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Ashland, WI

Implementation of a Long-term Vegetation Monitoring Program at the St. Croix National Scenic River



Great Lakes Network Report GLKN/2008/08 **July 2008**

ON THE COVER
The St. Croix River near Taylor's Falls, Minnesota.
Photograph by: Sam Smyrk

Implementation of a Long-term Vegetation Monitoring Program at the St. Croix National Scenic River

Great Lakes Network Report GLKN/2008/08

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Contents

Page

Introduction 1

Methods 1

Results 3

Very Dry to Dry Habitat 4

Dry to Dry Mesic Habitat 8

Dry Mesic Habitat 13

Mesic to Wet Mesic Habitat 17

Coarse Woody Materials 23

Discussion 23

Ecology and Interpretation 23

Implementation: Problems, Logistics, and Future Plans 23

Acknowledgements 25

Literature Cited 26

Appendix A: Field Site Maps 27

Appendix B: Complete Species List for the Park 99

Appendix C: Individual Plot Data 105

Figures

Page

Figure 1. Diagram of hybrid plot 2

Figure 2. Map of long-term monitoring sites at SACN 3

Figure 3. Density-diameter graph of hardwood species in very dry to dry habitat 5

Figure 4. Density-diameter graph of coniferous species in very dry to dry habitat..... 6

Figure 5. Density-diameter graph of *Pinus* species in dry to dry mesic habitat 9

Figure 6. Density-diameter graph of *Quercu*s species in dry to dry mesic habitat..... 11

Figure 7. Density-diameter graph of select hardwood species in dry mesic habitat..... 14

Figure 8. Density-diameter graph of select hardwood species in dry mesic habitat..... 15

Figure 9. Density-diameter graph of select hardwood species in mesic to wet mesic habitat..... 18

Figure 10. Density-diameter graph of select hardwood species in mesic to wet mesic habitats .. 19

Tables

Page

Table 1. Habitat and forest types at SACN and the plots classified in each 4

Table 2. Seedling density in very dry to dry habitat 6

Table 3. Stem basal area for tree species in very dry to dry habitat 7

Table 4. Shrub cover in very dry to dry habitat 8

Table 5. Seedling density in dry to dry mesic habitat 10

Table 6. Stem basal area for tree species in dry to dry mesic habitat 12

Table 7. Shrub cover in dry to dry mesic habitat 13

Table 8. Seedling density in dry mesic habitat 15

Table 9. Stem basal area of tree species in dry mesic habitat 16

Table 10. Shrub cover in dry mesic habitat 17

Table 11. Seedling density in mesic to wet mesic habitat 20

Table 12. Stem basal area of tree species in mesic to wet mesic habitat 21

Table 13. Shrub cover in mesic to wet mesic habitat 22

Table 14. Coarse woody material volume and density in all habitats 23

Introduction

Long-term forest monitoring provides an assessment of forest health by showing the status of plant communities at the time of each sampling event and elucidating how these communities change over time. Despite this value, large-scale monitoring programs for forest health with regularly scheduled return intervals are not common (for an exception, see U. S. Department of Agriculture 2005).

In 2007, the Great Lakes Inventory & Monitoring Network of the National Park Service initiated a long-term forest vegetation monitoring program for nine national parks in the Great Lakes Region. The general goals of this program are to monitor forest vegetation to gain a better understanding of its dynamics, and to compare, ultimately, vegetation indices to baseline (2007) conditions. The summer of 2007 was the initiation of the program and plots were established at three of the nine Network parks: Indiana Dunes National Lakeshore (INDU), Grand Portage National Monument (GRPO), and the St. Croix National Scenic River (SACN). As this was the initial year of data collection at these sites, no comparisons between time intervals can be made. Nonetheless, meaningful data were obtained to demonstrate the current status of forests in these parks.

The goals of the long-term vegetation monitoring effort during the first sampling year are to obtain baseline data on the status of park forests. Here, we report on this effort at SACN. Specifically, we wanted to answer the following questions: 1) What is the relationship between density and stem diameter for key tree species in multiple park habitats? 2) What is the basal area of both individual tree species and all species collectively in multiple park habitats? 3) What is the density of saplings in multiple park habitats? 4) What is the percentage of shrub cover, by species, in multiple park habitats?

Methods

Sampling was conducted at the St. Croix National Scenic River (SACN) from July 23-August 29, 2007. Site locations were selected using a generalized random-tessellation stratified design (GRTS, Stevens and Olsen 2005), ensuring that sites are both randomly located, but also spatially balanced throughout the park. All potential sites were overlain on an aerial photography layer using GIS prior to visiting the site in the field. In this way, we were able to eliminate any potential sites that did not meet the minimum 10% forest cover requirement. Potential sites that were partially outside of the park boundary, or that did not meet the minimum 10% cover requirement, were moved the shortest distance possible, to a maximum of 100 m, so that they fell within the park boundary or within the desired amount of cover. If a potential site could not be moved $\leq$ 100 m to meet the criteria for acceptance, it was not sampled. Maps of individual sites are presented in Appendix A.

Sites were sampled using the hybrid plot (Figure 1), developed specifically for the Great Lakes Network long-term vegetation monitoring needs (Johnson et al. 2006, Johnson et al. 2008). This plot is composed of three parallel transects oriented east-west. Tree data were collected in a 6 m wide band along the length of each transect. Data collected included species, diameter at breast height (DBH), whether the tree was alive, and any evident damage or disease. Trees were

defined as having a DBH of ≥ 2.6 cm (1 in). Groundlayer vegetation was collected in $1m^2$ quadrats placed every 5 meters along each transect (n = 30 per plot). Within each quadrat, all herbaceous, vine, and shrub species present were recorded, and saplings of each tree species present were counted. Saplings are defined as trees ≤ 2.5 cm DBH, but at least 15 cm (conifers) or 30 cm (hardwoods) in height and showing evidence of growth from the previous year. Shrub abundance was assessed within each of six 2.82 m radius (25 m^2 area) shrub circles, located at the transect ends. Here, we visually estimated percent cover of each species present. We measured data on coarse woody materials (CWM) along each of the three transects using the line intercept method (Brown 1974, Woodall and Williams 2005) and recorded the diameter at the point of intercept and the length. Because we defined CWM as having a diameter ≥ 7.6 cm (3 in), the length of a piece was recorded only along where the diameter exceeded this amount. Finally, we performed a half-hour time delimited search of the entire 50 m × 100 m plot area to locate any additional species not previously recorded in any of the sampling.

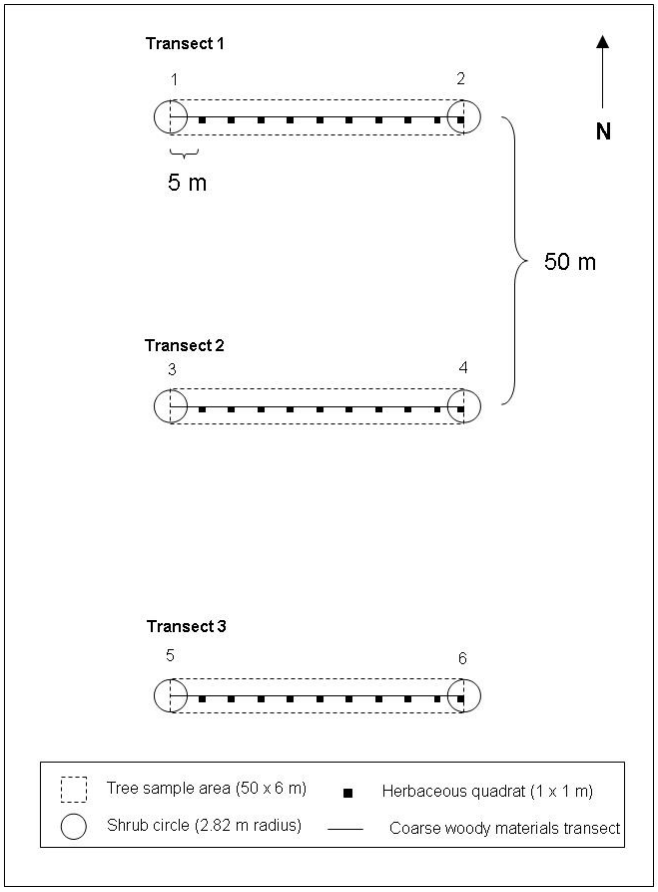


Figure 1. Diagram of hybrid plot.

Because we may want to stratify by forest or habitat type during later analyses, we performed a Kotar classification (Kotar and Burger 1996, Kotar et al. 2002) to place sites into groups of similar moisture level and nutrient availability.

Finally, documenting visual assessment of site change will be as important as statistical documentation, and potentially more informative. Therefore, we took six pictures at each plot.

The six photopoints were located at each of the six transect endpoints, with the camera facing into the plot (i.e., due east at points 1, 3, and 5 and due west at points 2, 4, and 6, Figure 1).

We attempted to identify all plants to the species level in the field. When this was not possible, we typically collected specimens for later identification. In some instances, it is not possible to distinguish between multiple species present in a park, unless they are flowering or fruiting, which often was not the case. In these instances, we made the decision to record to genus instead. Examples of this include *Amelanchier*, *Pilea*, *Impatiens*, and *Crataegus*. In other instances, we were not able to identify certain specimens due to lack of taxonomic expertise. For example, many grasses and sedges were not identified beyond the family or genus level.

Results

Thirty-five plots were established and monitored at SACN in 2007 (Figure 2), and were distributed between 10 Kotar forest types. Table 1 shows this distribution, along with the broader habitat classification. In total, at least 38 tree, 53 shrub, 6 woody vine, and 220 herbaceous species were encountered (Appendix B). An absolute count of species is not available since there were many instances where we were only able to record to genus.

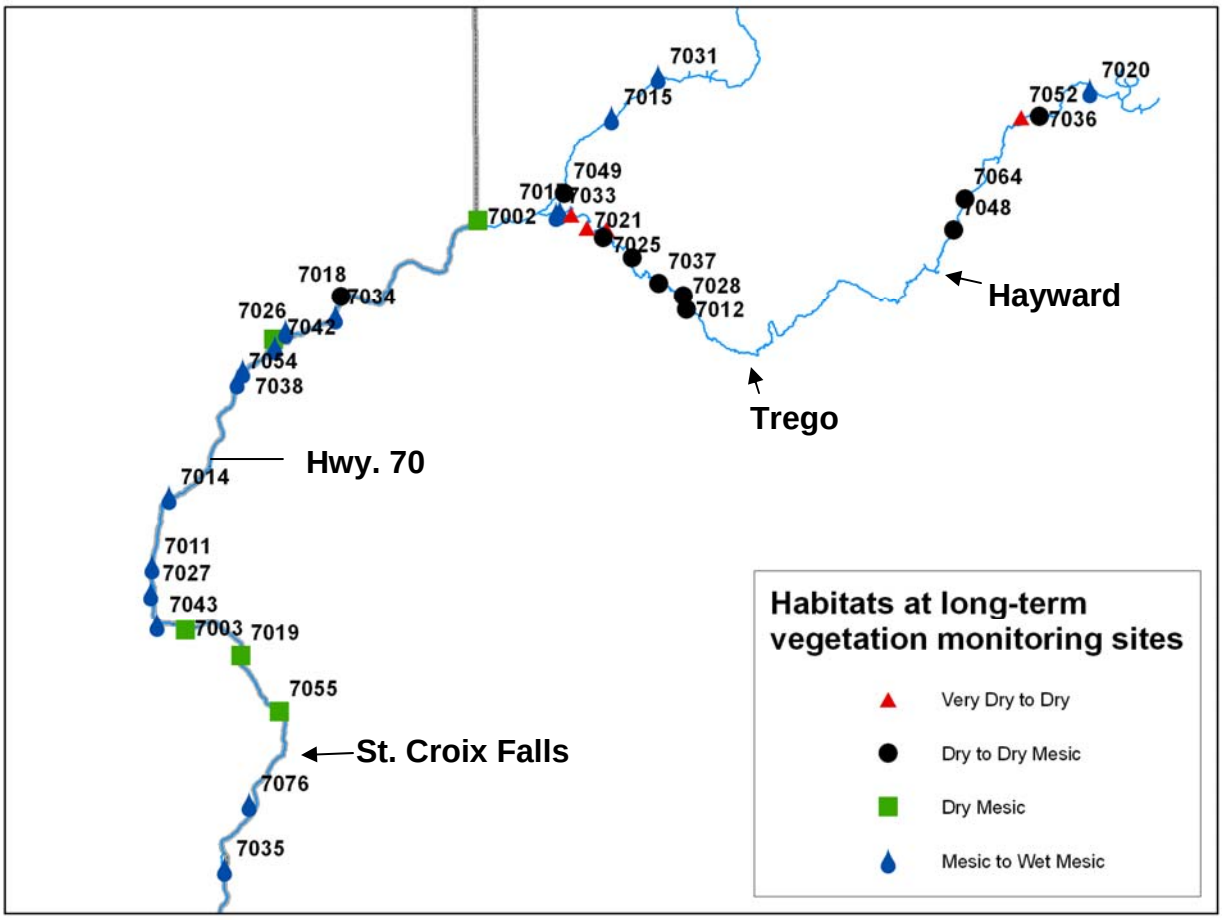


Figure 2. Map of long-term vegetation monitoring sites at SACN.

Table 1. Habitat and forest types at SACN and the plots classified in each.

Habitat type *Forest type*	**Plots in type**
Very dry to dry	
Pinus strobus-Acer rubrum / *Vaccinium angustifolium-Uvularia sessilifolia*	7052
Pinus strobus-Quercus spp./*Gaultheria procumbens-Ceanothus americanus*	7005, 7017, 7021
Dry to dry mesic	
Pinus strobus-Acer rubrum/*Vaccinium angustifolium-Aralia nudicaulis*	7028, 7036, 7048, 7064
Pinus strobus-Acer rubrum/*Vaccinium angustifolium-Amphicarpa bracteata*	7009, 7012, 7019, 7025, 7037, 7049
Dry mesic	
Acer saccharum/*Athyrium felix-femina*	7002, 7003, 7019, 7055, 7077
Mesic to wet mesic	
Acer saccharum/*Caulophyllum thalictroides-Circaea quadrisulcata*	7043, 7076
Acer rubrum/*Vaccinium angustifolium-Rubus pubescens*	7001, 7014, 7042
Acer rubrum-Abies balsamea/*Cornus canadensis*	7020
Acer saccharum/*Sanguinaria canadensis-Impatiens capensis*	7011, 7026, 7027, 7033, 7034, 7038, 7054
Acer saccharum/*Sanicula marilandica-Mitchella repens*	7015, 7031
Unclassified*	7035

*This plot was in a floodplain with a great deal of exotics. For grouping into habitats during analysis, it will be placed with the 'mesic to wet mesic' habitat

Very Dry to Dry Habitat

Four plots were classified in the very dry to dry habitat type, with all of these on the Namekagon River. Density-diameter graphs showed that most tree species were either present at low densities throughout their size range, or had the greatest density at the smallest size classes (Figures 3, 4). An exception to this, however, is *Pinus strobus* (white pine, Figure 4). Density is highest in the 7.5-10 cm DBH category with a sharp decline at smaller size classes. *Pinus strobus* seedling density, 83 stems/ha, was also low (Table 2). Total basal area of stems in very dry to dry habitats was 22.15 m^2/ha with *Quercus rubra* and *Populus tremuloides* comprising most of the hardwood basal area and *Pinus resinosa*, *P. strobus*, and *P. banksiana* comprising the conifer species (Table 3). Shrub diversity and cover were fairly high in this habitat, with 22 species present (Table 4). Dominant species included *Corylus americana* (16.46%), V*accinium angustifolium* (11.63%), *Corylus cornuta* (8.29%).

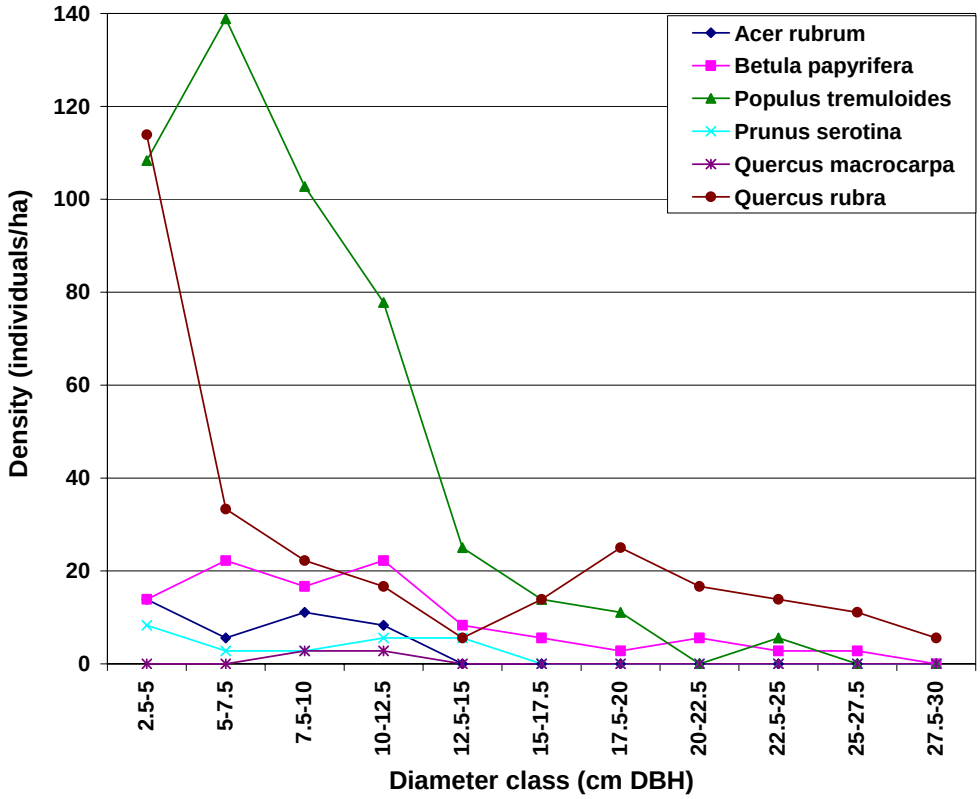


Figure 3. Live tree density-diameter distribution of select hardwood species at SACN in very dry to dry habitats.

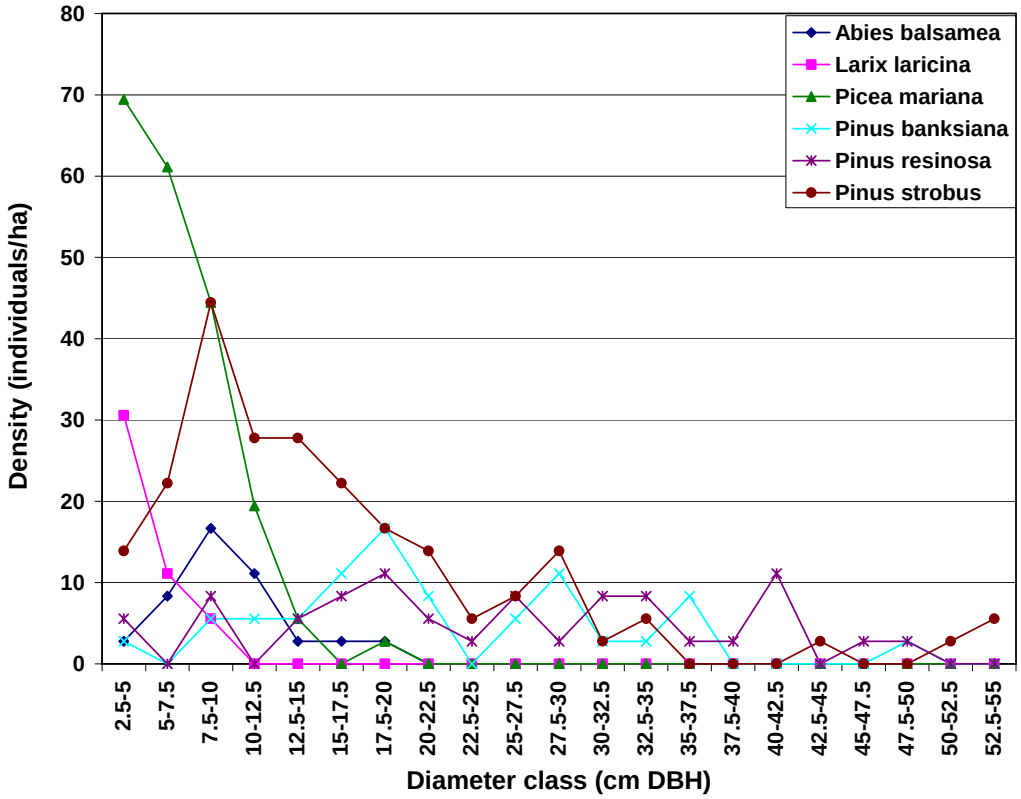


Figure 4. Live tree density-diameter distribution of select coniferous species at SACN in very dry to dry habitats.

Table 2. Seedling density at SACN in very dry to dry poor habitats.

Family	Species	Density (stems/ha)
Aceraceae	*Acer rubrum*	250.00
Fagaceae	*Quercus alba*	166.67
	Quercus rubra	2666.67
Oleaceae	*Fraxinus nigra*	166.67
Pinaceae	*Picea mariana*	916.67
	Pinus resinosa	250.00
	Pinus strobus	83.33
Salicaceae	*Populus grandidentata*	83.33
	Populus tremuloides	166.67

Table 3. Stem basal area for tree species in very dry to dry habitats at SACN.

Species	Basal area
	m^2/ha
Hardwood	
Acer rubrum	0.17
Betula papyrifera	1.15
Fraxinus pennsylvanica	0.01
Populus grandidentata	0.45
Populus tremuloides	3.12
Prunus serotina	0.16
Prunus virginiana	<0.01
Quercus macrocarpa	0.05
Quercus rubra	3.73
Coniferous	
Abies balsamea	0.39
Larix laricina	0.10
Picea mariana	0.85
Pinus banksiana	3.95
Pinus resinosa	6.00
Pinus strobus	6.92
Pinus sylvestris	0.16
Total	22.15

Table 4. Shrub percent cover at SACN in very dry to dry poor habitats.

Family	Species	Percent Cover
Anacardiaceous	*Toxicodendron rydbergii*	0.04
Aquifoliaceae	*Ilex verticillata*	0.08
	Nemopanthus mucronatus	0.04
Betulaceae	*Corylus americana*	16.46
	Corylus cornuta	8.29
Caprifoliaceae	*Lonicera canadensis*	0.21
	Sambucus racemosa var. *racemosa*	0.04
	Viburnum rafinesquianum	0.13
Ericaceae	*Chamaedaphne calyculata*	1.04
	Kalmia polifolia	0.04
	Ledum groenlandicum	3.75
	Vaccinium angustifolium	11.63
	Vaccinium myrtilloides	0.13
Myricaceae	*Comptonia peregrina*	0.17
Rosaceae	*Amelanchier* sp.	1.92
	Rosa blanda	0.38
	Rubus allegheniensis	0.67
	Rubus flagellaris	0.33
	Rubus pensilvanicus	0.46
	Rubus pubescens	0.04
Smilacaceae	*Smilax tamnoides*	0.04
Vitaceae	*Parthenocissus* sp.	0.08

Dry to Dry Mesic Habitat

Ten plots were located in the dry to dry mesic habitat, with these predominantly located along the Namekagon River. Oak (*Quercus*) and pine (*Pinus*) species dominated these sites. *Pinus strobus* was present over a range of diameter size classes, with the greatest densities at the smallest size classes (Figure 5). In contrast, *P. resinosa* and *P. banksiana* were absent or extremely limited, respectively, in the younger size classes. No seedlings of either species were present in plots within this habitat type (Table 5). Like *P. strobus*, *Quercus rubra* (red oak) also exhibited highest densities at the smallest size classes (Figure 6). *Quercus macrocarpa*, however, was absent at the lowest densities, although seedlings were present at a density of 67 stems/ha (Table 5). Total basal area was 24.97 m^2/ha in the dry to dry mesic habitat (Table 6), with *Populus tremuloides, P. grandidentata,* and *Q. rubra* having the highest basal area. Shrub species were diverse with 34 species located in plots (Table 7). *Corylus* sp. cover averaged 18.6% within this habitat. *Lonicera* sp. (Table 7) refers to non-native *Lonicera* species, typically either *L. morrowii, L. tartarica*, or the hybrid of the two, *L.* X *bella*.

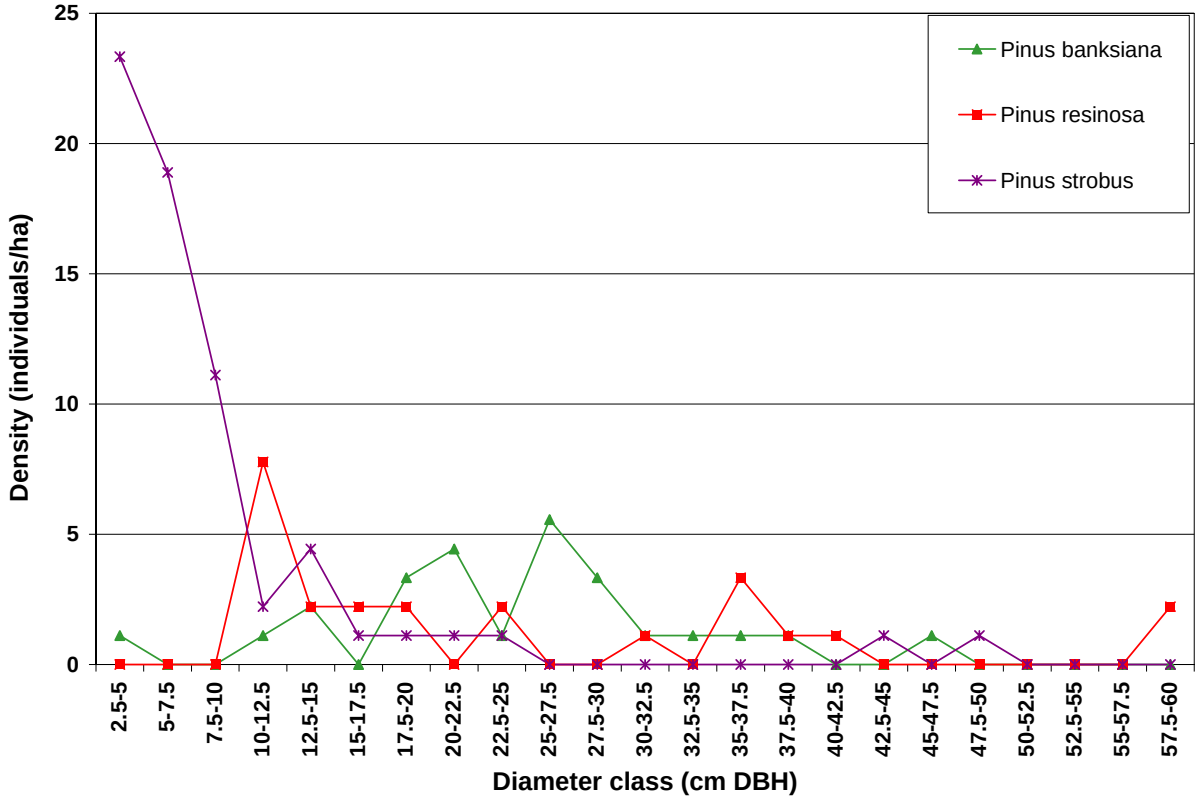


Figure 5. Density-diameter distribution of *Pinus* species in dry to dry mesic habitats at SACN.

