005 Peatland Sampling Data

			Date: 7/1/2004 Sampled by: V.Hofman, E.Judziewicz, C.Tyrell TRS: T63N R38W S29/30			Date: 7/1/2004 Sampled by: V.Hofman, E.Judziewicz, C.Tyrell TRS: T63N R38W S23			Date: 7/1/2004 Sampled by: V.Hofman, E.Judziewicz, C.Tyrell TRS: T63N R37W S17		
			Superior Shoreline Fen 1			**Superior Shoreline Fen 2**			**Superior Shoreline Fen 3**		
	GENUS	**SPECIES**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**	**1 x 1**	**5 x 5**	**10 x 10**
1	*Alnus*	*incana*								Tr	Tr
2	*Andromeda*	*glaucophylla*			1	1	1	3			
3	*Aster*	spp.			Tr						
4	*Campanula*	*aparinoides*									Tr
5	*Carex*	*canescens*			Tr						
6	*Carex*	*chordorrhiza*								Tr	Tr
7	*Carex*	*flava*					1	1		Tr	Tr
8	*Carex*	*lasiocarpa*	5	5	5			Tr	5	5	3
9	*Carex*	*livida*	2	2	3	3	5	5			1
10	*Carex*	*paupercula*	Tr	2	2	1	Tr	Tr			
11	*Carex*	*utriculata*									2
12	*Carex*	*vesicaria*								Tr	1
13	*Drosera*	*anglica*	3	2	3	3	3	5			
14	*Drosera*	*rotundifolia*								Tr	Tr
15	*Dulichium*	*arundinaceum*								Tr	Tr
16	*Eleocharis*	*tenuis* var. *borealis*				1	2	2			
17	*Equisetum*	*fluviatile*						1		1	3
18	*Habenaria*	*viridis*						Tr			
19	*Hypericum*	*boreale*				Tr	Tr	Tr			
20	*Iris*	*versicolor*	1	3	3		Tr	Tr	2	2	2
21	*Juncus*	*brevicaudatus*	1	2	1						
22	*Lycopus*	*uniflorus*			1						
23	*Lysimachia*	*terrestris*							Tr	Tr	Tr
24	*Lysimachia*	*thyrsiflora*					Tr	Tr			
25	*Menyanthes*	*trifoliata*	3	3	4	4	4	4	4	5	4
26	*Myrica*	*gale*	4	4	5	4	4	4	3	3	3
27	*Nuphar*	*variegata*						Tr			
28	*Potentilla*	*fruticosa*			1						
29	*Potentilla*	*palustris*			Tr					1	3
30	*Rhamnus*	*alnifolia*			Tr		Tr	Tr			
31	*Rubus*	*pubescens*						Tr			
32	*Scirpus*	*cespitosus*	Tr	Tr	Tr						
33	*Smilacina*	*trifolia*			1						
34	*Solidago*	*uliginosa*			Tr						
35	*Thuja*	*occidentalis*						Tr			
36	*Triadenum*	*fraseri*					1	Tr			
37	*Triglochin*	*maritimum*			1	2	2	1			
38	*Utricularia*	*intermedia*	Tr	1	2	Tr	Tr	1		2	3
39	*Vaccinium*	*oxycoccos*			1			1			
40	*Viola*	spp.			Tr	3	1	1		1	Tr
	RICHNESS		10	10	22	11	16	23	5	15	18

Superior Shoreline Fen 1 Add'l spp.: SARPUR
Originally Section 29/30 Fen

Superior Shoreline Fen 2 Add'l spp.: none
Originally Section 23 (26) Fen

Superior Shoreline Fen 3 Add'l spp.: none
Originally Section 17 Fen