Table 5. Seedling density in dry to dry mesic habitat at SACN.

Family	Species	Density (stems/ha)
Aceraceae	*Acer rubrum*	2478.16
	Acer saccharum	34.48
Betulaceae	*Betula papyrifera*	33.33
	Carpinus caroliniana	33.33
	Ostrya virginiana	1000.00
Fagaceae	*Quercus alba*	533.33
	Quercus macrocarpa	66.67
	Quercus rubra	1200.00
Oleaceae	*Fraxinus americana*	266.67
	Fraxinus nigra	666.67
	Fraxinus pennsylvanica	66.67
Pinaceae	*Abies balsamea*	935.63
	Pinus strobus	200.00
Rosaceae	*Crataegus* sp.	100.00
	Prunus serotina	271.26
	Prunus virginiana	801.15
Salicaceae	*Populus grandidentata*	66.67
	Populus tremuloides	1200.00
Tiliaceae	*Tilia americana*	33.33

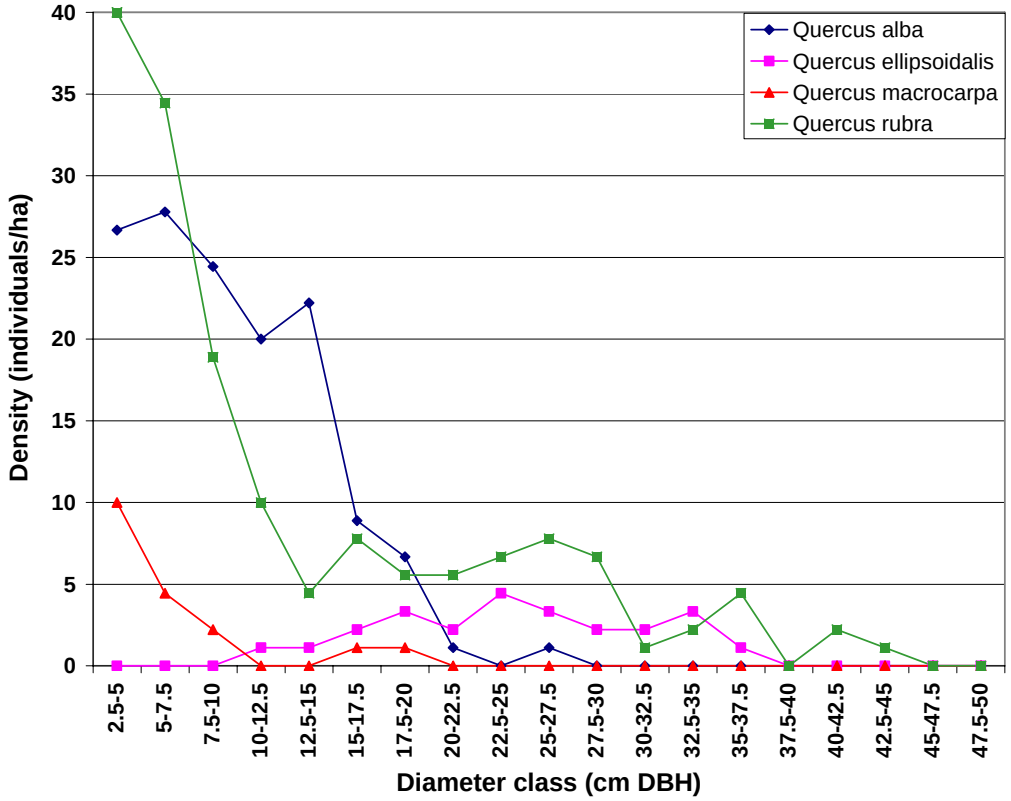


Figure 6. Density-diameter distribution of *Quercus* species in dry to dry mesic habitats at SACN.

Table 6. Stem basal area for tree species at SACN in dry to dry mesic habitats.

Species	Basal area
	m^2/ha
Hardwood	
Acer rubrum	2.15
Betula papyrifera	0.42
Carpinus caroliniana	0.03
Fraxinus nigra	0.44
Fraxinus pennsylvanica	0.01
Juglans cinerea	0.01
Ostrya virginiana	0.14
Populus grandidentata	3.23
Populus tremuloides	5.71
Prunus serotina	0.08
Prunus virginiana	0.04
Quercus alba	1.24
Quercus ellipsoidalis	1.33
Quercus macrocarpa	0.09
Quercus rubra	3.25
Tilia americana	0.41
Ulmus americana	0.08
Coniferous	
Abies balsamea	1.67
Picea glauca	0.56
Pinus banksiana	1.48
Pinus resinosa	1.66
Pinus strobus	0.73
Pinus sylvestris	0.21
Total	24.97

Table 7. Shrub percent cover in dry to dry mesic habitats at SACN.

Family	Species	Percent cover
Anacardiaceae	*Toxicodendron rydbergii*	0.28
Aquifoliaceae	*Ilex verticillata*	0.99
Betulaceae	*Alnus incana* ssp. *rugosa*	0.03
	Alnus viridis ssp. *crispa*	0.02
	Corylus americana	11.44
	Corylus cornuta	7.07
Caprifoliaceae	*Diervilla lonicera*	0.37
	Lonicera sp.	0.03
	Lonicera canadensis	1.20
	Lonicera hirsuta	0.04
	Sambucus racemosa var. *racemosa*	0.03
	Symphoricarpos albus	0.47
	Viburnum lentago	0.05
	Viburnum rafinesquianum	1.72
Celastraceae	*Celastrus scandens*	0.22
Cornaceae	*Cornus alternifolia*	0.09
	Cornus racemosa	1.03
	Cornus rugosa	0.02
	Cornus sericea ssp. *sericea*	0.03
Ericaceae	*Chamaedaphne calyculata*	0.08
	Vaccinium angustifolium	2.41
	Vaccinium myrtilloides	0.53
Grossulariaceae	*Ribes cynosbati*	0.01
Rhamnaceae	*Rhamnus alnifolia*	0.02
Rosaceae	*Amelanchier* sp.	2.13
	Rosa blanda	0.17
	Rubus sp.	1.17
	Rubus allegheniensis	0.29
	Rubus idaeus ssp. *strigosus*	0.02
	Rubus occidentalis	0.74
	Rubus parviflorus	0.02
	Rubus pensilvanicus	1.55
	Rubus pubescens	0.18
Rutaceae	*Zanthoxylum americanum*	0.02
Smilacaceae	*Smilax tamnoides*	0.09
Vitaceae	*Parthenocissus* sp.	0.04

Dry Mesic Habitat

Five plots were located in dry mesic habitat with these entirely on the St. Croix River below the confluence with the Namekagon. In general, hardwood species densities were greatest at the smaller size classes, with the exception of *Quercus macrocarpa* and *Populus tremuloides* where densities were greatest in the 15-20 cm DBH classes (Figure 7, 8). Seedling density for both of

these species was 333 stems/ha (Table 8). There were no coniferous species present in these plots. Total basal area was 20.04 m^2/ha with *Tilia americana*, *Fraxinus nigra*, and *Q. macrocarpa* having the greatest basal area (Table 9). Twenty-five species of shrubs and woody vines were recorded from plots in dry mesic habitat although all exhibited low percent cover (Table 10). The only two species with great than 2% cover were *Rubus pubescens* (dwarf red blackberry 2.29%) and *Corylus cornuta* (beaked hazel, 2.91%). *Lonicera* sp. (Table 10) refers to non-native *Lonicera* species, typically either *L. morrowii*, *L. tartarica*, or the hybrid of the two, *L.* X *bella*.

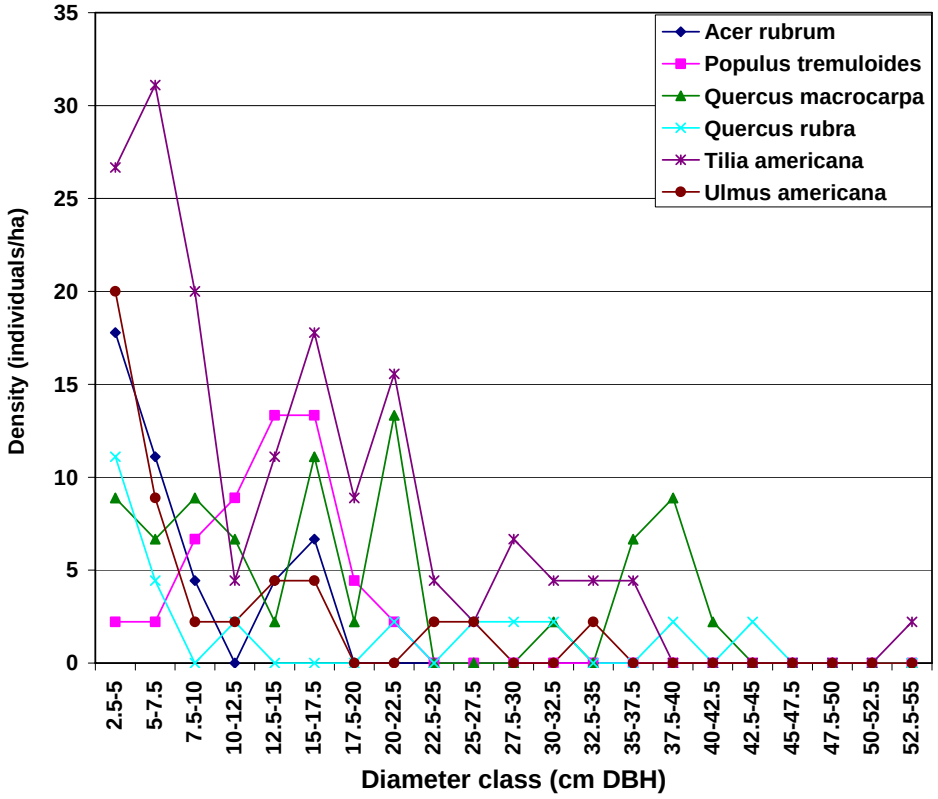


Figure 7. Density-diameter graph for select hardwood species in dry mesic habitats at SACN.

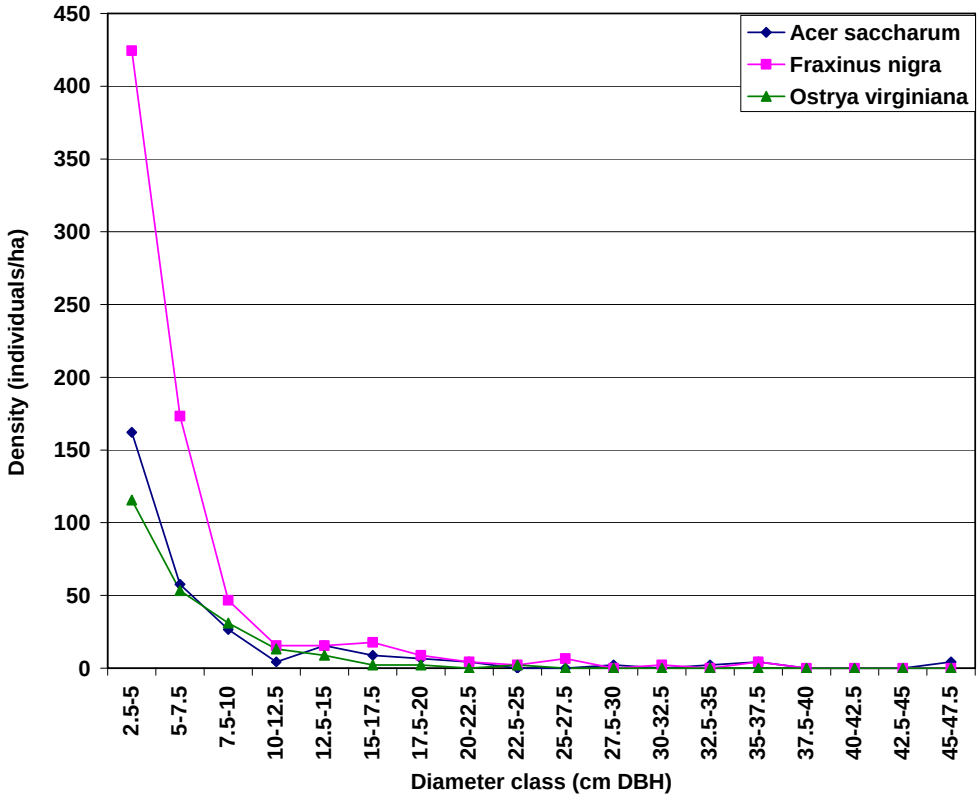


Figure 8. Density-diameter graph for select hardwood species in dry mesic habitats at SACN.

Table 8. Seedling density in dry mesic habitats at SACN.

Family	Species	Density (stems/ha)
Aceraceae	*Acer rubrum*	533.33
	Acer saccharum	466.67
	Acer spicatum	66.67
Betulaceae	*Carpinus caroliniana*	866.67
	Ostrya virginiana	466.67
Fagaceae	*Quercus macrocarpa*	333.33
Juglandaceae	*Carya cordiformis*	66.67
Oleaceae	*Fraxinus nigra*	4400.00
Rosaceae	*Prunus serotina*	66.67
	Prunus virginiana	133.33
Salicaceae	*Populus tremuloides*	333.33
Ulmaceae	*Ulmus americana*	66.67

Table 9. Stem basal area of tree species in dry mesic habitats at SACN.

Species	Basal area m^2/ha
Acer rubrum	0.29
Acer saccharum	2.82
Acer spicatum	0.01
Betula alleghaniensis	0.06
Betula papyrifera	0.02
Carpinus caroliniana	0.20
Carya cordiformis	0.20
Crataegus sp.	0.02
Fraxinus nigra	3.42
Fraxinus pennsylvanica	0.72
Juglans cinerea	0.11
Ostrya virginiana	0.93
Populus balsamifera	0.03
Populus tremuloides	0.81
Prunus serotina	0.21
Prunus virginiana	0.03
Quercus alba	1.16
Quercus macrocarpa	3.14
Quercus rubra	1.16
Tilia americana	4.06
Ulmus americana	0.64
Total	20.04

Table 10. Shrub cover in dry mesic habitats at SACN.

Family	Species	Percent cover
Anacardiaceae	*Toxicodendron rydbergii*	1.31
Aquifoliaceae	*Ilex verticillata*	2.91
Betulaceae	*Corylus americana*	0.19
	Corylus cornuta	2.61
Caprifoliaceae	*Diervilla lonicera*	0.03
	Lonicera sp.	0.17
	Viburnum lentago	0.12
	Viburnum rafinesquianum	0.66
Cornaceae	*Cornus racemosa*	1.25
Grossulariaceae	*Ribes cynosbati*	0.13
	Ribes hirtellum	0.22
	Ribes lacustre	0.18
Rhamnaceae	*Frangula alnus*	0.03
	Rhamnus alnifolia	0.33
	Rhamnus cathartica	0.07
Rosaceae	*Amelanchier* sp.	0.27
	Rubus allegheniensis	0.04
	Rubus idaeus ssp. *strigosus*	0.78
	Rubus pensilvanicus	0.33
	Rubus pubescens	2.29
	Spiraea alba	0.13
Rutaceae	*Zanthoxylum americanum*	1.52
Smilacaceae	*Smilax tamnoides*	0.10
Vitaceae	*Parthenocissus* sp.	0.18
	Vitis riparia	0.03

Mesic to Wet Mesic Habitat

Sixteen plots were in this habitat with most occurring along the lower reaches of the St. Croix River. Most tree species exhibited highest densities at the smallest size classes (Figure 9), although both *Picea glauca* (white spruce) and *Thuja occidentalis* (white cedar) did not (Figure 10). There were no seedlings of either species in the mesic to wet mesic plots (Table 11). Total basal area was 29.73 m^2/ha with *F. nigra* (8.35 m^2/ha) and *Tilia americana* (4.87 m^2/ha) having the greatest basal area (Table 12). Shrub and woody vine cover was low (Table 13) with *Corylus* sp. (hazel), speckled alder (*Alnus incana* ssp. *rugosa*), *Rubus pubescens* (dwarf red blackberry), and *Ilex verticillata* (winterberry) being the only species with greater than 1% cover. *Lonicera* sp. (Table 13) refers to non-native *Lonicera* species, typically either *L. morrowii*, *L. tartarica*, or the hybrid of the two, *L.* X *bella*.

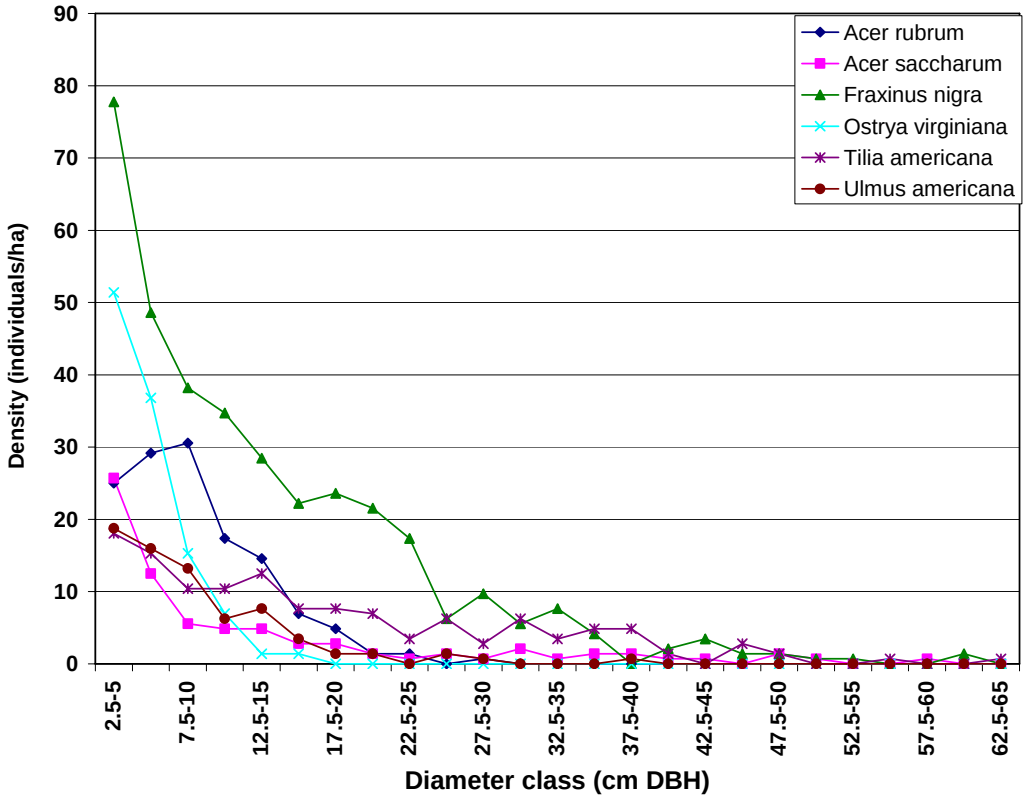


Figure 9. Density-diameter distribution of select hardwood species in mesic to wet mesic habitats at SACN.

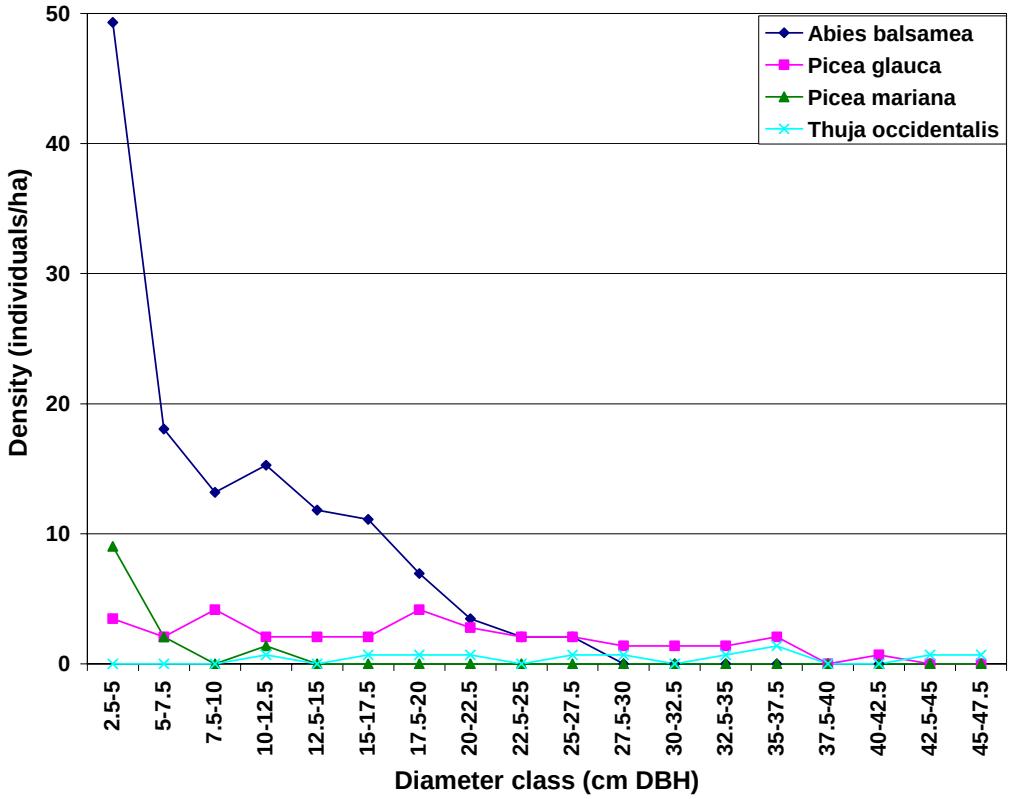


Figure 10. Density-diameter distribution of select hardwood species in mesic to wet mesic habitats at SACN.

Table 11. Seedling density in mesic to wet mesic habitats at SACN.

Family	Species	Density (stems/ha)
Aceraceae	*Acer negundo*	62.50
	Acer rubrum	229.17
	Acer saccharum	208.33
	Acer spicatum	20.83
Betulaceae	*Betula alleghaniensis*	62.50
	Carpinus caroliniana	1625.72
	Ostrya virginiana	1187.50
Fagaceae	*Quercus alba*	62.50
	Quercus macrocarpa	775.14
	Quercus rubra	229.17
Oleaceae	*Fraxinus americana*	229.17
	Fraxinus nigra	3437.50
	Fraxinus pennsylvanica	229.17
Pinaceae	*Abies balsamea*	437.50
Rosaceae	*Crataegus* sp.	41.67
	Prunus serotina	20.83
	Prunus virginiana	562.50
Salicaceae	*Populus grandidentata*	270.83
	Populus tremuloides	1520.83
Tiliaceae	*Tilia americana*	270.83
Ulmaceae	*Celtis occidentalis*	20.83
	Ulmus americana	812.50
	Ulmus rubra	20.83

Table 12. Stem basal area of tree species in mesic to wet mesic habitats at SACN.

Species	Basal area
	m^2/ha
Hardwood	
Acer negundo	0.03
Acer rubrum	1.11
Acer saccharinum	3.33
Acer saccharum	1.85
Betula alleghaniensis	0.53
Betula papyrifera	0.20
Carpinus caroliniana	0.12
Carya cordiformis	0.18
Celtis occidentalis	0.12
Crataegus sp.	0.00
Fraxinus nigra	8.35
Fraxinus pennsylvanica	0.03
Ostrya virginiana	0.38
Populus grandidentata	0.08
Populus tremuloides	0.41
Prunus serotina	0.00
Prunus virginiana	0.03
Quercus alba	0.31
Quercus macrocarpa	1.88
Quercus rubra	0.21
Tilia americana	4.87
Ulmus americana	0.67
Ulmus rubra	0.07
Conifer	
Abies balsamea	1.26
Picea glauca	1.15
Picea mariana	0.03
Pinus banksiana	0.04
Pinus resinosa	0.32
Pinus strobus	1.42
Thuja occidentalis	0.75
Total	29.73

Table 13. Shrub density in mesic to wet mesic habitats at SACN.

Family	Species	Percent cover
Anacardiaceae	*Toxicodendron rydbergii*	0.65
Aquifoliaceae	*Ilex verticillata*	1.62
Betulaceae	*Alnus incana* ssp. *rugosa*	2.56
	Corylus americana	1.05
	Corylus cornuta	1.18
Caprifoliaceae	*Diervilla lonicera*	0.03
	Lonicera sp.	0.06
	Lonicera canadensis	0.26
	Lonicera hirsuta	0.05
	Sambucus racemosa var. *racemosa*	0.07
	Symphoricarpos albus	0.16
	Viburnum lentago	0.27
	Viburnum rafinesquianum	0.27
Cornaceae	*Cornus racemosa*	0.55
	Cornus sericea ssp. *sericea*	0.51
Ericaceae	*Vaccinium angustifolium*	0.13
Grossulariaceae	*Ribes cynosbati*	0.15
	Ribes glandulosum	0.02
	Ribes hirtellum	0.13
	Ribes hudsonianum	0.01
	Ribes lacustre	0.19
	Ribes triste	0.01
Rhamnaceae	*Rhamnus alnifolia*	0.06
	Rhamnus cathartica	0.14
Rosaceae	*Amelanchier* sp.	0.16
	Rosa blanda	0.06
	Rubus allegheniensis	0.15
	Rubus idaeus ssp. strigosus	0.59
	Rubus occidentalis	0.05
	Rubus pensilvanicus	0.03
	Rubus pubescens	2.64
Rutaceae	*Zanthoxylum americanum*	0.79
Salicaceae	*Salix* sp.	0.12
Smilacaceae	*Smilax tamnoides*	0.85
Staphyleaceae	*Staphylea trifolia*	0.52
Vitaceae	*Parthenocissus* sp.	0.89
	Vitis riparia	0.03

Coarse Woody Materials

Coarse woody material varied greatly between habitats with the highest volume and density in the dry mesic habitats.

Table 14. Coarse woody material volume and density for each habitat at SACN.

Habitat	Plot count	Volume (m^3/ha)	Pieces/ha
Very dry to dry	4	28.19	399.73
Dry to dry mesic	10	25.14	419.87
Dry mesic	5	51.31	513.67
Mesic to wet mesic	16	38.87	302.65

Discussion

Ecology and Interpretation

Notable patterns of tree species density were evident in three of the four habitats monitored. At dry to dry mesic sites, forests may be becoming more shaded, as evidenced by low density of *Quercus ellipsoidalis*, *Pinus banksiana,* and *P. resinosa* at the smallest size classes. These species require high light and can be outcompeted by more shade tolerant species such as *Q. rubra* and *P. strobus*. In addition to light, *P. banksiana* requires fire to release seeds from the cones. Although fire is not obligate for *P. resinosa* germination, enhanced germination following surface fires has been demonstrated. In addition to germination requirements, fires kill competing vegetation allowing greater light penetration on the forest floor, thus promoting the growth and survival of light demanding species. In the absence of fire, the observed successional pattern is expected.

At dry mesic habitats, located exclusively below the confluence of the St. Croix and Namekagon Rivers, densities of *Populus tremuloides* and *Quercus macrocarpa* in the smaller size classes are reduced compared with larger classes. These are early successional, high light demanding species. These same sites are now dominated by *Fraxinus nigra* and *Acer saccharum* saplings, species known to be more shade tolerant.

Sites located in mesic habitat exhibited the same general pattern as the dry mesic sites. Although a small number of larger diameter *T. occidentalis* were present, there were no individuals >10 cm DBH. Mesic to wet mesic sites exhibited predictable patterns of tree species density. The primary disturbance in this habitat, flooding, has not been appreciable altered.

Implementation: Problems, Logistics, and Future Plans

My biggest concern this year is that the thirty-five plots at St. Croix NSR did not provide enough replicates of the habitats that were sampled. As part of the original five year sampling rotation, the 2007 field season was spent between three parks, with the other two parks, Indiana Dunes National Lakeshore and Grand Portage National Monument, each having 20 plots installed. We discovered that sampling at three parks in one year is not realistic, however, and will be

switching to a six year rotation where one entire field season is spent at Indiana Dunes NL and another split between SACN and GRPO. This will allow additional sampling time at these three parks, and alleviate the problem of too few plots in each habitat.

There were a number of problems that we experienced that were directly due to this being the first year of implementation. One of the concerns that I have with the data from this year is the low frequency of pest and pathogen detection. There are several contributing factors to this. First, a number of the target diseases would not be evident until late summer. At SACN, we sampled from mid to late summer, so it is possible that a number of diseases were not evident at the time of sampling. This will remain a problem in future years as much of the sampling, regardless of park or year, will take place before disease becomes evident.

A second problem with pest and pathogen damage is the large number of diseases and damage types (49) that were targeted in combination with the lack of forest pathology expertise on the crew. We did devote time to this during the three week training period although, again, this was in May, prior to many diseases becoming evident. Ideally, we should have spent several days training on the new species and diseases each time we went to a new park. The drawback with this is, with the tight schedule this year, this would have compromised the number of plots completed. As a compromise, we worked on identifying species and diseases as we completed plots. Further, plant identification and disease training at SACN would be impractical; the Namekagon River spans a number of habitats while the St. Croix River spans through the transition zone. It made more sense to work through unknown diseases and species as we sampled.

Despite the lack of disease reported, we did encounter diseased trees not infrequently, although most of these diseases were not on the targeted list. In the majority of cases, the severity of disease on any given tree was not great and this did not appear to be of ecological significance. In the future, we will send samples (leaves, fruits, etc.) to the U.S. Forest Service disease identification center in St. Paul for identification. This will provide a better assessment of what is happening to the trees, and also be a teaching tool for both myself and the crew.

A second modification that will be made following this year is increased data collection for coarse woody materials. In 2007, we collected the diameter at line intercept and the length, allowing a rough cylindrical volume estimate. In the future, we will record the diameter at both the large and small ends, allowing a more accurate conical estimate of volume. Further, in the future we will also record the species and decay class of the piece. These modifications will allow more refined estimates of CWM volume, as well as promote a better understanding of successional patterns.

A final modification that we will make following this year is that we will not be using PDAs for plot data collection. In 2007, we used Trimble Geo XT GPSs on which the forms program Sprint DB Pro was installed. As such, we used the GPSs for recording plot data, logging GPS coordinates, and navigating, draining the batteries. This was problematic in the backcountry at SACN, and at times at GRPO. Although we brought materials for recharging, these were both heavy and bulky.

A second problem that we experienced with the PDAs, missing data, was not evident until I began checking data after the field season. Among other examples, there were six shrub circles with the species present recorded, but no cover percentages. When data collection is on paper, the crew leader can check the datasheets before leaving a plot to ensure that all parameters have been collected. There were also four plots without any coarse woody materials recorded. I suspect that the CWM was, indeed, collected on these plots, but somehow lost electronically in the downloading or database population process. This, too, will be avoided by using paper data sheets.

Acknowledgements

I am grateful for the vegetation monitoring field crew of Jessica Grochowski, Jenna Scheub, and Sam Smyrk. Without their assistance, this project would in no way be possible. I am also indebted to Robin Maercklein at St. Croix National Scenic Riverway for both planning and logistical assistance. I have also greatly appreciated the assistance of Rebecca Key of the Great Lakes I&M Network for assistance with database development and manipulation.

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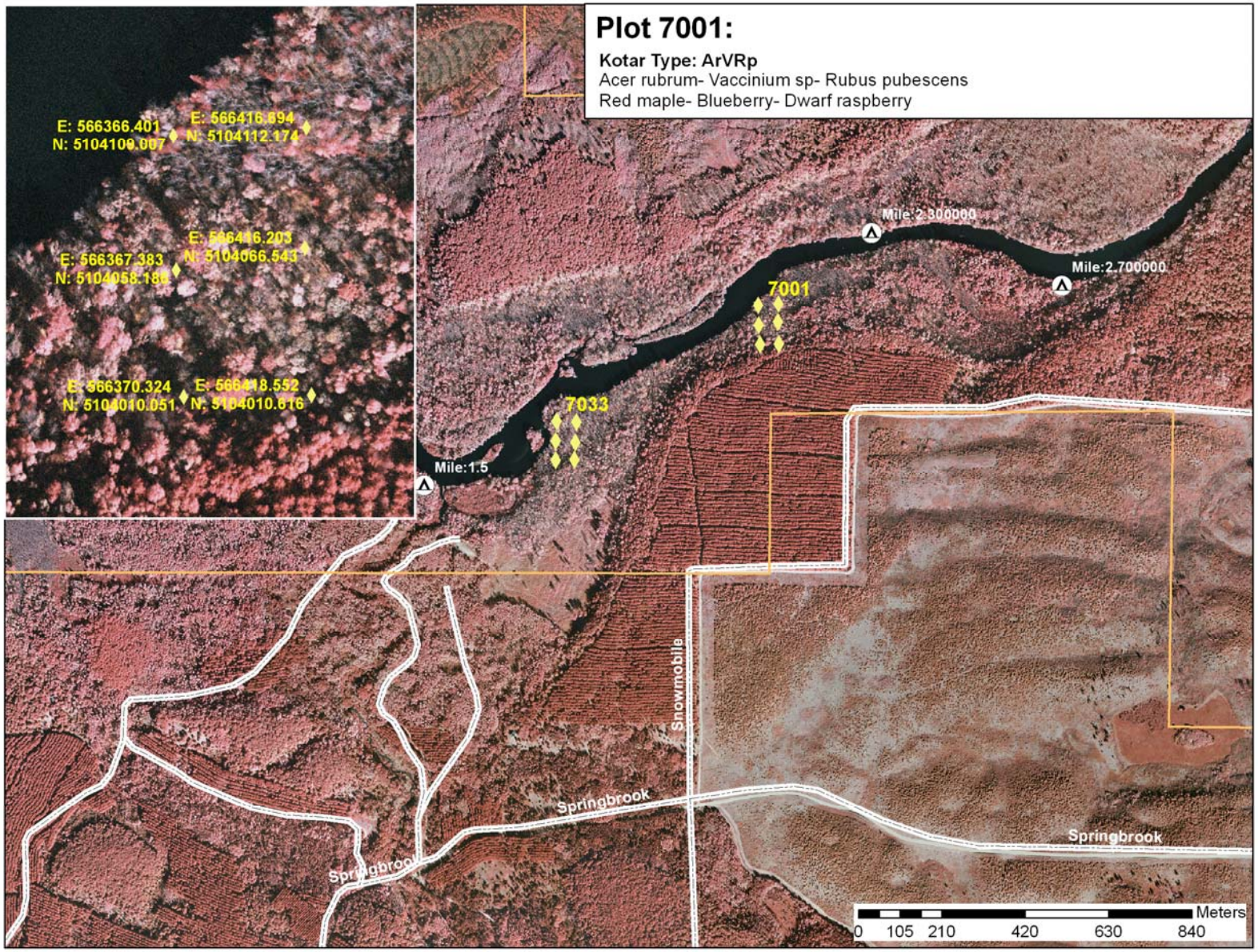
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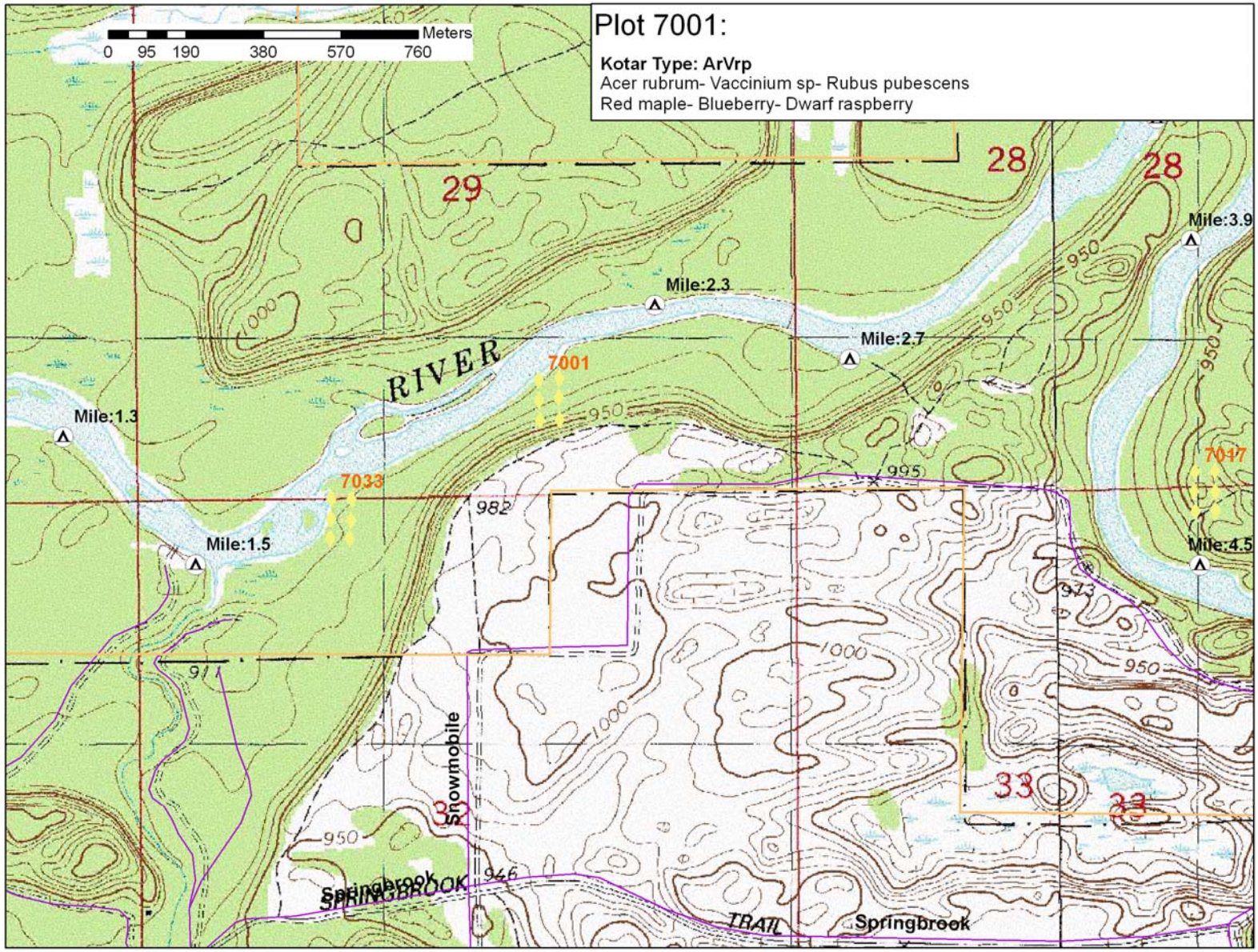
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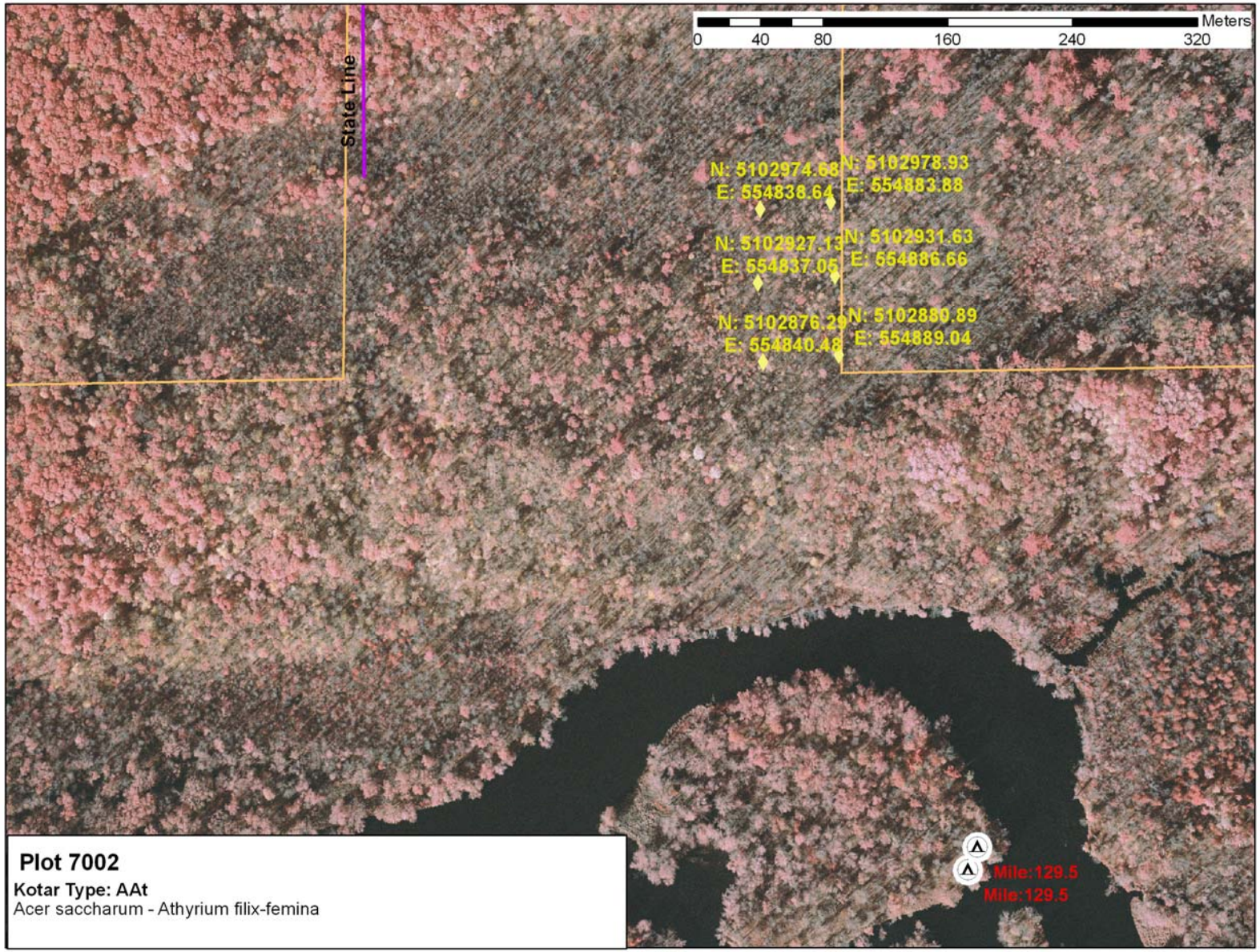
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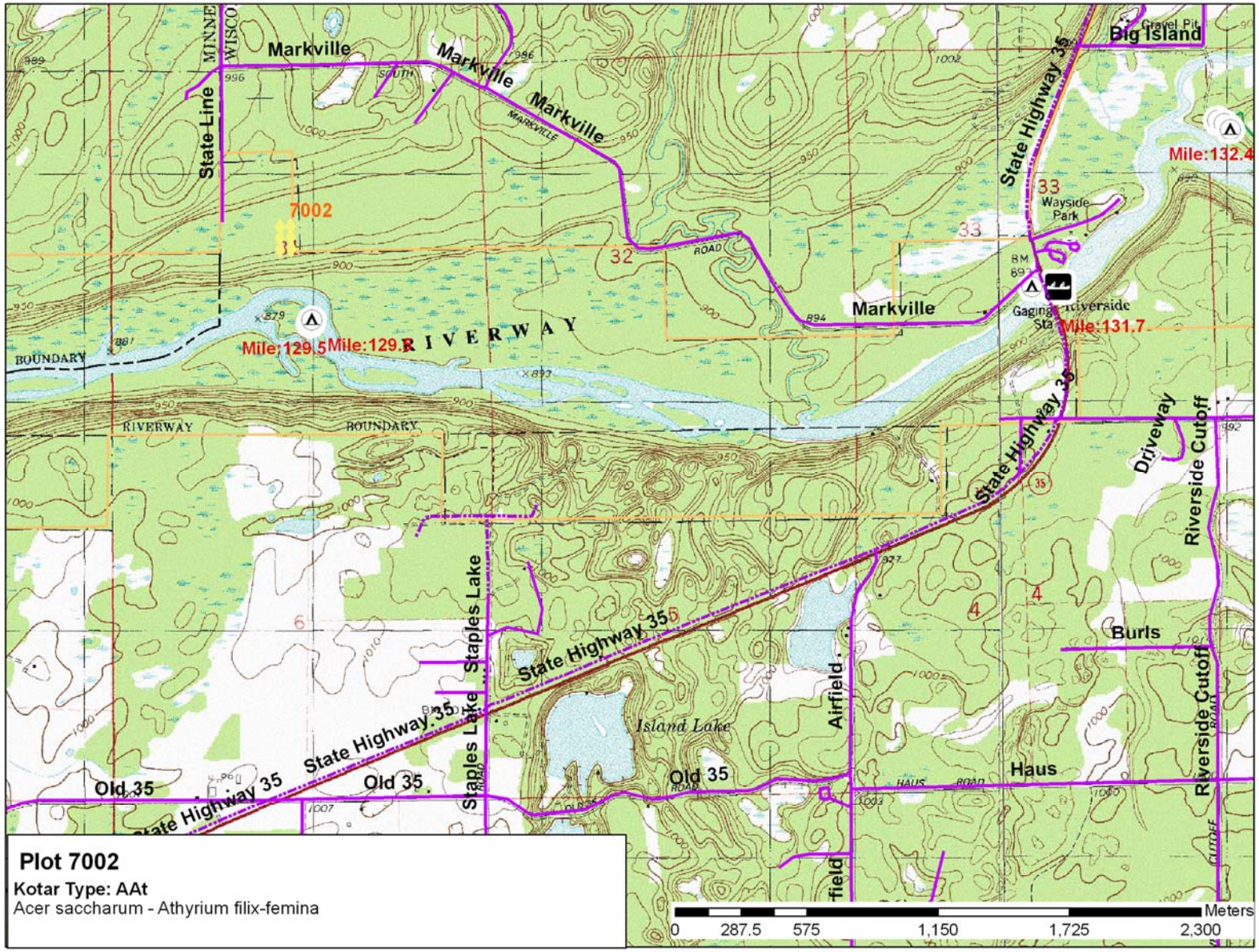
Appendix A

Field Sites Maps


Plot 7001:
Kotar Type: ArVRp
Acer rubrum- Vaccinium sp- Rubus pubescens
Red maple- Blueberry- Dwarf raspberry
E: 566366.401
N: 5104100.007
E: 566416.694
N: 5104112.174
E: 566416.203
N: 5104066.543
E: 566367.383
N: 5104058.188
E: 566370.324
N: 5104010.051
E: 566418.552
N: 5104010.616
Mile:2.300000
Mile:2.700000
7001
7033
Mile:1.5
Snowmobile
Springbrook
Springbrook
Springbrook
Meters
0 105 210 420 630 840


Plot 7001:
Kotar Type: ArVrp
Acer rubrum- Vaccinium sp- Rubus pubescens
Red maple- Blueberry- Dwarf raspberry
Meters
0 95 190 380 570 760
29
28
28
33
33
Mile:1.3
Mile:1.5
Mile:2.3
Mile:2.7
Mile:3.9
Mile:4.5
7001
7033
7017
RIVER
Snowmobile
TRAIL
Springbrook
1000
950
995
982
973
911
946

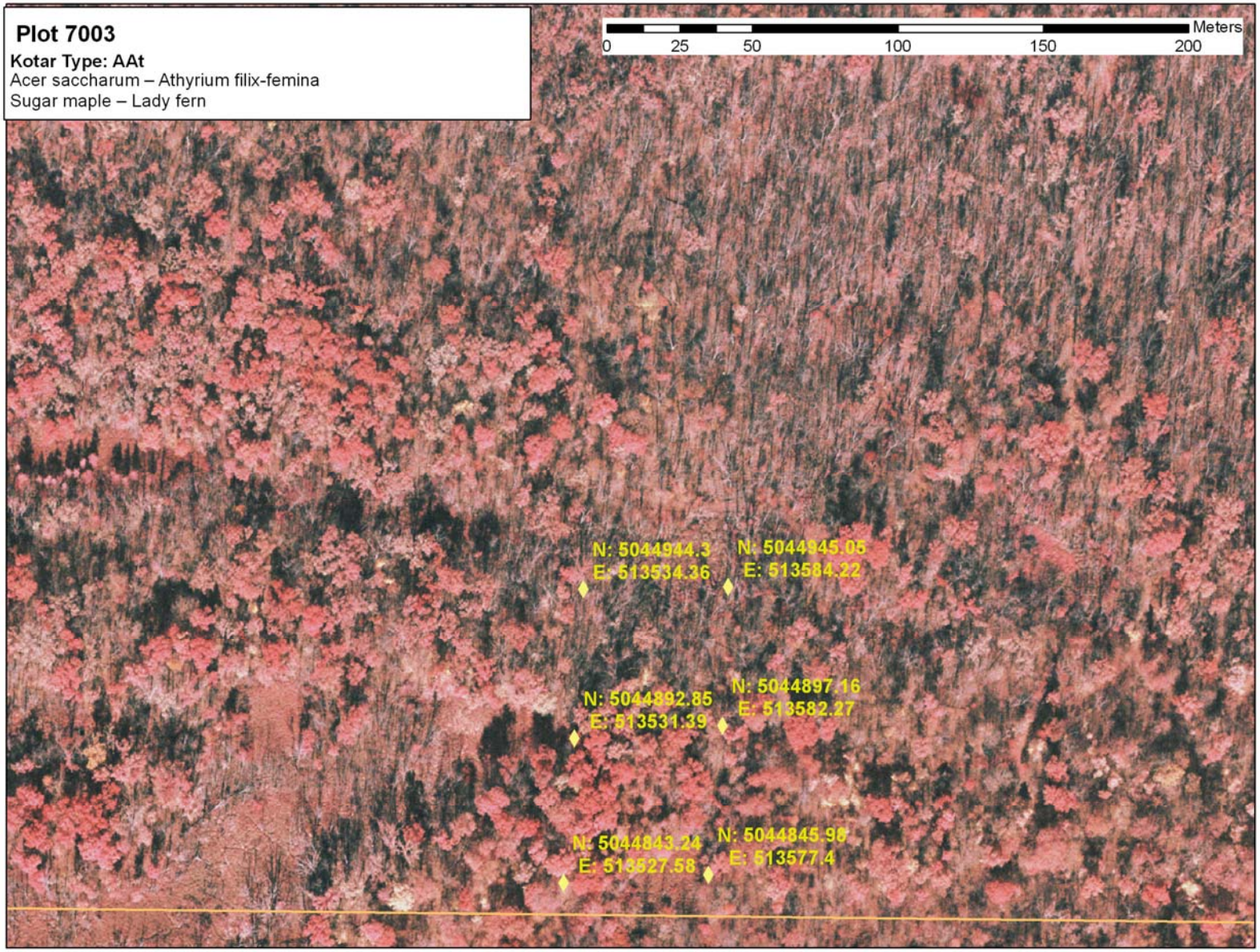

Meters
0
40
80
160
240
320
State Line
N: 5102974.68
E: 554838.64
N: 5102978.93
E: 554883.88
N: 5102927.13
E: 554837.05
N: 5102931.63
E: 554886.66
N: 5102876.29
E: 554840.48
N: 5102880.89
E: 554889.04
Mile:129.5
Mile:129.5
Plot 7002
Kotar Type: AAt
Acer saccharum - Athyrium filix-femina

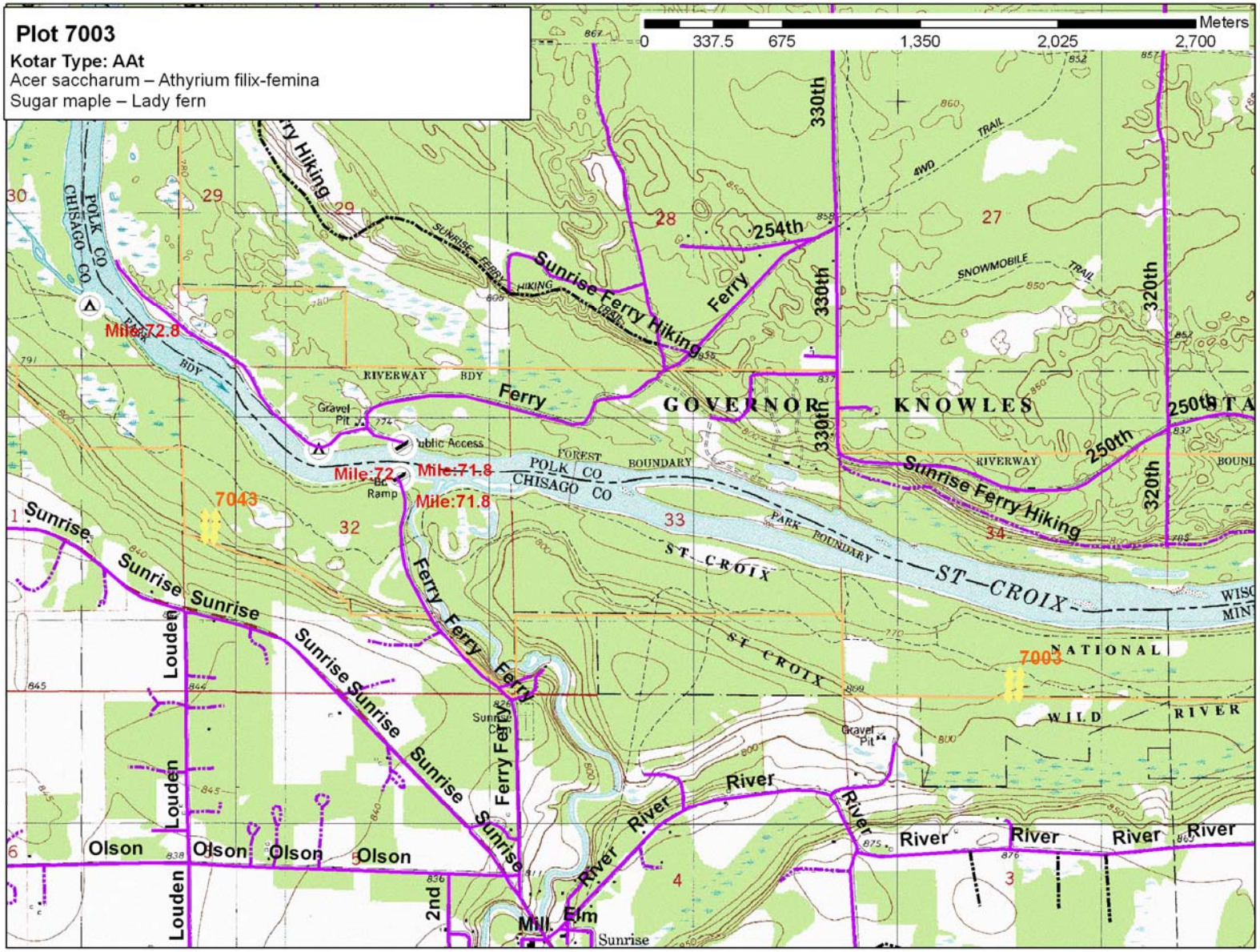


Plot 7002

Kotar Type: AAt

Acer saccharum - Athyrium filix-femina


Plot 7003
Kotar Type: AAt
Acer saccharum – Athyrium filix-femina
Sugar maple – Lady fern
Meters
0
25
50
100
150
200
N: 5044944.3
E: 513534.36
N: 5044945.05
E: 513584.22
N: 5044892.85
E: 513531.39
N: 5044897.16
E: 513582.27
N: 5044843.24
E: 513527.58
N: 5044845.98
E: 513577.4

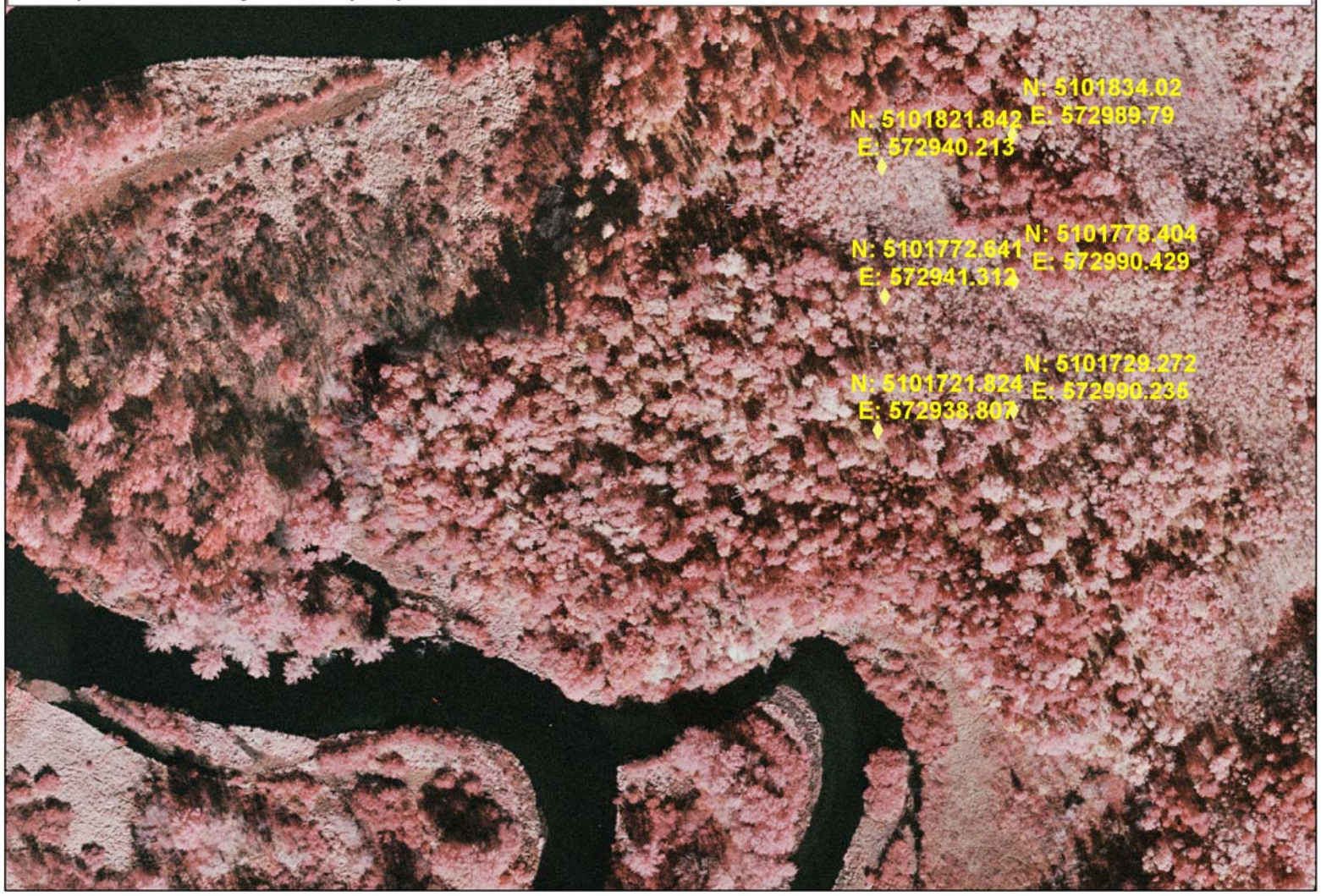

Plot 7003
Kotar Type: AAt
Acer saccharum – Athyrium filix-femina
Sugar maple – Lady fern
Meters
0
337.5
675
1,350
2,025
2,700
Mile:72.8
Mile:72
Mile:71.8
Mile:71.8
7043
7003
Gravel Pit
Public Access
Ramp
BDY
RIVERWAY
FOREST
BOUNDARY
POLK CO
CHISAGO CO
PARK
BOUNDARY
ST CROIX
NATIONAL
WILD
RIVER
GOVERNOR
KNOWLES
Sunrise Ferry Hiking
Ferry
Sunrise
Louden
Olson
River
2nd
Elm
Mill
Sunrise
330th
320th
250th
254th
TRAIL
4WD
SNOWMOBILE

Plot 7005

KOTAR: PQGCe

Pinus strobus- Quercus sp- Gaultheria procumbens- Ceoanthus americanus

White pine- Oak- Wintergreen- New jersey tea



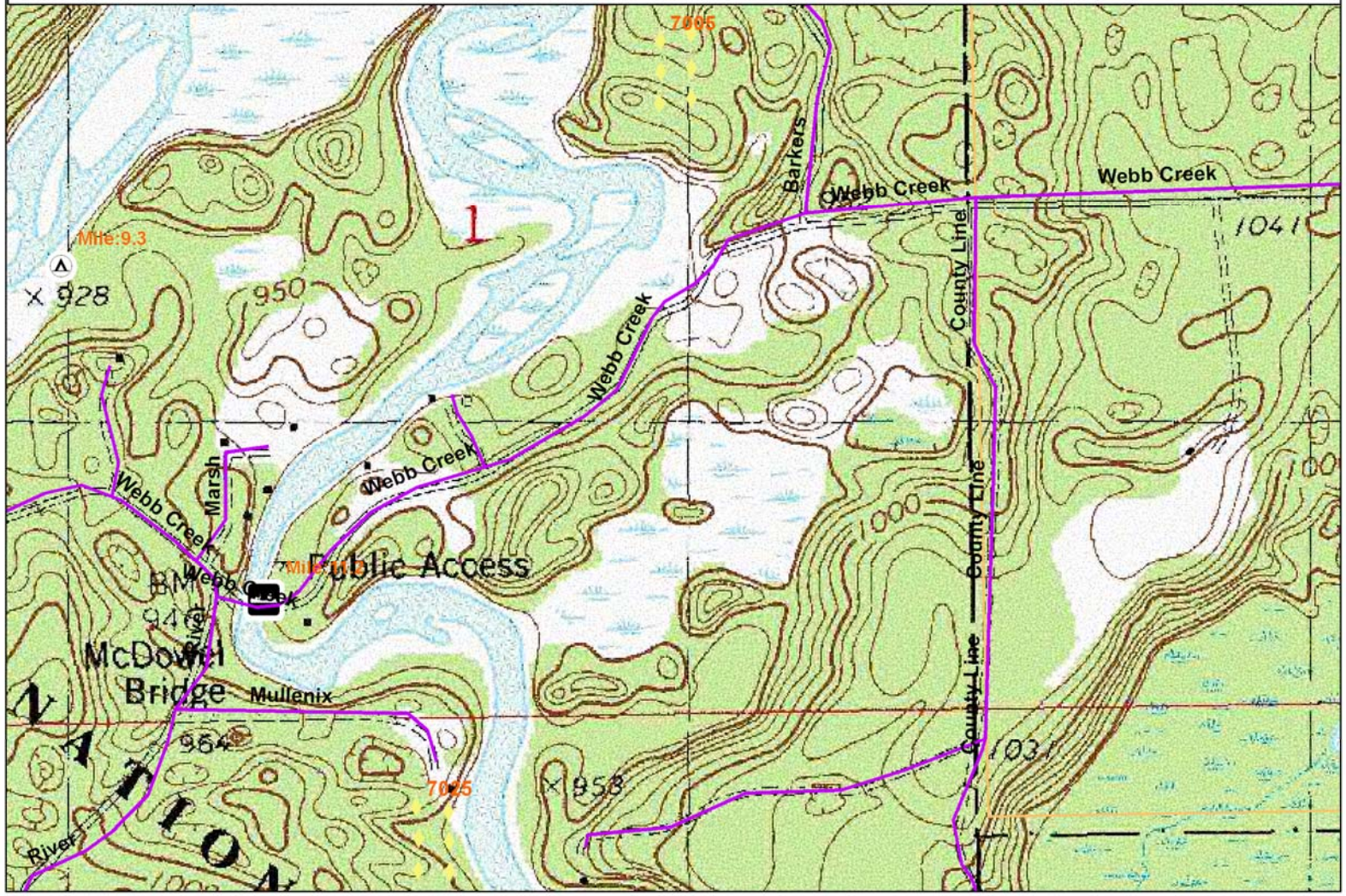
Plot 7005

Kotar Type: PQGCe

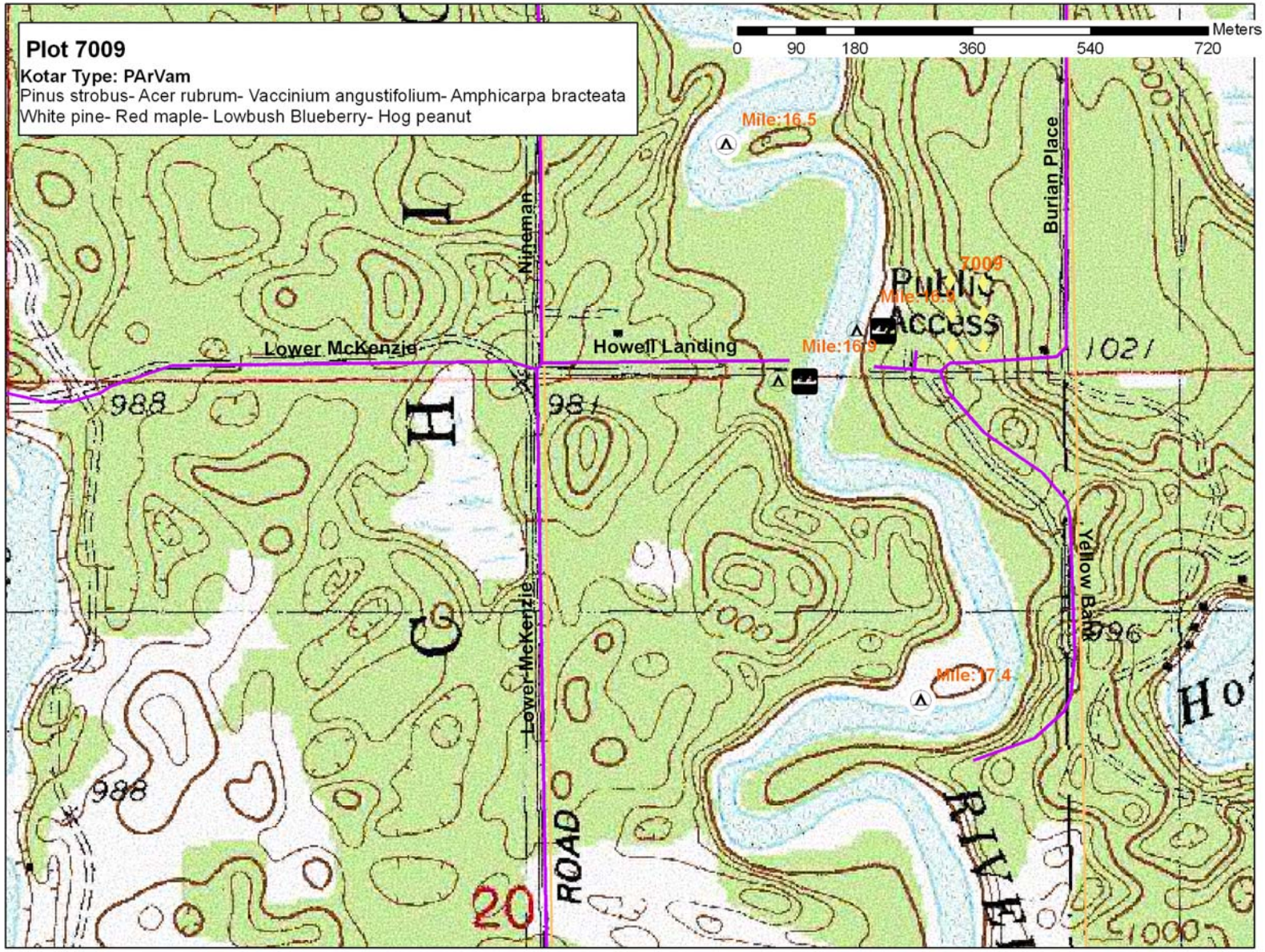
Pinus strobus- Quercus sp- Gaultheria procumbens- Ceoanthus americanus

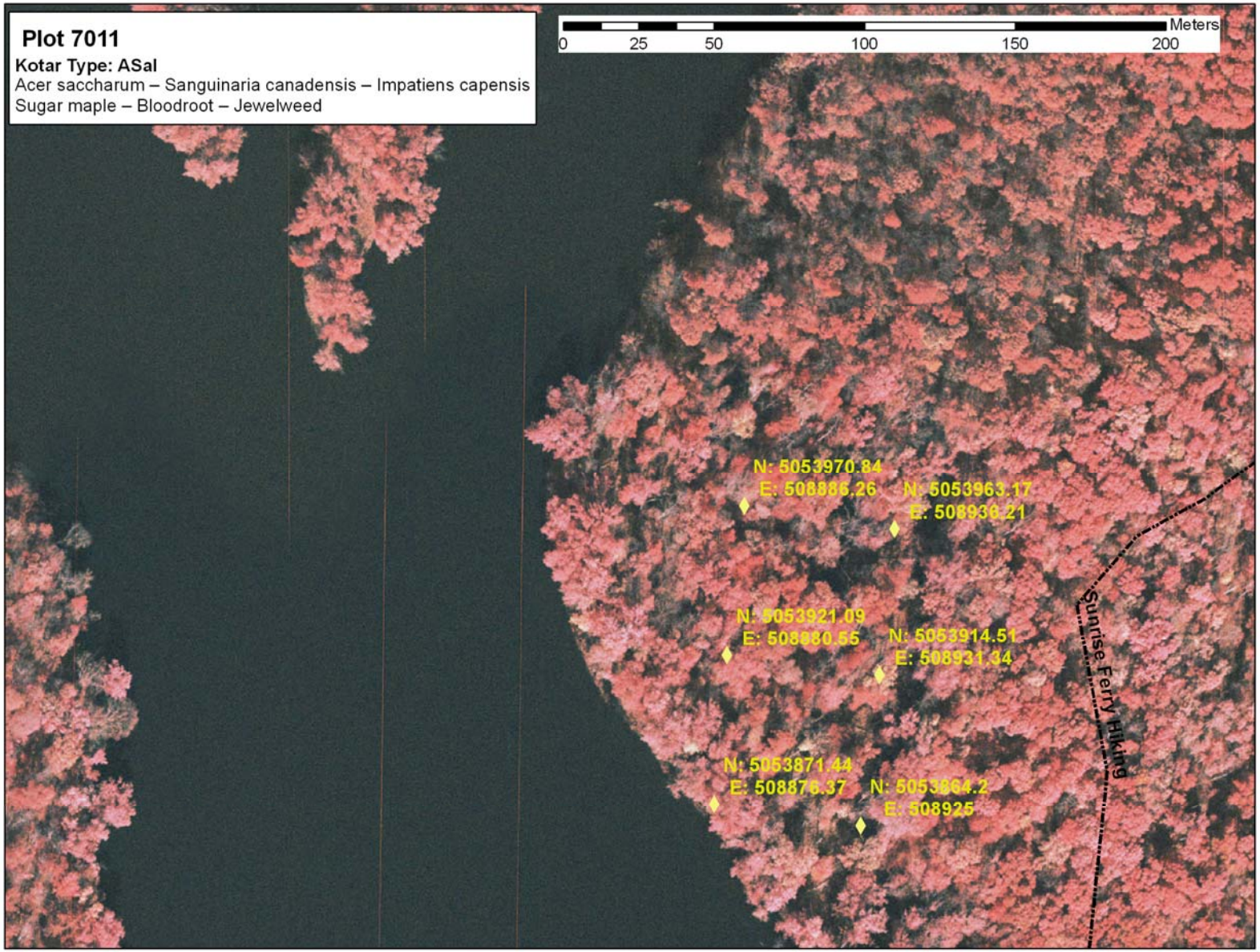
White pine- Oak- Wintergreen- New jersey tea

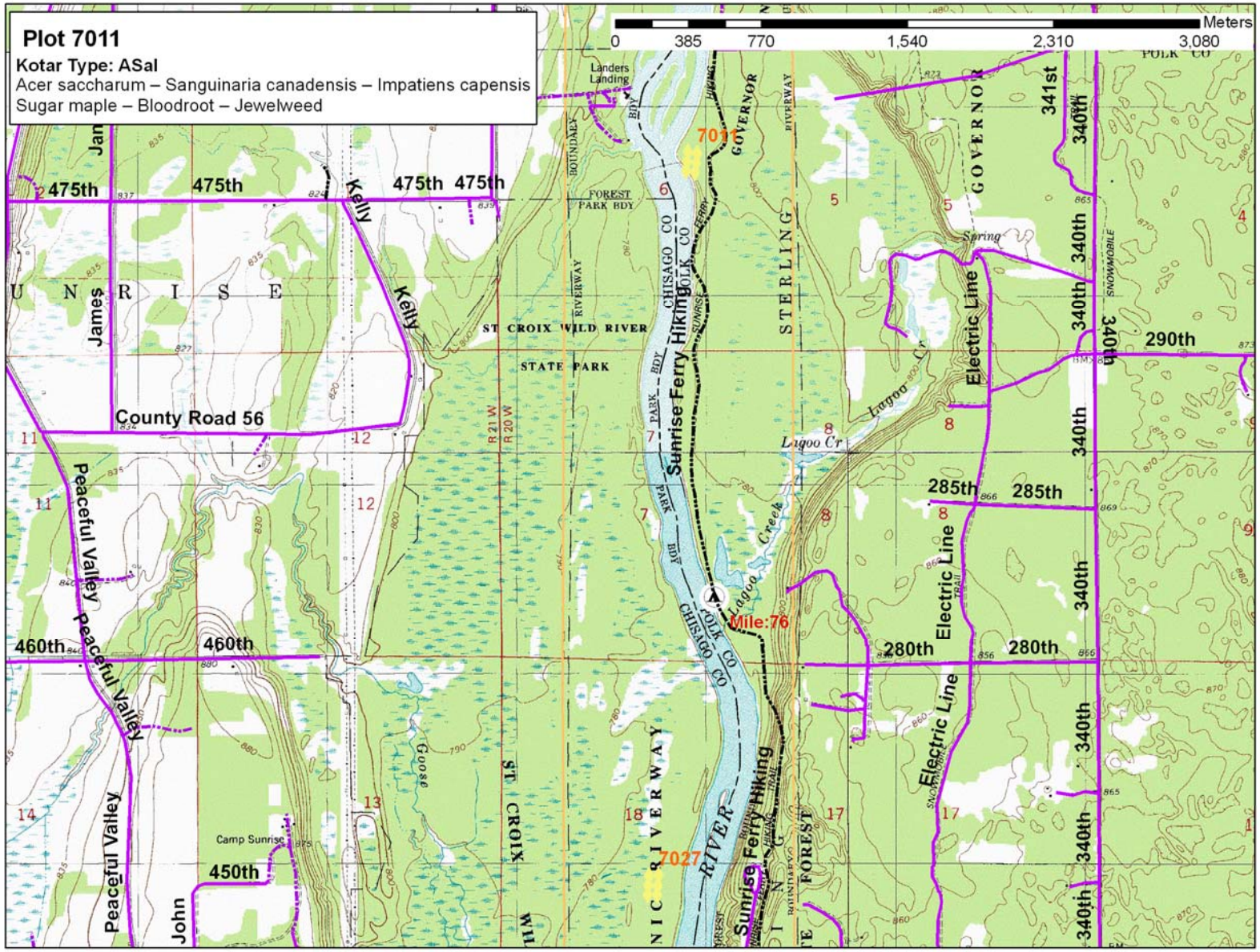
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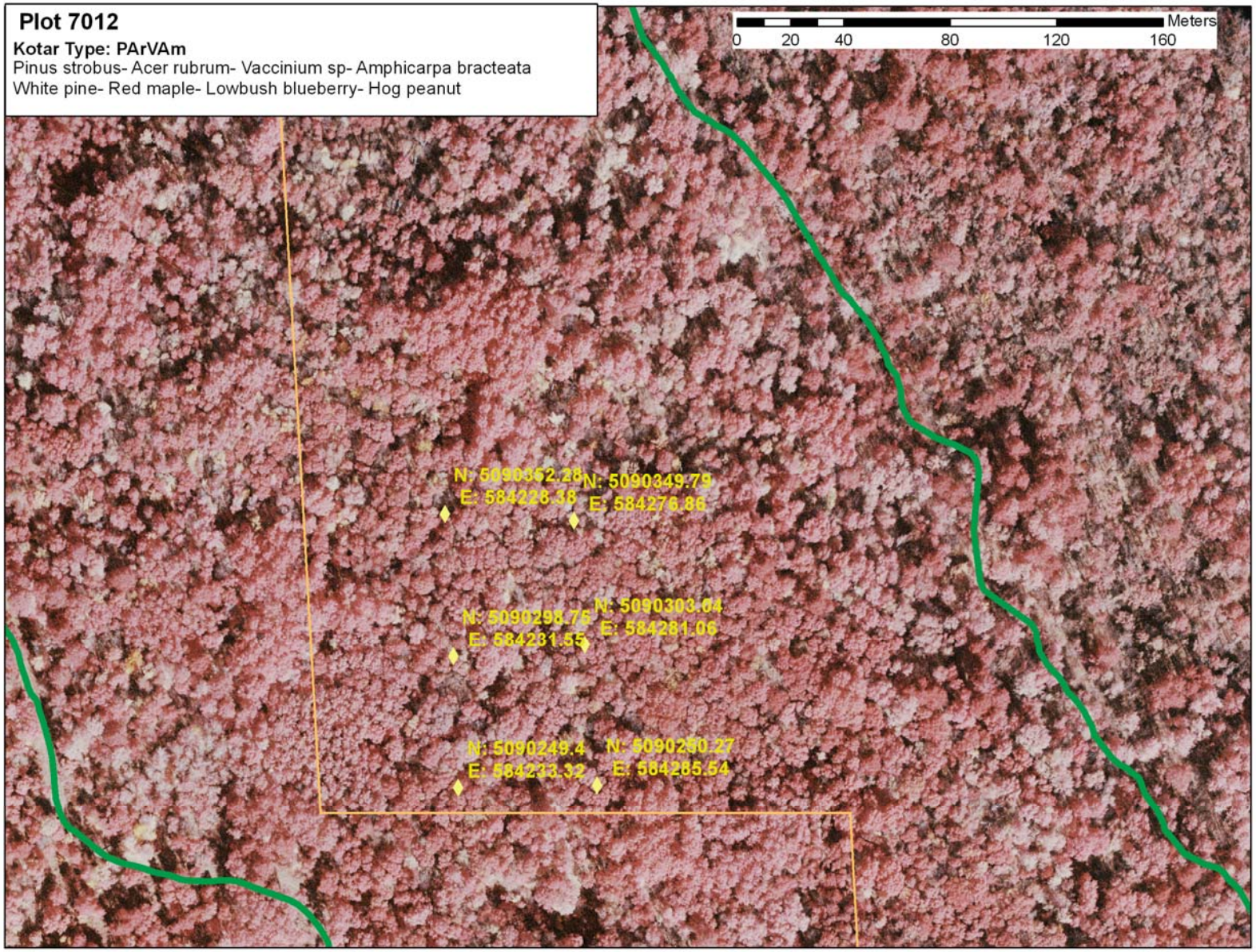


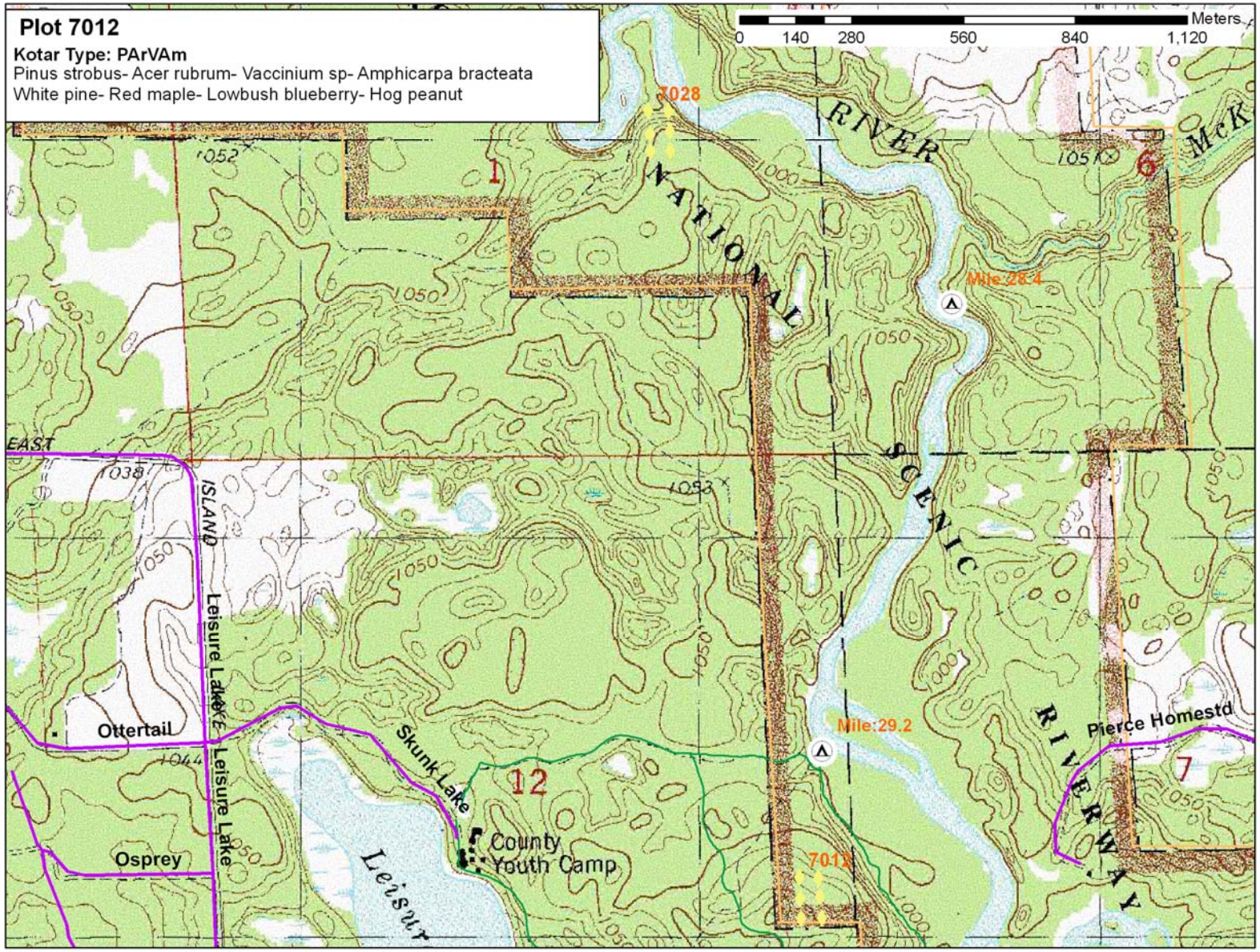

Plot 7009
Kotar Type: PArVam
Pinus strobus- Acer rubrum- Vaccinium angustifolium- Amphicarpa bracteata
White pine- Red maple- Lowbush Blueberry- Hog peanut
Meters
0 15 30 60 90 120
N: 5097713.59
E: 576634.92
N: 5097710.38
E: 576685.27
N: 5097660.85
E: 576636.66
N: 5097662.18
E: 576686
Mile:16.9
N: 5097612.88
E: 576637.24
N: 5097612.67
E: 576685.61
Burian Place
Burian Place
Burian Place
Yellow Bank

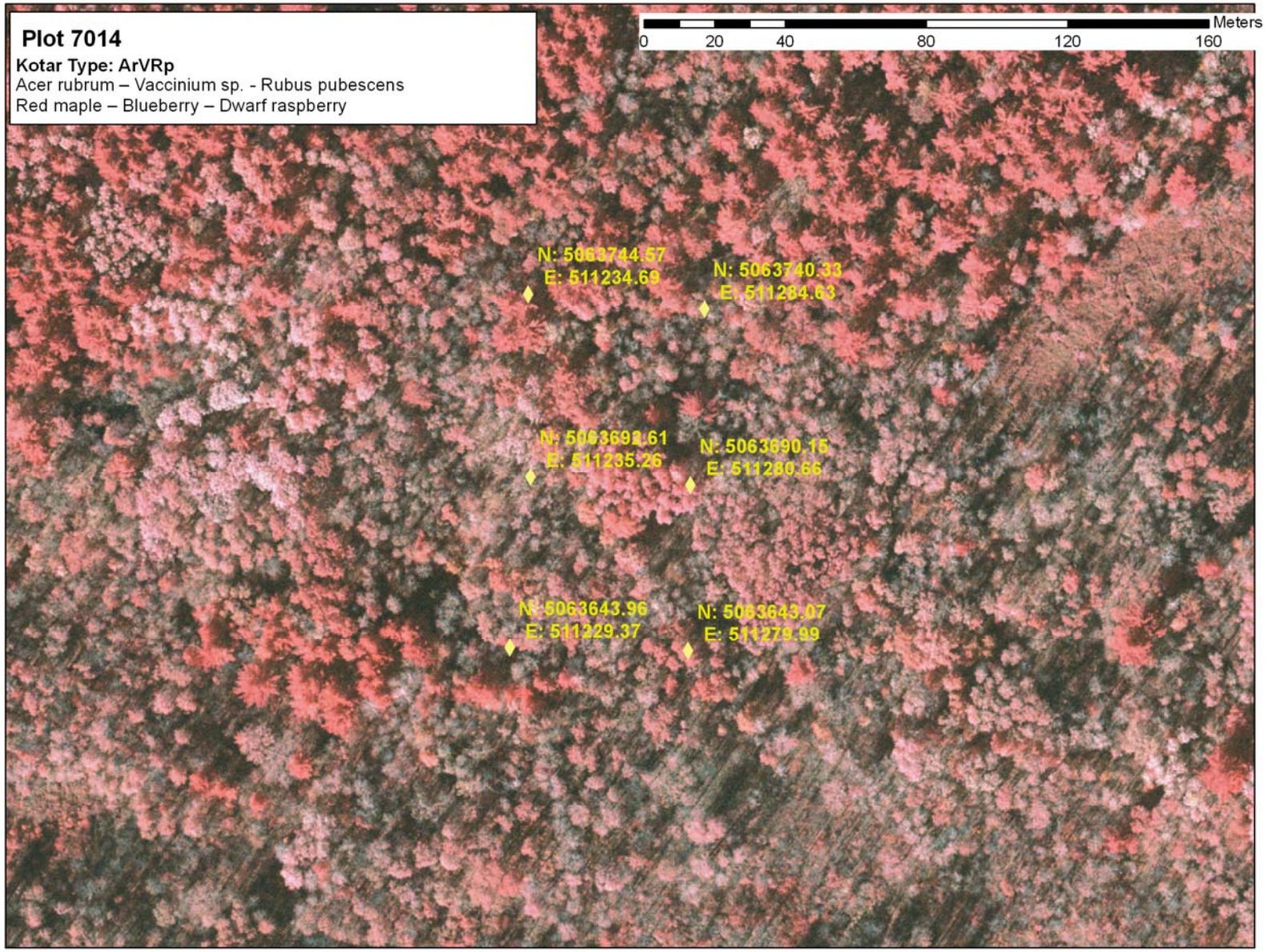

Plot 7009
Kotar Type: PArVam
Pinus strobus- Acer rubrum- Vaccinium angustifolium- Amphicarpa bracteata
White pine- Red maple- Lowbush Blueberry- Hog peanut
0 90 180 360 540 720 Meters
Mile:16.5
Mile:16.4
7009
Mile:16.9
Public Access
Howell Landing
Lower McKenzie
Nineman
Burian Place
1021
988
981
Lower McKenzie
Yellow Bank
996
Mile:17.4
988
ROAD
20
1000

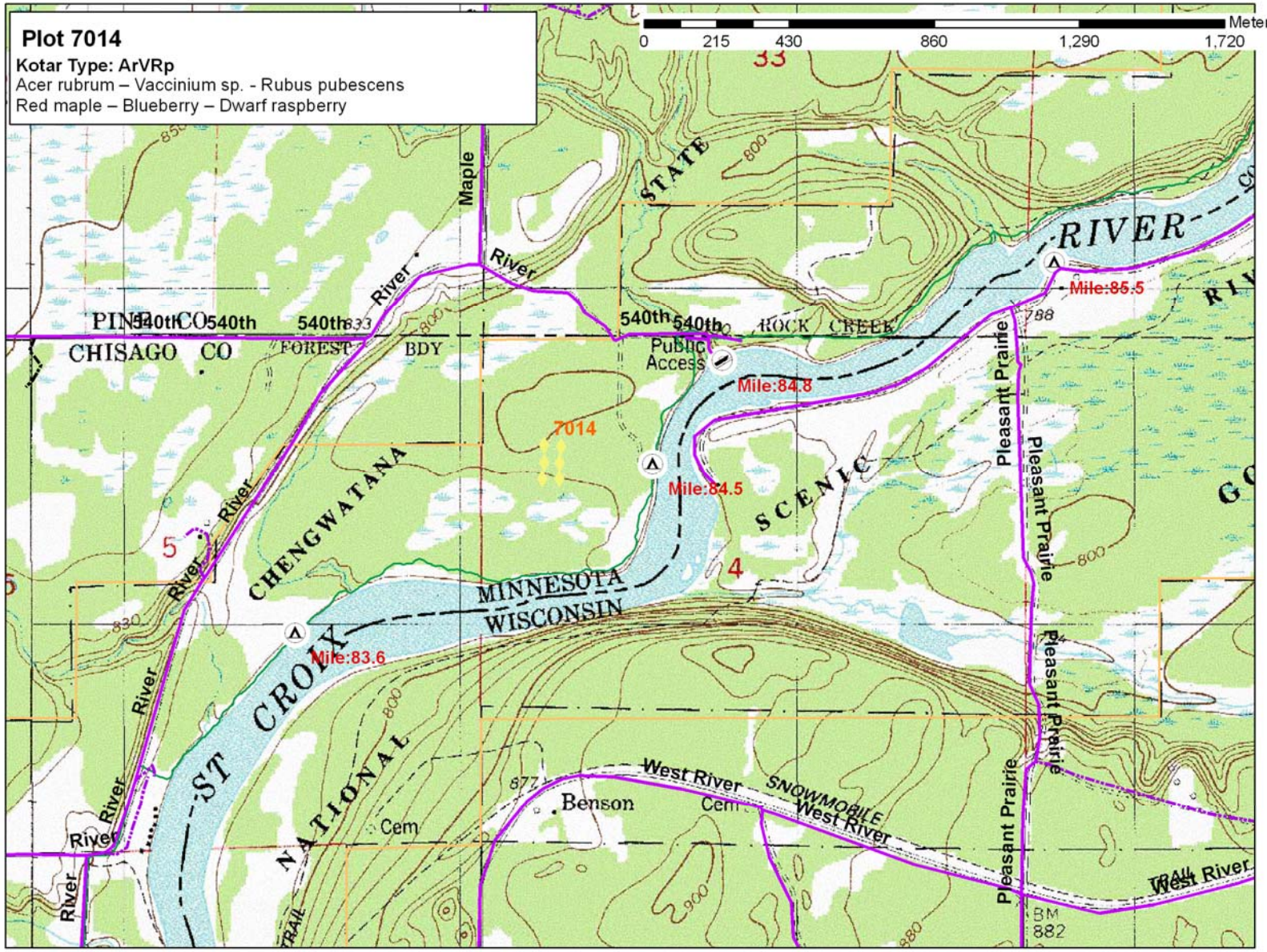

Plot 7011
Kotar Type: ASal
Acer saccharum – Sanguinaria canadensis – Impatiens capensis
Sugar maple – Bloodroot – Jewelweed
Meters
0
25
50
100
150
200
N: 5053970.84
E: 508886.26
N: 5053963.17
E: 508930.21
N: 5053921.09
E: 508880.55
N: 5053914.51
E: 508931.34
N: 5053871.44
E: 508876.37
N: 5053864.2
E: 508925
Sunrise Ferry Hiking


Plot 7011
Kotar Type: ASal
Acer saccharum – Sanguinaria canadensis – Impatiens capensis
Sugar maple – Bloodroot – Jewelweed
Meters
0
385
770
1,540
2,310
3,080
Landers Landing
7011
7027
Mile:76
475th
460th
450th
290th
285th
280th
340th
341st
County Road 56
Kelly
James
Peaceful Valley
Sunrise Ferry Hiking
Electric Line
Lagoo Cr
Lagoo Creek
Goose
Spring
Camp Sunrise
ST CROIX WILD RIVER
STATE PARK
STERLING
FOREST
RIVERWAY
CHISAGO CO
POLK CO
R21W
R20W

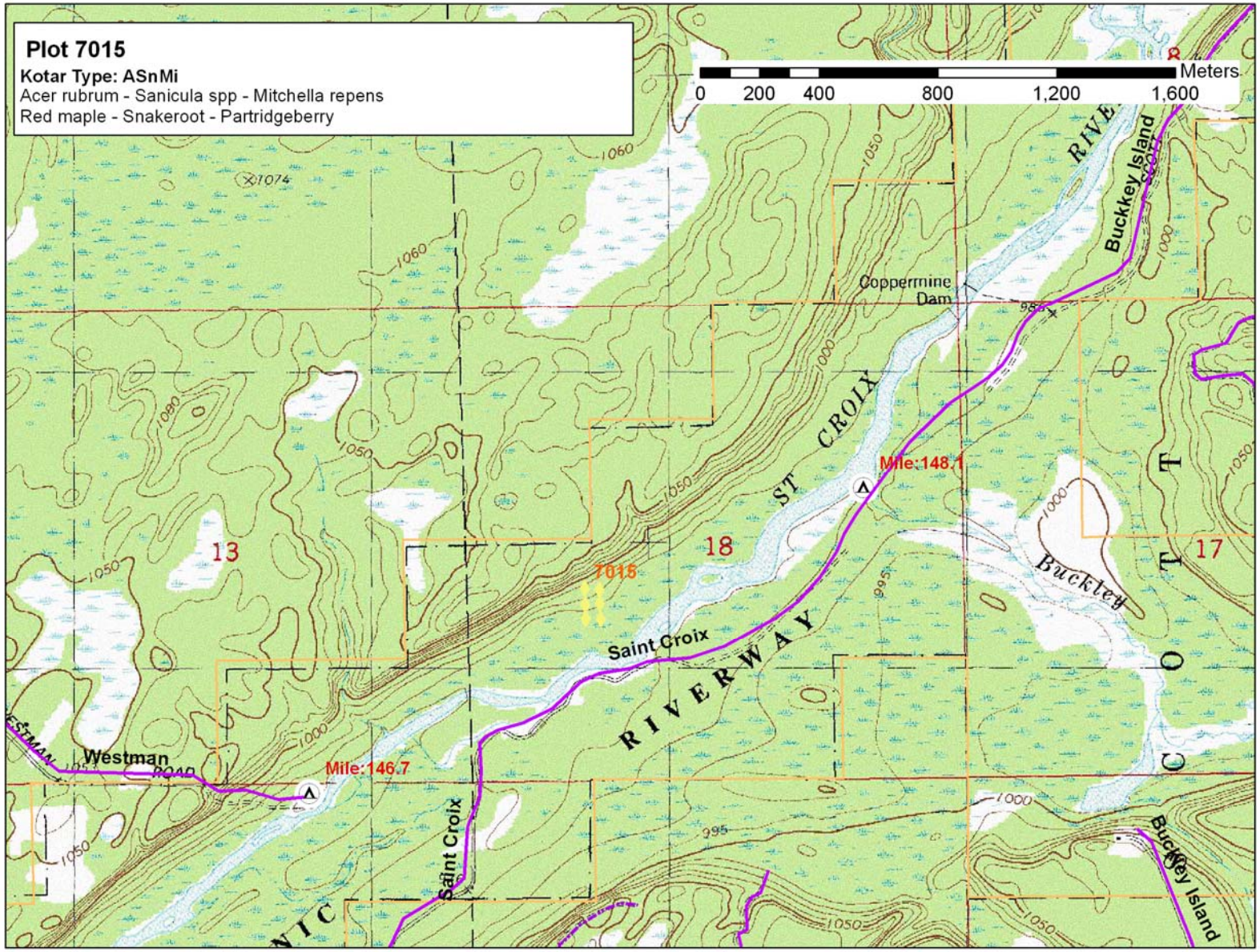

Plot 7012
Kotar Type: PArVAm
Pinus strobus- Acer rubrum- Vaccinium sp- Amphicarpa bracteata
White pine- Red maple- Lowbush blueberry- Hog peanut
Meters
0 20 40 80 120 160
N: 5090352.28
E: 584228.38
N: 5090349.79
E: 584276.86
N: 5090298.75
E: 584231.55
N: 5090303.04
E: 584281.06
N: 5090249.4
E: 584233.32
N: 5090250.27
E: 584285.54


Plot 7012
Kotar Type: PArVAm
Pinus strobus- Acer rubrum- Vaccinium sp- Amphicarpa bracteata
White pine- Red maple- Lowbush blueberry- Hog peanut
Meters
0 140 280 560 840 1,120
7028
RIVER
NATIONAL
SCENIC
RIVERWAY
Mile:28.4
Mile:29.2
7012
EAST
ISLAND
Leisure Lake
Leisure Lake
Ottertail
Osprey
Skunk Lake
County
Youth Camp
Pierce Homestd
1
6
7
12
1052
1050
1038
1044

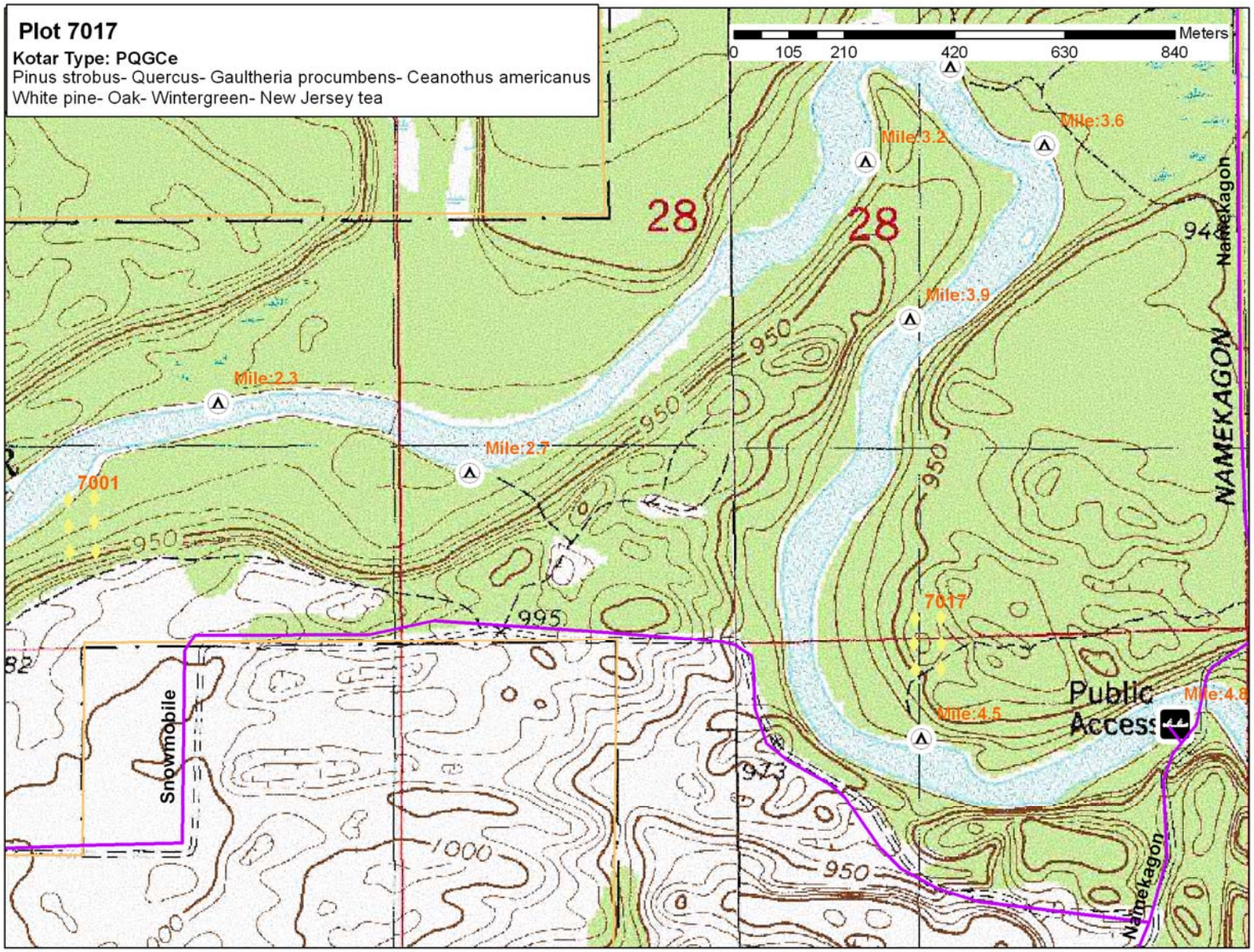

Plot 7014
Kotar Type: ArVRp
Acer rubrum – Vaccinium sp. - Rubus pubescens
Red maple – Blueberry – Dwarf raspberry
Meters
0
20
40
80
120
160
N: 5063744.57
E: 511234.69
N: 5063740.33
E: 511284.63
N: 5063692.61
E: 511235.26
N: 5063690.15
E: 511280.66
N: 5063643.96
E: 511229.37
N: 5063643.07
E: 511279.99

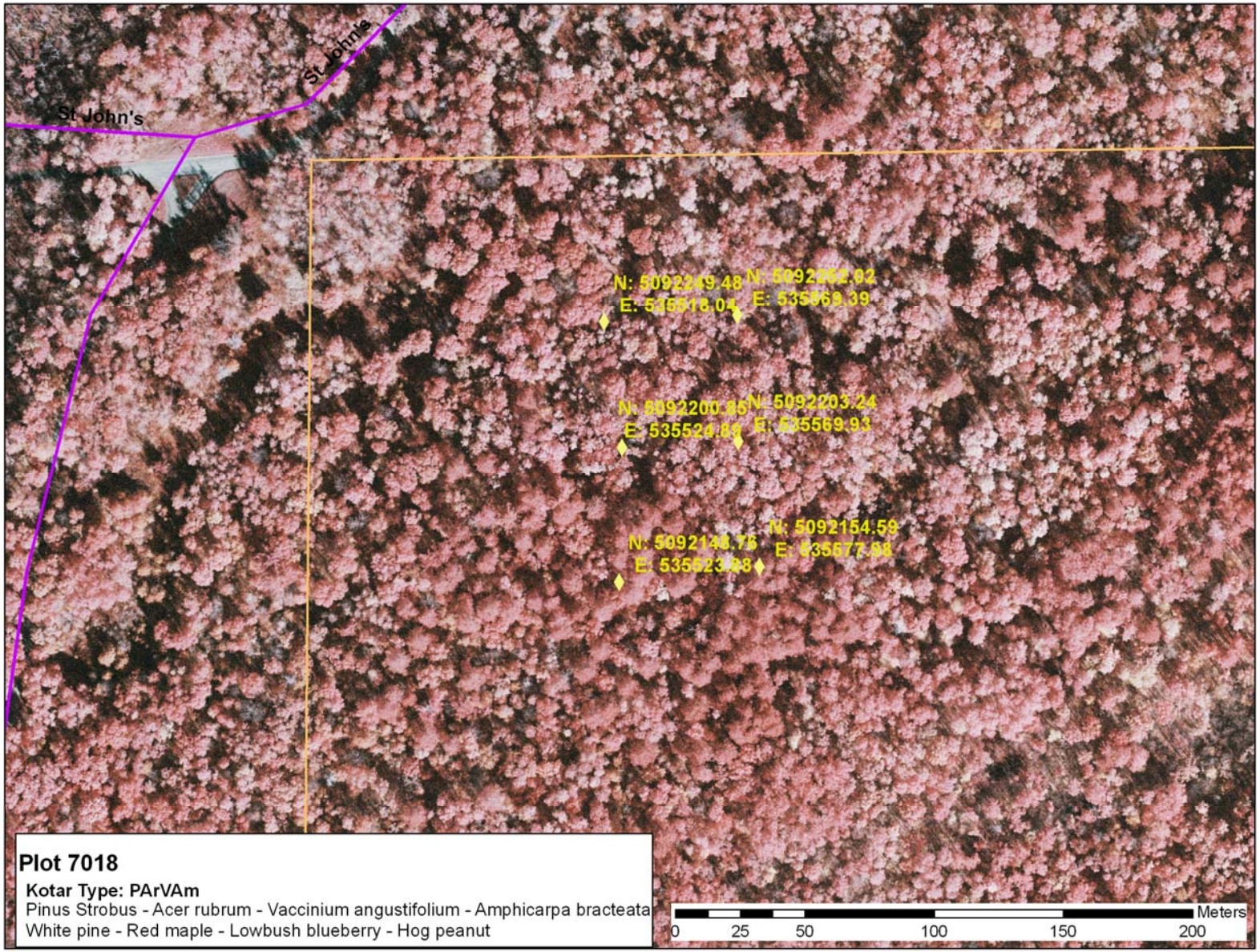

Plot 7014
Kotar Type: ArVRp
Acer rubrum – Vaccinium sp. - Rubus pubescens
Red maple – Blueberry – Dwarf raspberry
0
215
430
860
1,290
1,720
Meters
33
STATE
RIVER
Mile:85.5
Maple
River
540th
CHISAGO CO
FOREST BDY
ROCK CREEK
Public Access
Mile:84.8
7014
Mile:84.5
CHENGWATANA
SCENIC
Pleasant Prairie
MINNESOTA
WISCONSIN
Mile:83.6
ST CROIX
NATIONAL
West River
SNOWMOBILE
TRAIL
Benson
Cem
BM
882

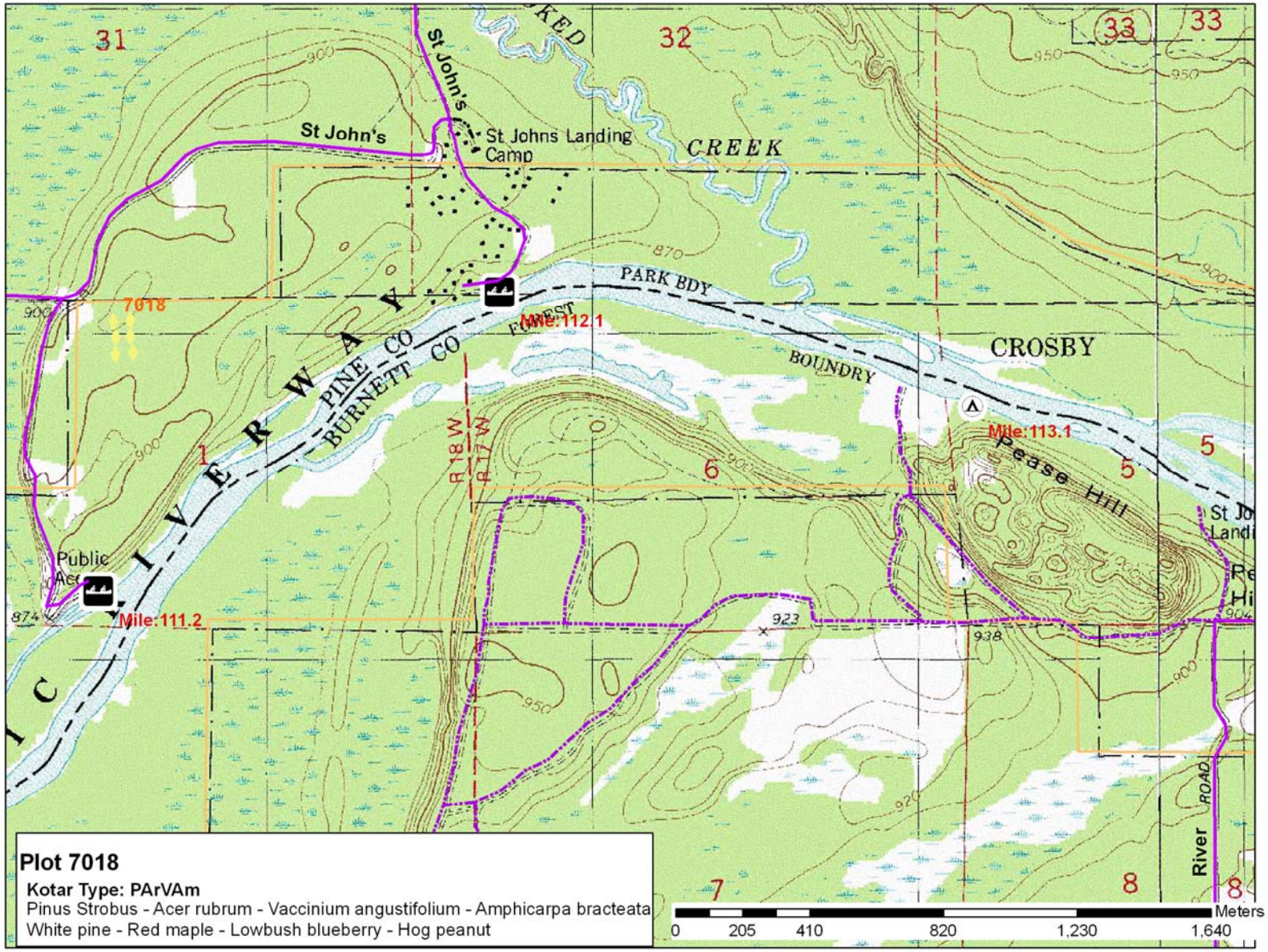

Plot 7015
Kotar Type: ASnMi
Acer rubrum - Sanicula spp - Mitchella repens
Red maple - Snakeroot - Partridgeberry
Meters
0 25 50 100 150 200
N: 5117474.94
E: 573703.28
N: 5117472.75
E: 573751.76
N: 5117422.19
E: 573705.64
N: 5117425.89
E: 573754.12
N: 5117374.65
E: 573707.05
N: 5117373.28
E: 573757.54
Saint Croix

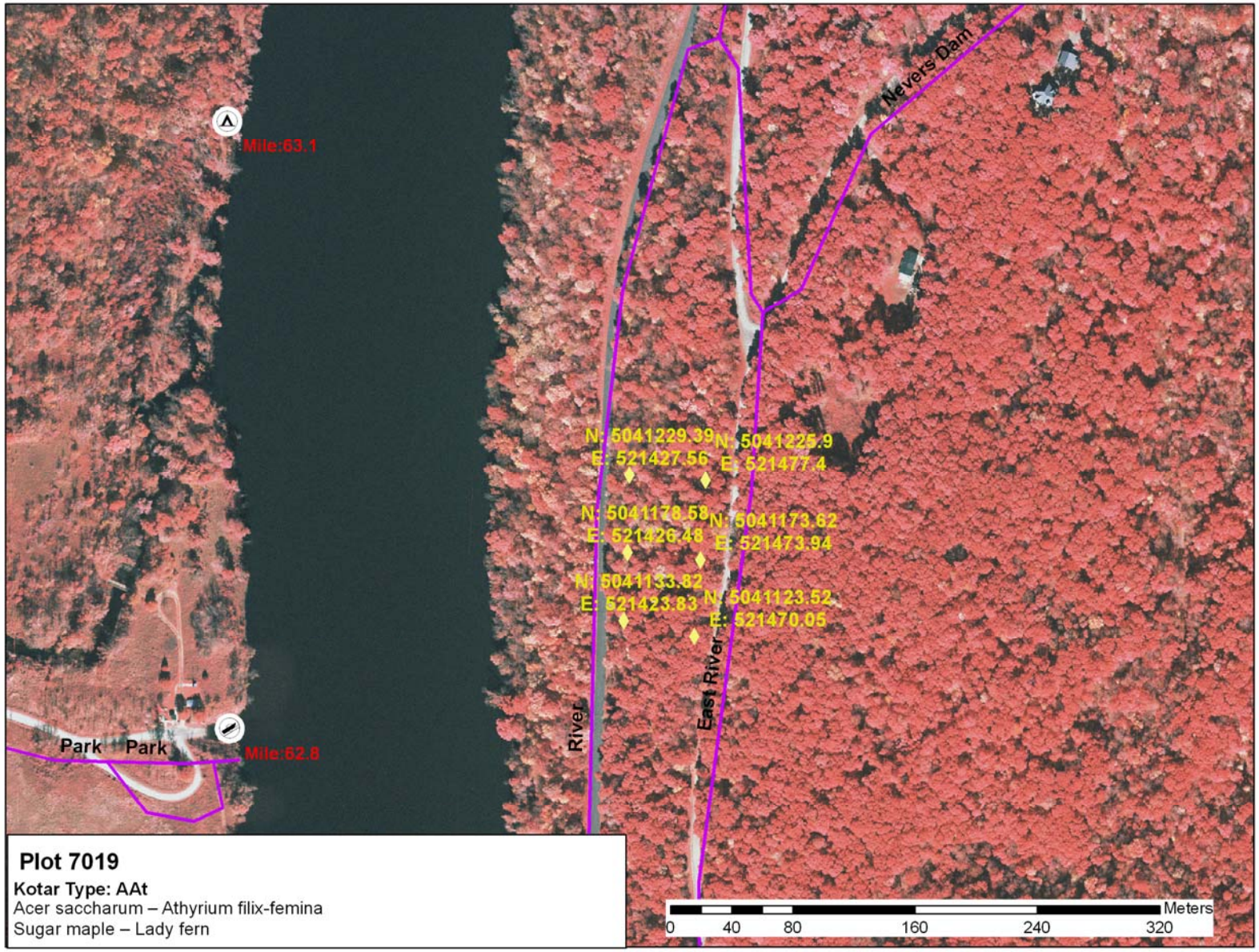

Plot 7015
Kotar Type: ASnMi
Acer rubrum - Sanicula spp - Mitchella repens
Red maple - Snakeroot - Partridgeberry
0 200 400 800 1,200 1,600
Meters
Coppermine Dam
Buckkey Island
ST CROIX
RIVERWAY
Mile:148.1
Mile:146.7
7015
13
18
17
Saint Croix
Buckley
Westman
Saint Croix
Buckkey Island


Plot 7017
Kotar Type: PQGCe
Pinus strobus- Quercus- Gaultheria procumbens- Ceanothus americanus
White pine- Oak- Wintergreen- New Jersey tea
N: 5103883.18
E: 567977.99
N: 5103884.07
E: 568027.26
N: 5103834.43
E: 567976.47
N: 5103833.08
E: 568027.84
N: 5103784.22
E: 567978.87
N: 5103786.25
E: 568027.42
Meters
0
30
60
120
180
240
Namekagon
Namekagon
Mile 43


Plot 7017
Kotar Type: PQGCe
Pinus strobus- Quercus- Gaultheria procumbens- Ceanothus americanus
White pine- Oak- Wintergreen- New Jersey tea
Meters
0 105 210 420 630 840
28
28
Mile:3.2
Mile:3.6
Mile:3.9
Mile:2.3
Mile:2.7
Mile:4.5
Mile:4.8
7001
7017
950
995
1000
973
94
NAMEKAGON
Namekagon
Snowmobile
Public Access


St John's
St John's
N: 5092249.48
E: 535518.04
N: 5092252.02
E: 535569.39
N: 5092200.85
E: 535524.89
N: 5092203.24
E: 535569.93
N: 5092148.76
E: 535523.88
N: 5092154.59
E: 535577.98
Plot 7018
Kotar Type: PArVAm
Pinus Strobus - Acer rubrum - Vaccinium angustifolium - Amphicarpa bracteata
White pine - Red maple - Lowbush blueberry - Hog peanut
Meters
0
25
50
100
150
200


31
32
33
33
St John's
St Johns Landing Camp
CREEK
PARK BDY
7018
Mile:112.1
PINE CO
BURNETT CO
FOREST
CROSBY
BOUNDRY
Mile:113.1
Pease Hill
R18W
R17W
1
6
5
5
Public Access
Mile:111.2
River
ROAD
7
8
8
Plot 7018
Kotar Type: PArVAm
Pinus Strobus - Acer rubrum - Vaccinium angustifolium - Amphicarpa bracteata
White pine - Red maple - Lowbush blueberry - Hog peanut
0
205
410
820
1,230
1,640
Meters

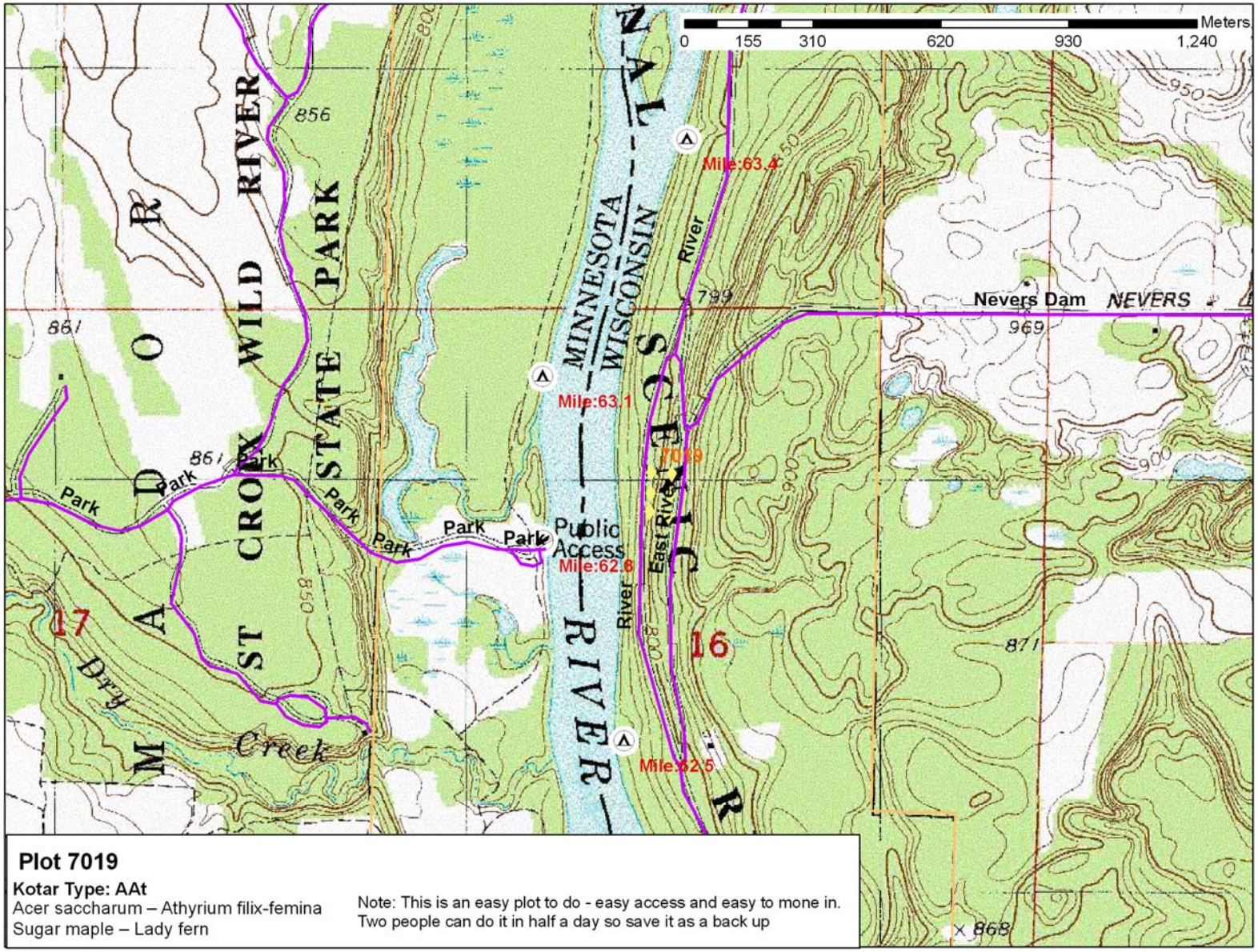


Plot 7019

Kotar Type: AAt

Acer saccharum – Athyrium filix-femina

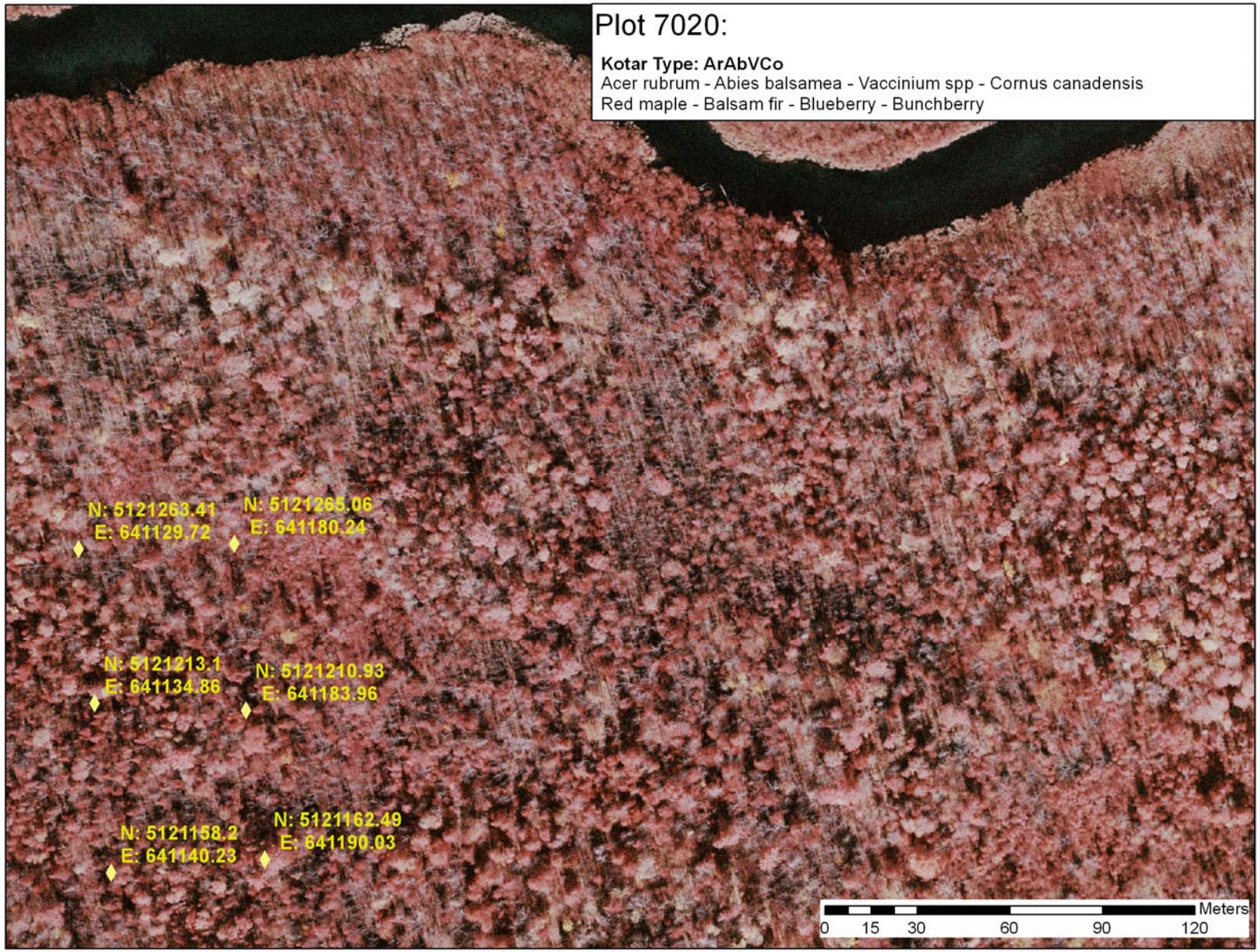
Sugar maple – Lady fern

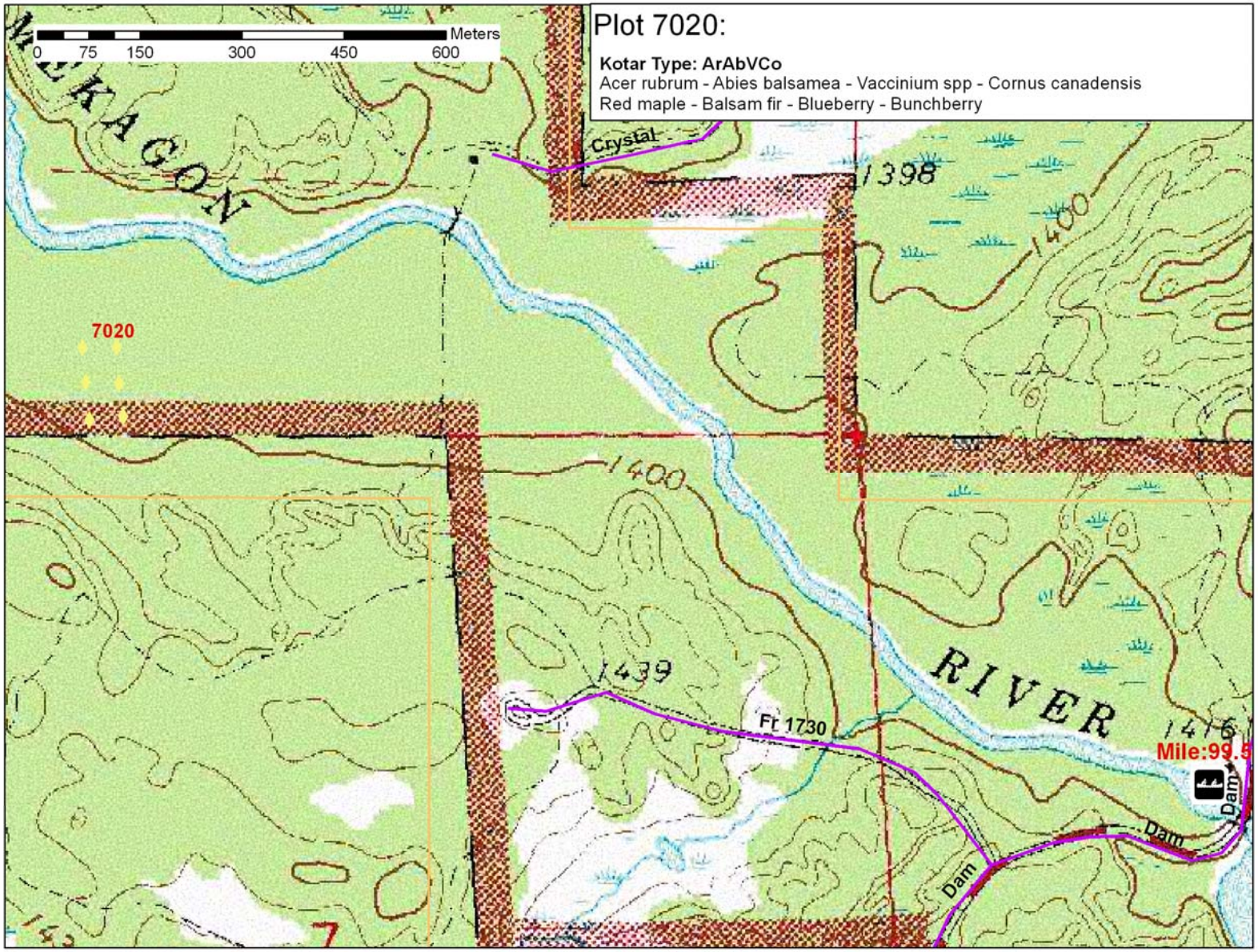


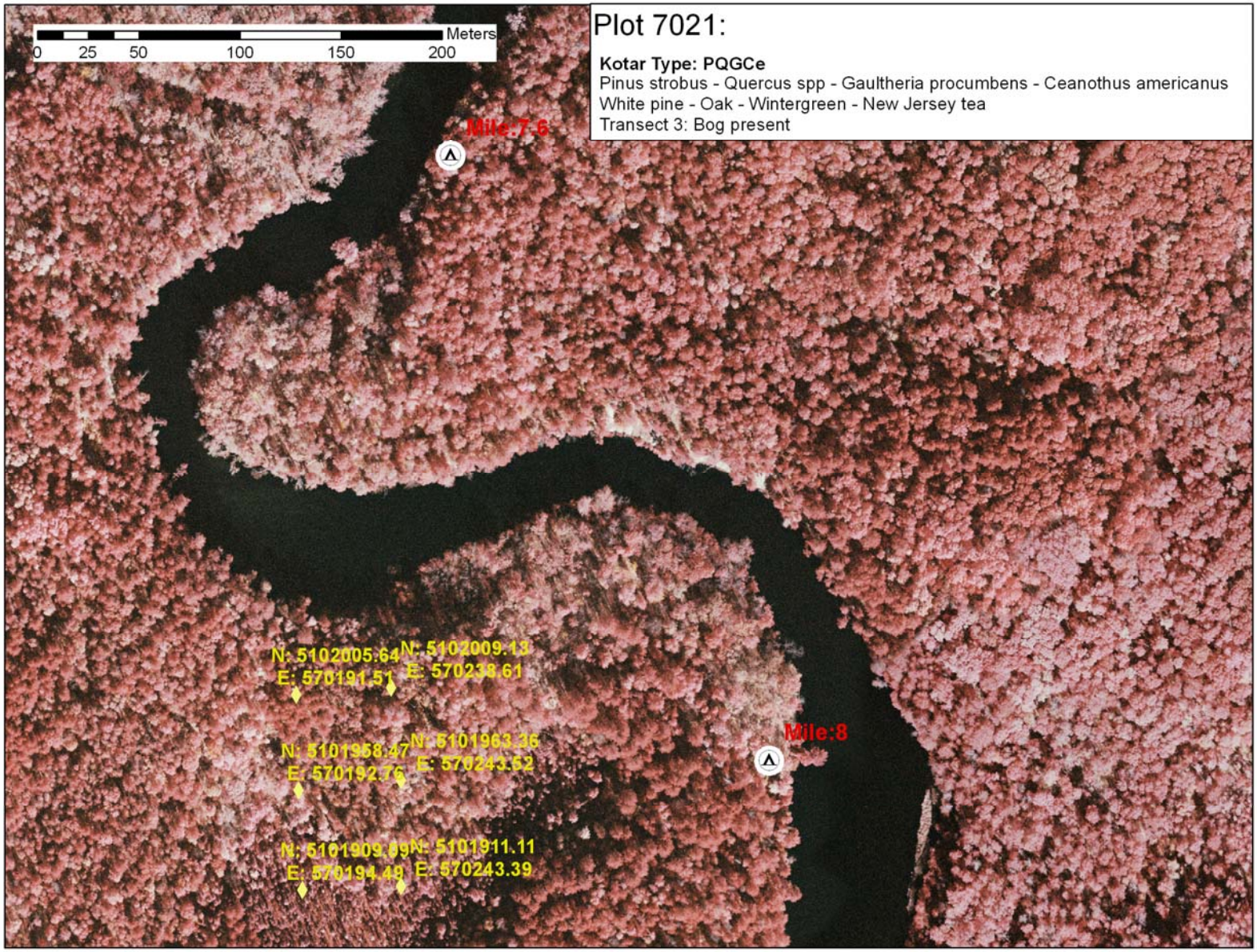
Plot 7019

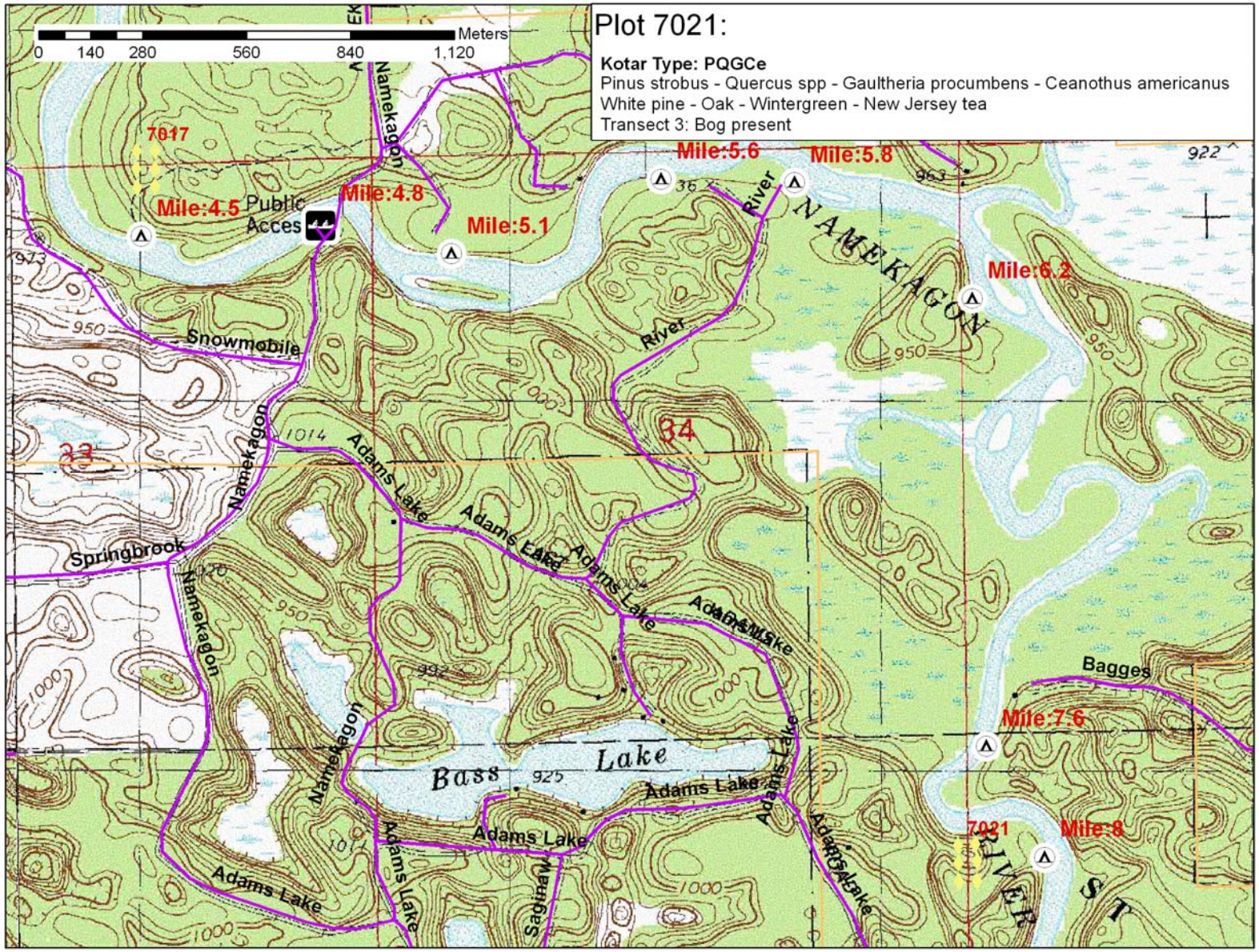
Kotar Type: AAt
Acer saccharum – Athyrium filix-femina
Sugar maple – Lady fern

Note: This is an easy plot to do - easy access and easy to mone in. Two people can do it in half a day so save it as a back up


Plot 7020:
Kotar Type: ArAbVCo
Acer rubrum - Abies balsamea - Vaccinium spp - Cornus canadensis
Red maple - Balsam fir - Blueberry - Bunchberry
N: 5121263.41
E: 641129.72
N: 5121265.06
E: 641180.24
N: 5121213.1
E: 641134.86
N: 5121210.93
E: 641183.96
N: 5121158.2
E: 641140.23
N: 5121162.49
E: 641190.03
Meters
0 15 30 60 90 120


Plot 7020:
Kotar Type: ArAbVCo
Acer rubrum - Abies balsamea - Vaccinium spp - Cornus canadensis
Red maple - Balsam fir - Blueberry - Bunchberry
Meters
0 75 150 300 450 600
7020
Crystal
1398
1400
1400
1439
Ft 1730
RIVER
1416
Mile:99.5
Dam
Dam
Dam


Meters
0 25 50 100 150 200
Plot 7021:
Kotar Type: PQGCe
Pinus strobus - Quercus spp - Gaultheria procumbens - Ceanothus americanus
White pine - Oak - Wintergreen - New Jersey tea
Transect 3: Bog present
Mile:7.6
N: 5102005.64
E: 570191.51
N: 5102009.13
E: 570238.61
N: 5101958.47
E: 570192.76
N: 5101963.36
E: 570243.52
N: 5101909.09
E: 570194.49
N: 5101911.11
E: 570243.39
Mile:8

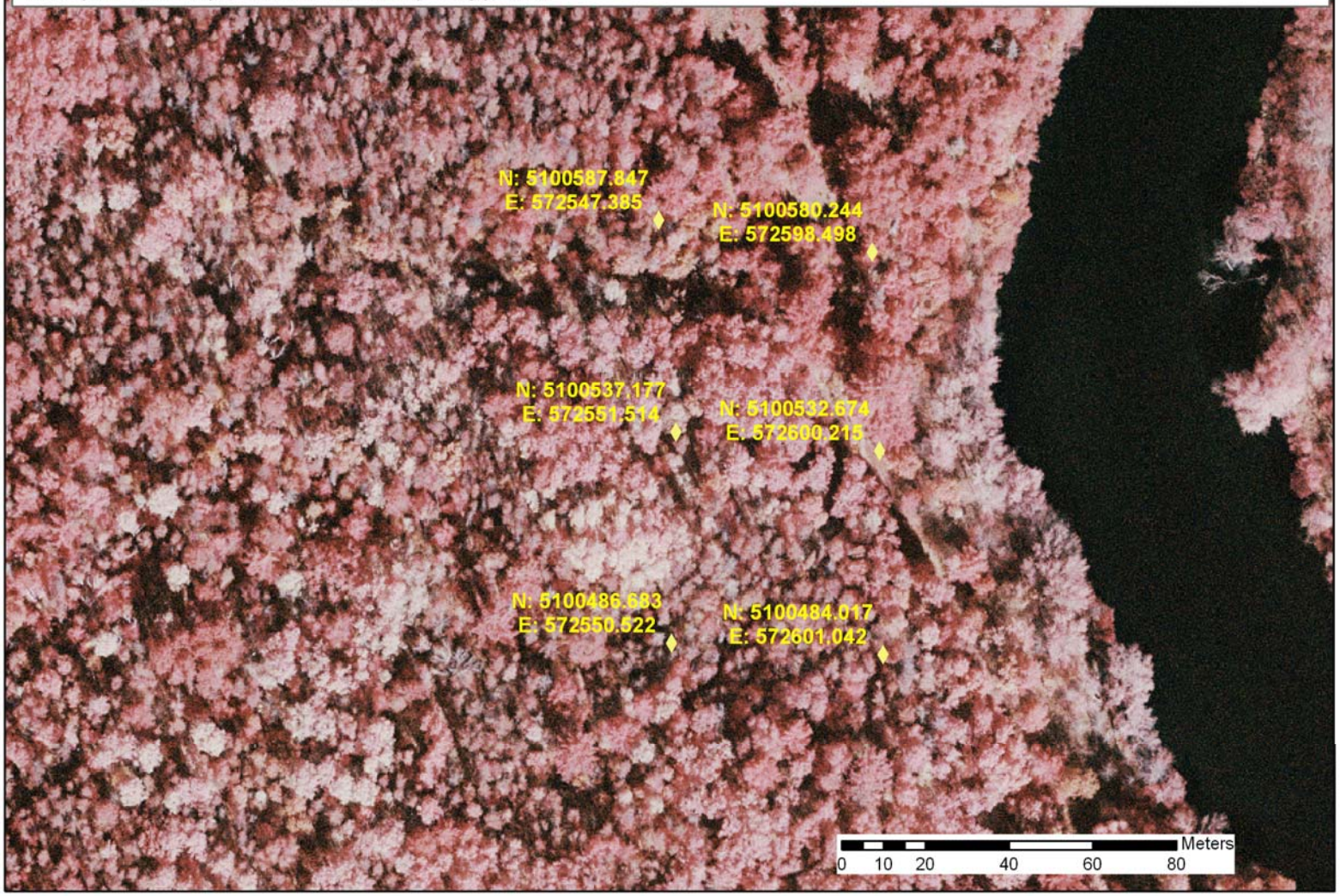

Plot 7021:
Kotar Type: PQGCe
Pinus strobus - Quercus spp - Gaultheria procumbens - Ceanothus americanus
White pine - Oak - Wintergreen - New Jersey tea
Transect 3: Bog present
Meters
0 140 280 560 840 1,120
7017
Mile:4.5 Public Acces
Mile:4.8
Mile:5.1
Mile:5.6
Mile:5.8
Mile:6.2
Mile:7.6
Mile:8
7021
Namekagon River
Snowmobile
Springbrook
Adams Lake
Bass Lake
Bagges
RIVER ST
33
34

Plot 7025

KOTAR: PArVAm
Pinus strobus- Acer rubrum- Vaccinium angustifolium- Amphicarpa bracteata
White pine- Red maple- Lowbush blueberry- Hog peanut

Notes

Don't take Foster Rd to access plot. Best access is by river.
Transect 1: open area

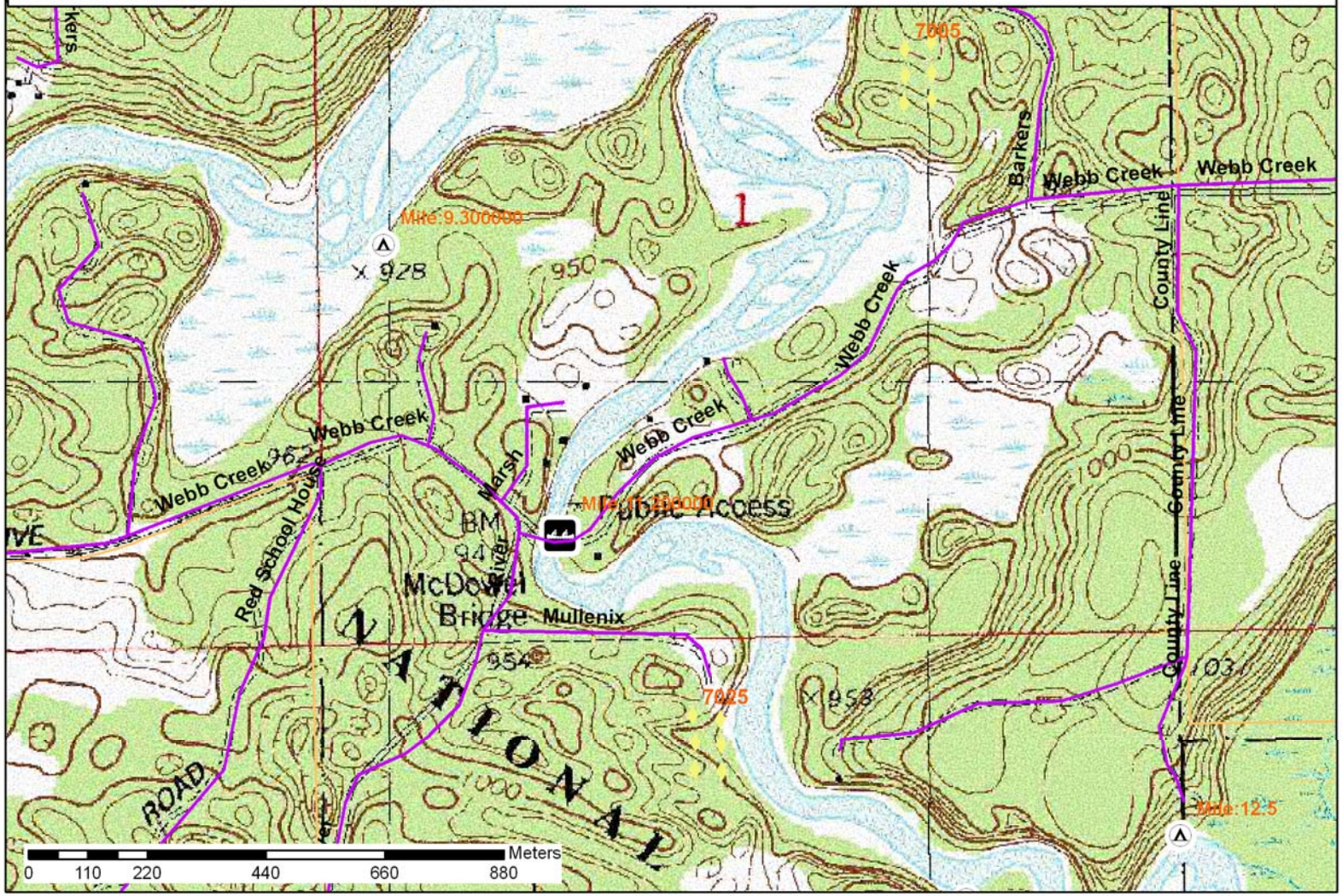


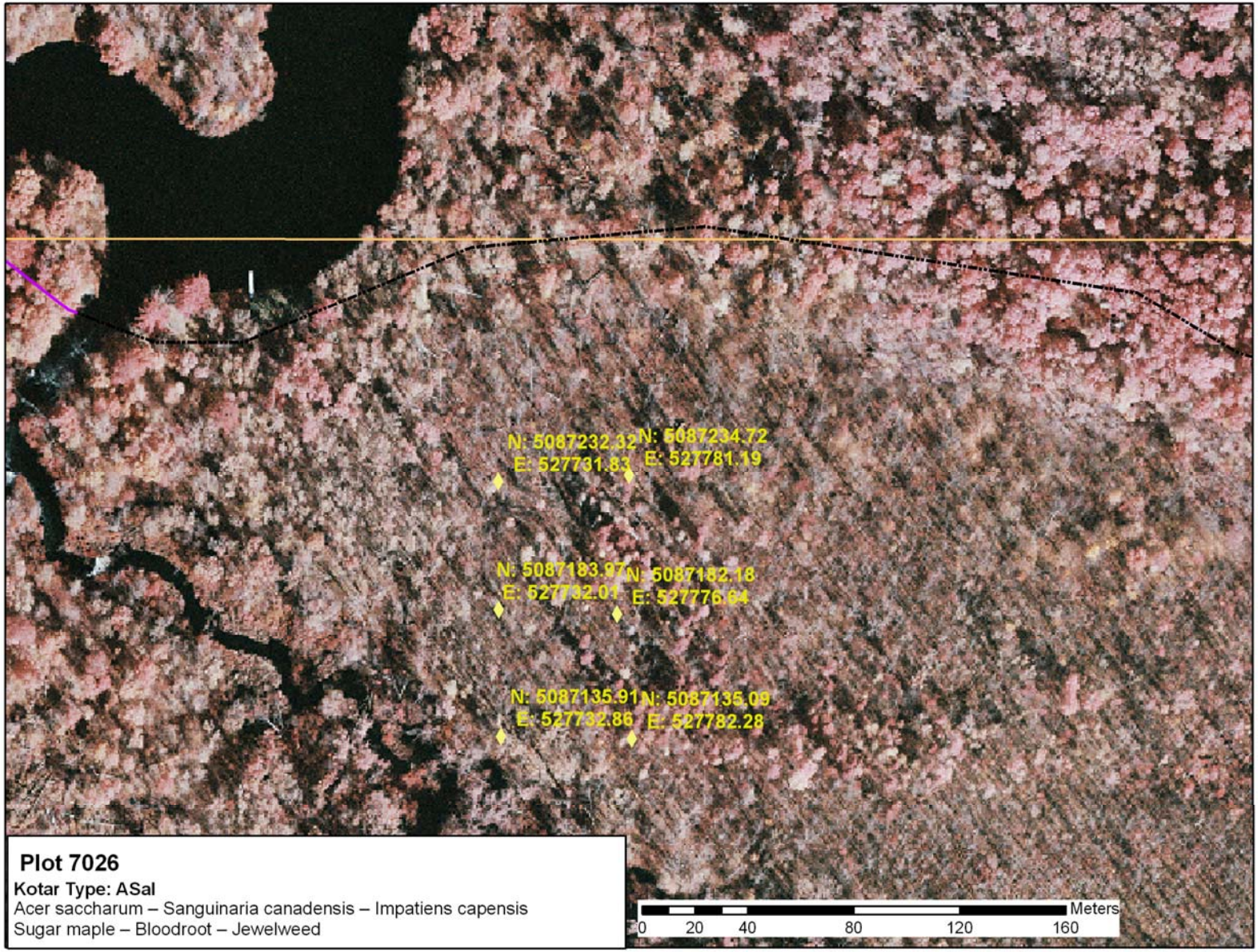
Plot 7025

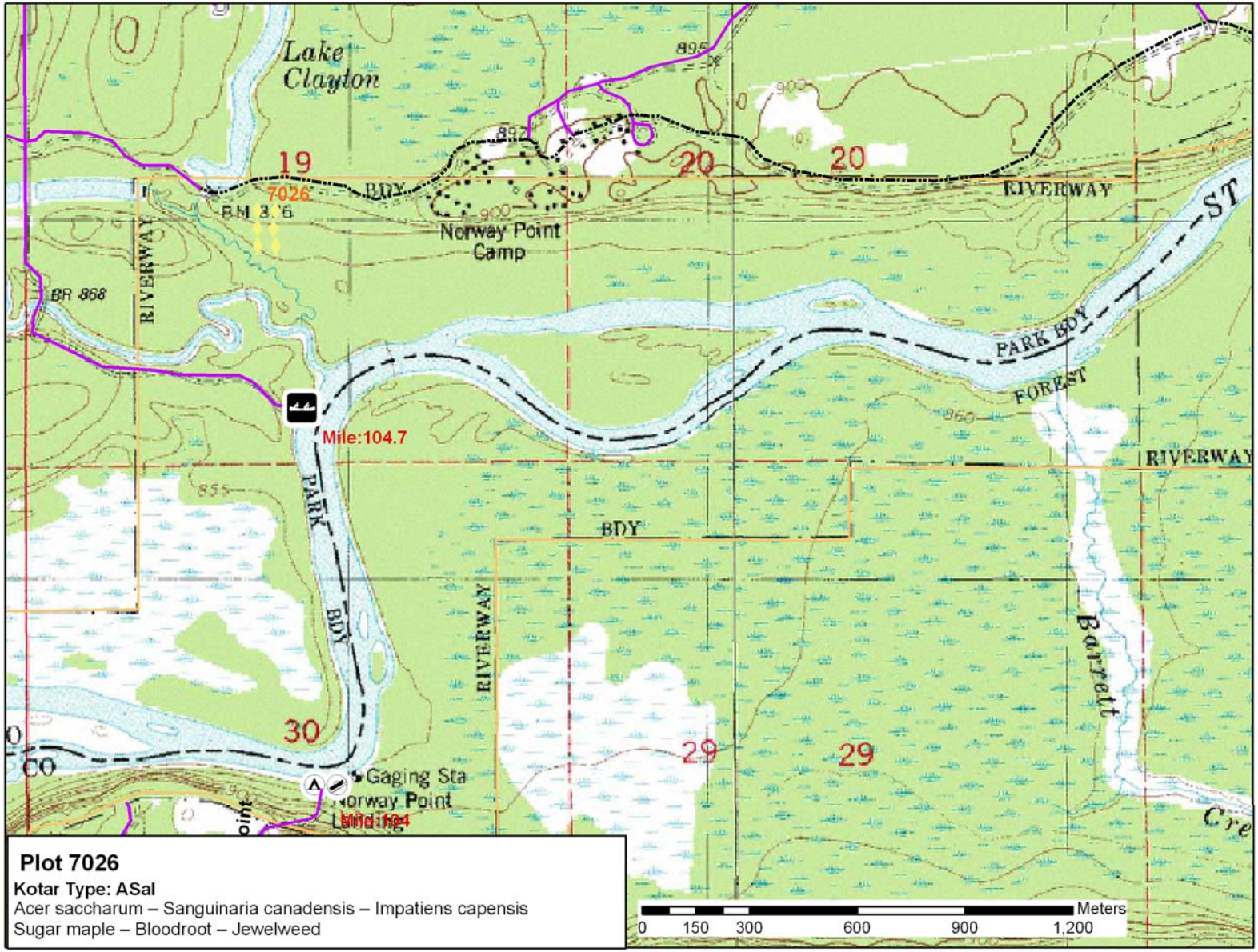
Kotar Type: PArVAm
Pinus strobus- Acer rubrum- Vaccinium sp- Amphicarpa bracteata
White pine- Red maple- Lowbush blueberry- Hog peanut

Notes

Don't take Foster Rd to access plot. Access best by river.
Transect 1 is in an open area




N: 5087232.32
E: 527731.83
N: 5087234.72
E: 527781.19
N: 5087183.97
E: 527732.01
N: 5087182.18
E: 527776.64
N: 5087135.91
E: 527732.86
N: 5087135.09
E: 527782.28
Plot 7026
Kotar Type: ASal
Acer saccharum – Sanguinaria canadensis – Impatiens capensis
Sugar maple – Bloodroot – Jewelweed
Meters
0 20 40 80 120 160

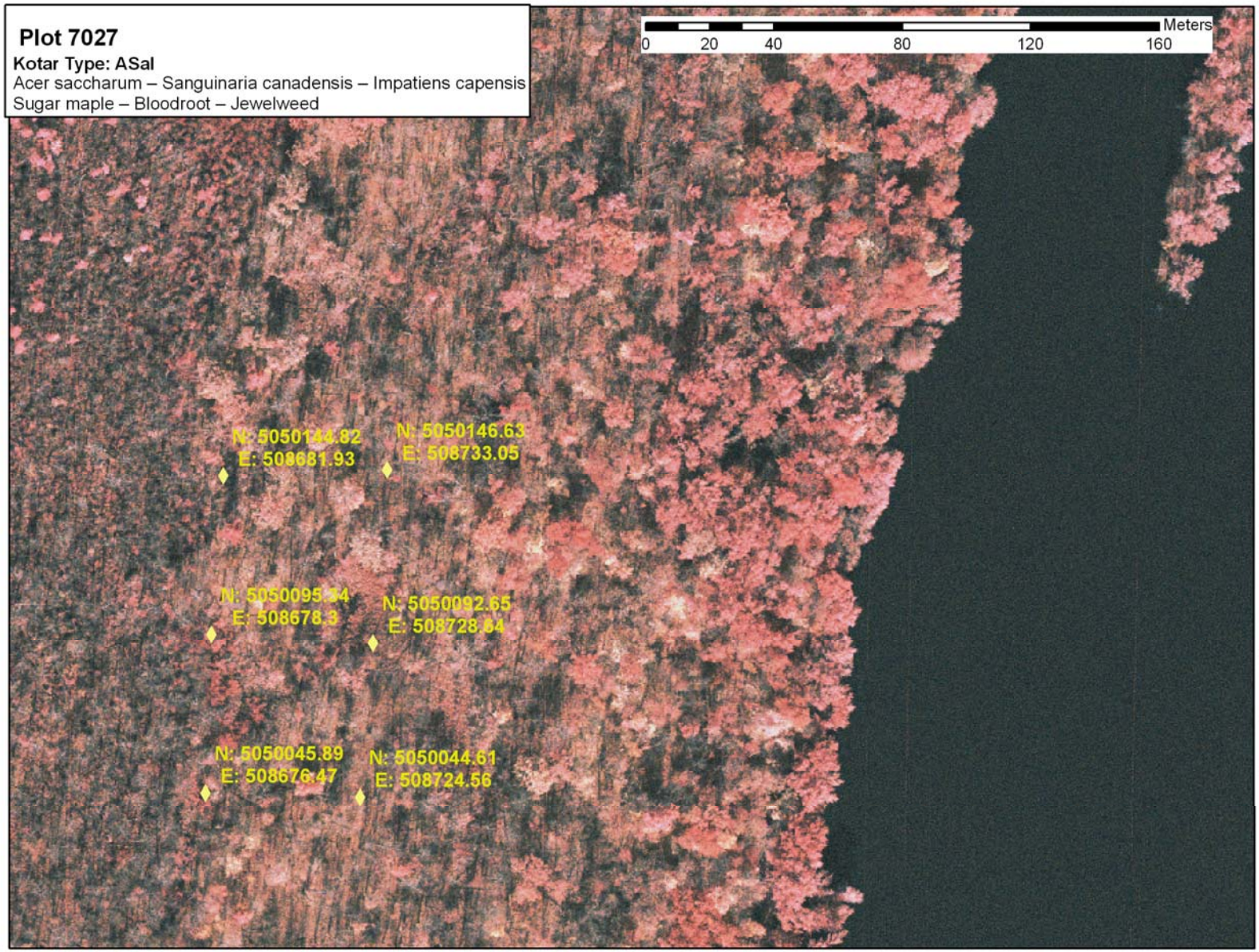


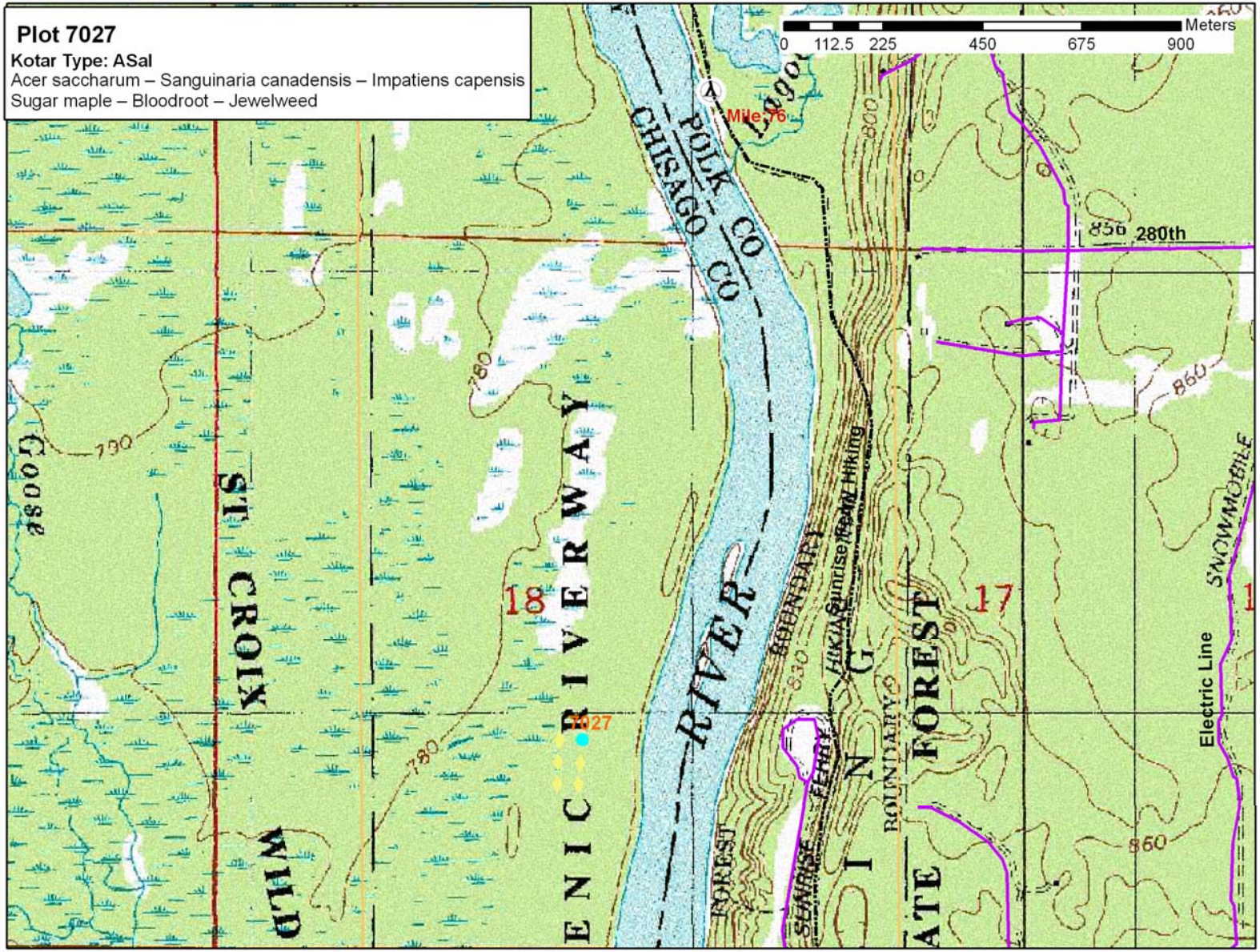
Plot 7026

Kotar Type: ASal

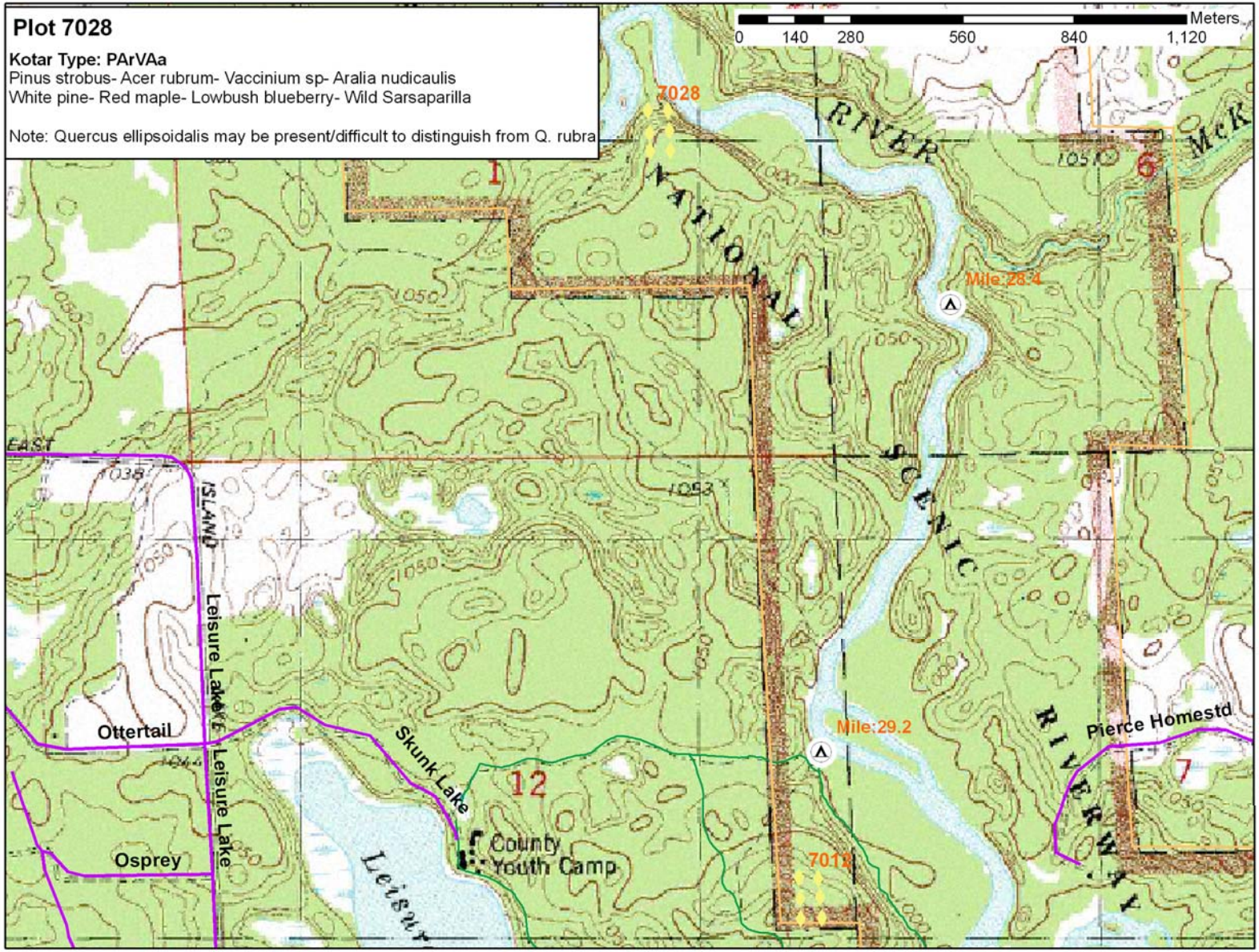
Acer saccharum – Sanguinaria canadensis – Impatiens capensis

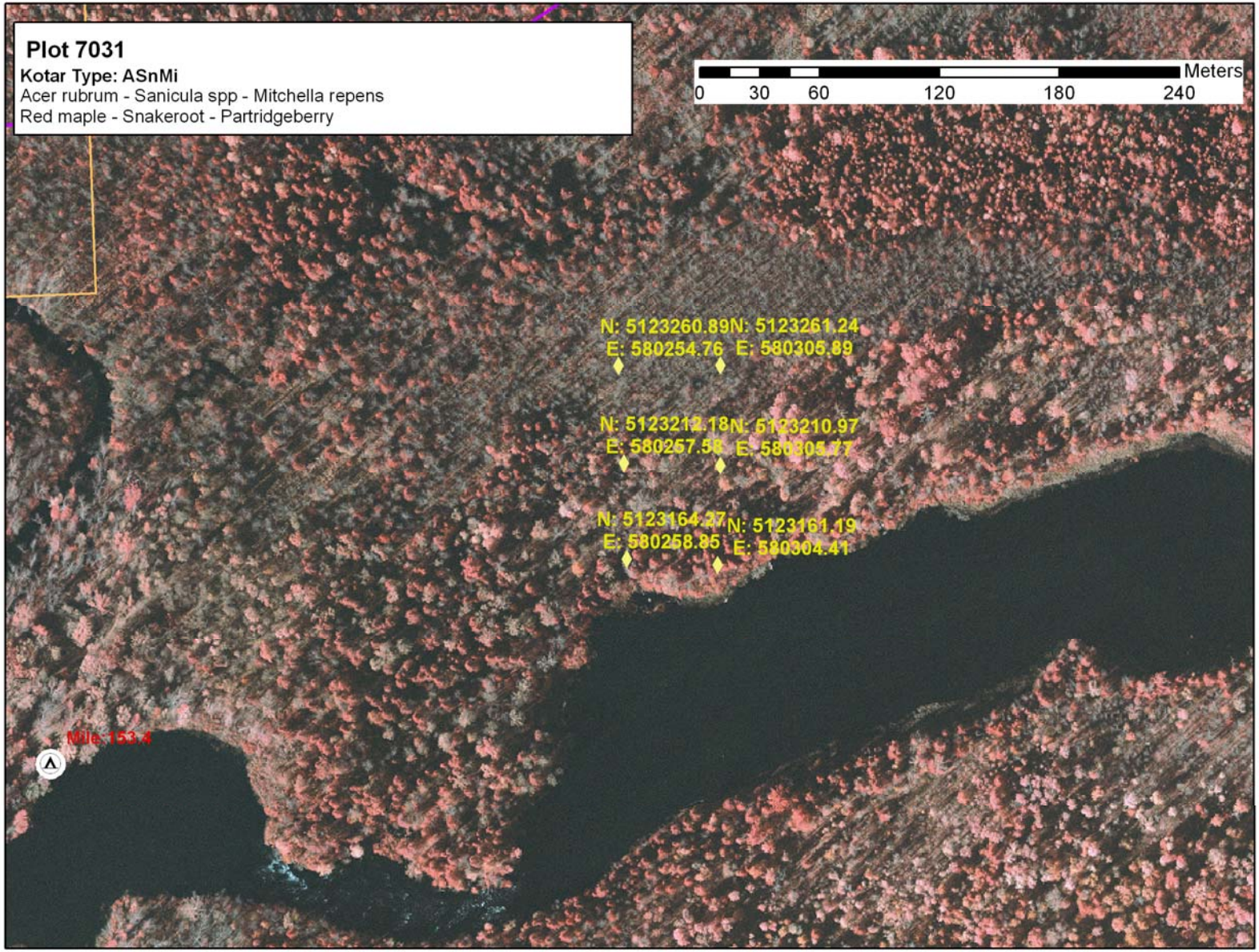
Sugar maple – Bloodroot – Jewelweed

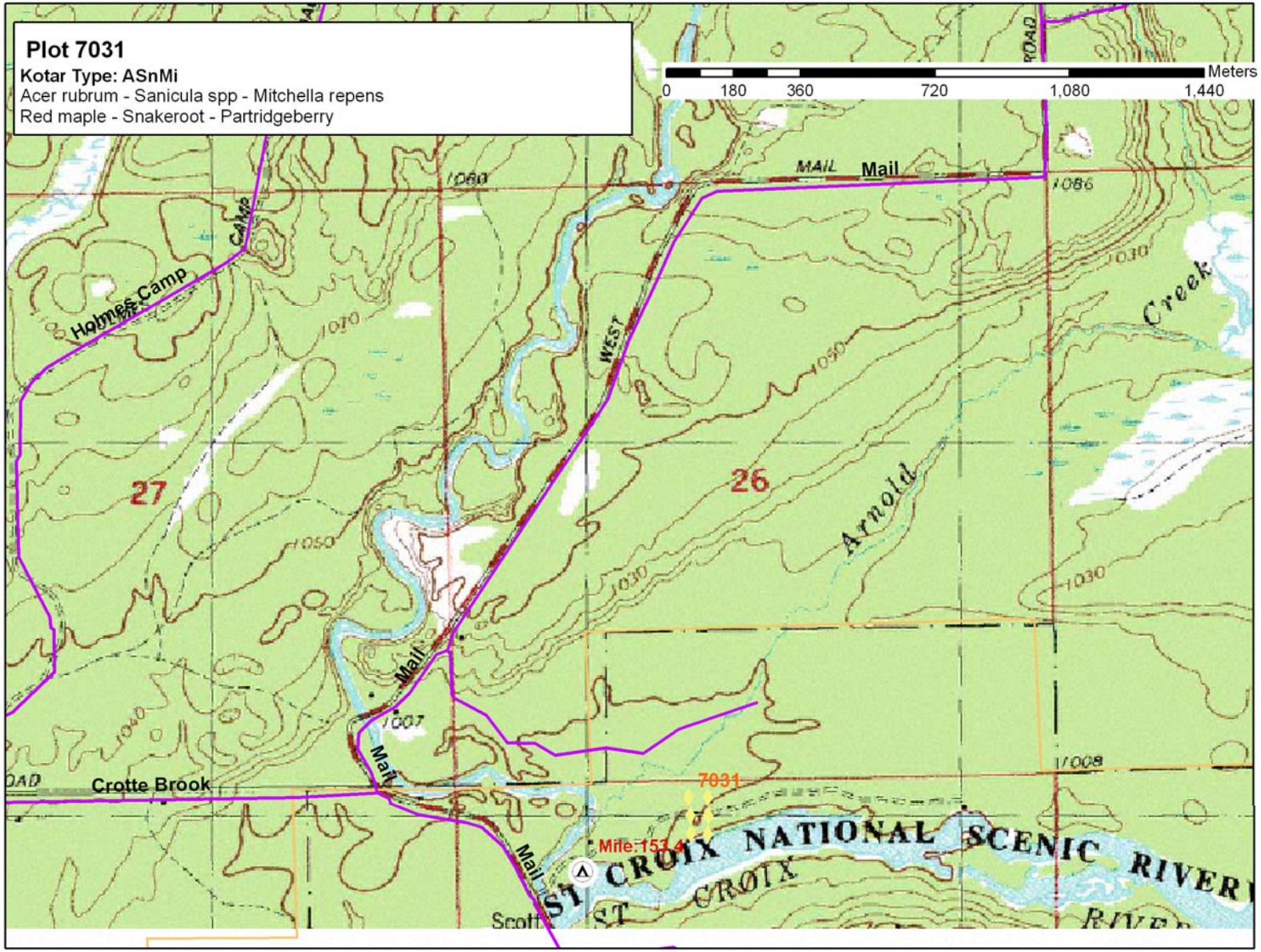

Plot 7027
Kotar Type: ASal
Acer saccharum – Sanguinaria canadensis – Impatiens capensis
Sugar maple – Bloodroot – Jewelweed
Meters
0
20
40
80
120
160
N: 5050144.82
E: 508681.93
N: 5050146.63
E: 508733.05
N: 5050095.34
E: 508678.3
N: 5050092.65
E: 508728.64
N: 5050045.89
E: 508676.47
N: 5050044.61
E: 508724.56

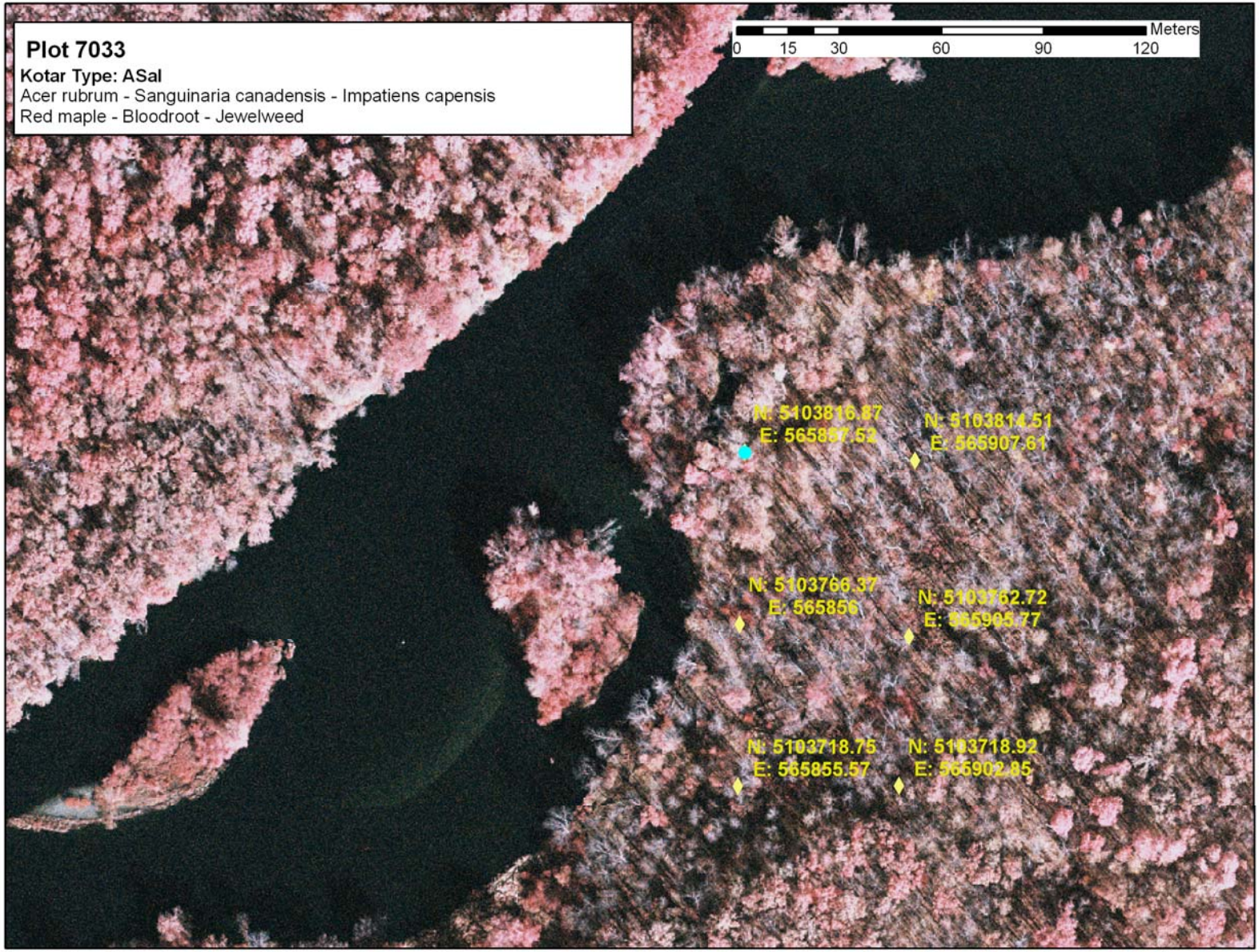

Plot 7027
Kotar Type: ASal
Acer saccharum – Sanguinaria canadensis – Impatiens capensis
Sugar maple – Bloodroot – Jewelweed
Meters
0 112.5 225 450 675 900
Mile 76
POLK CO
CHISAGO CO
280th
ST CROIX
WILD
RIVER
SCENIC RIVERWAY
18
17
7027
Hiking
Sunrise Trail
BOUNDARY
FOREST
NATIONAL
FOREST
Electric Line
SNOWMOBILE
730
780
800
830
860

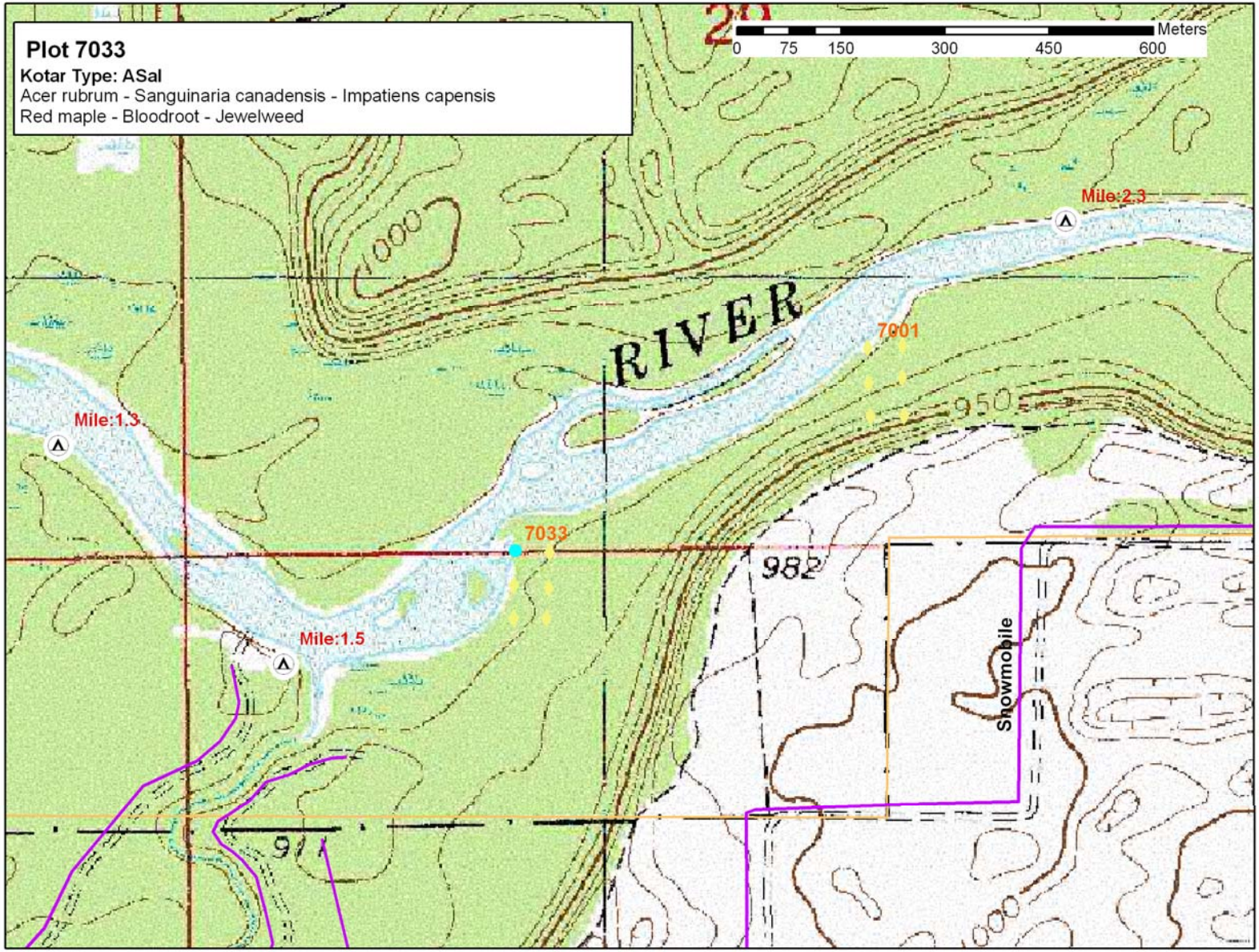

Plot 7028
Kotar Type: PArVAa
Pinus strobus- Acer rubrum- Vaccinium sp- Aralia nudicaulis
White pine- Red maple- Lowbush blueberry- Wild Sarsaparilla
Meters
0 20 40 80 120 160
N: 5092276.32
E: 583850.79
N: 5092275
E: 583901.58
N: 5092218.99
E: 583855.5
N: 5092226
E: 583904.61
N: 5092174.05
E: 583856.92
N: 5092175.06
E: 583906.55

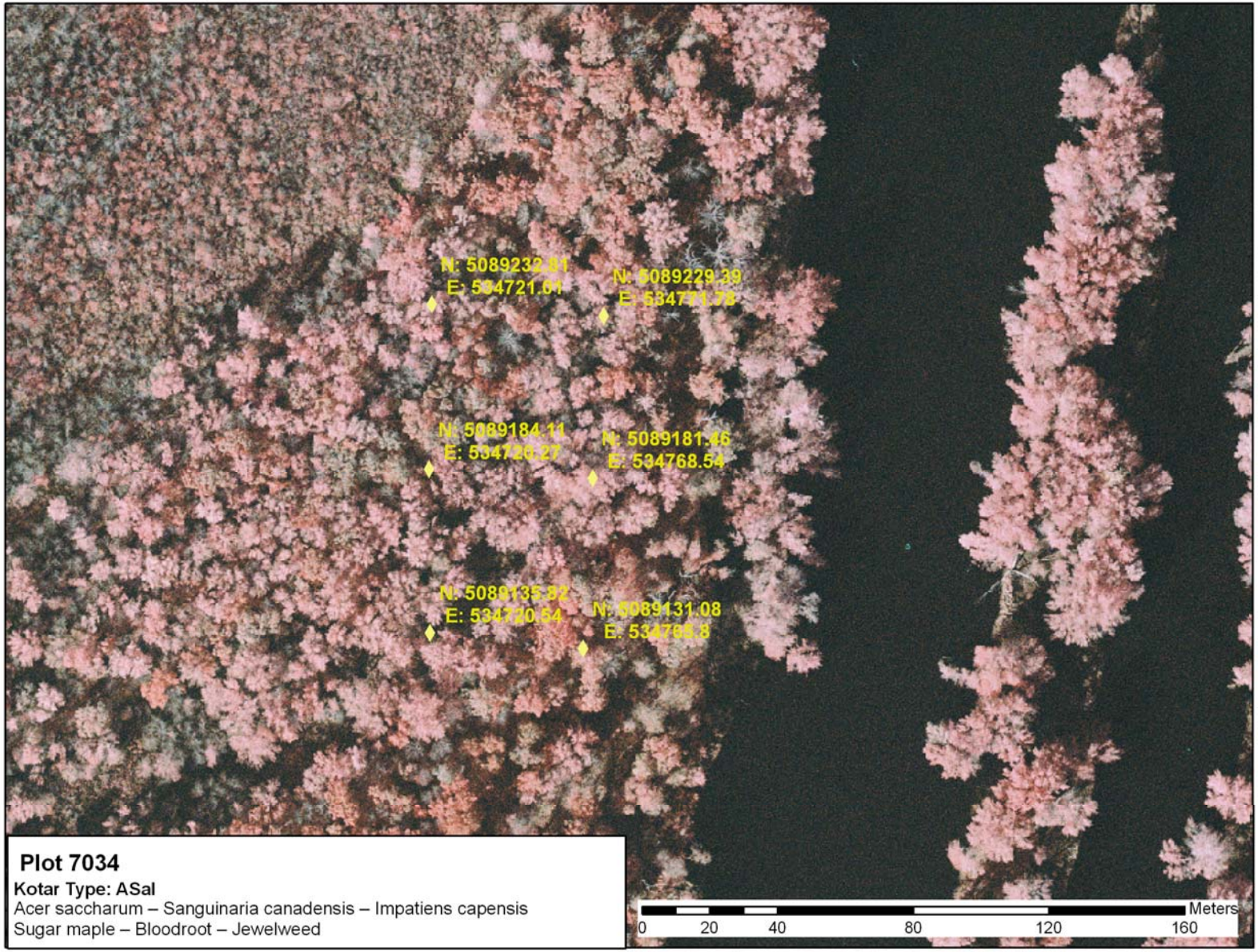

Plot 7028
Kotar Type: PArVAa
Pinus strobus- Acer rubrum- Vaccinium sp- Aralia nudicaulis
White pine- Red maple- Lowbush blueberry- Wild Sarsaparilla
Note: Quercus ellipsoidalis may be present/difficult to distinguish from Q. rubra
Meters
0 140 280 560 840 1,120
7028
RIVER
WANIONTA
SCENIC
RIVERWAY
Mile:28.4
Mile:29.2
7011
Pierce Homestd
Ottertail
Osprey
Leisure Lake
Skunk Lake
County Youth Camp
EAST
ISLAND
1
6
7
12

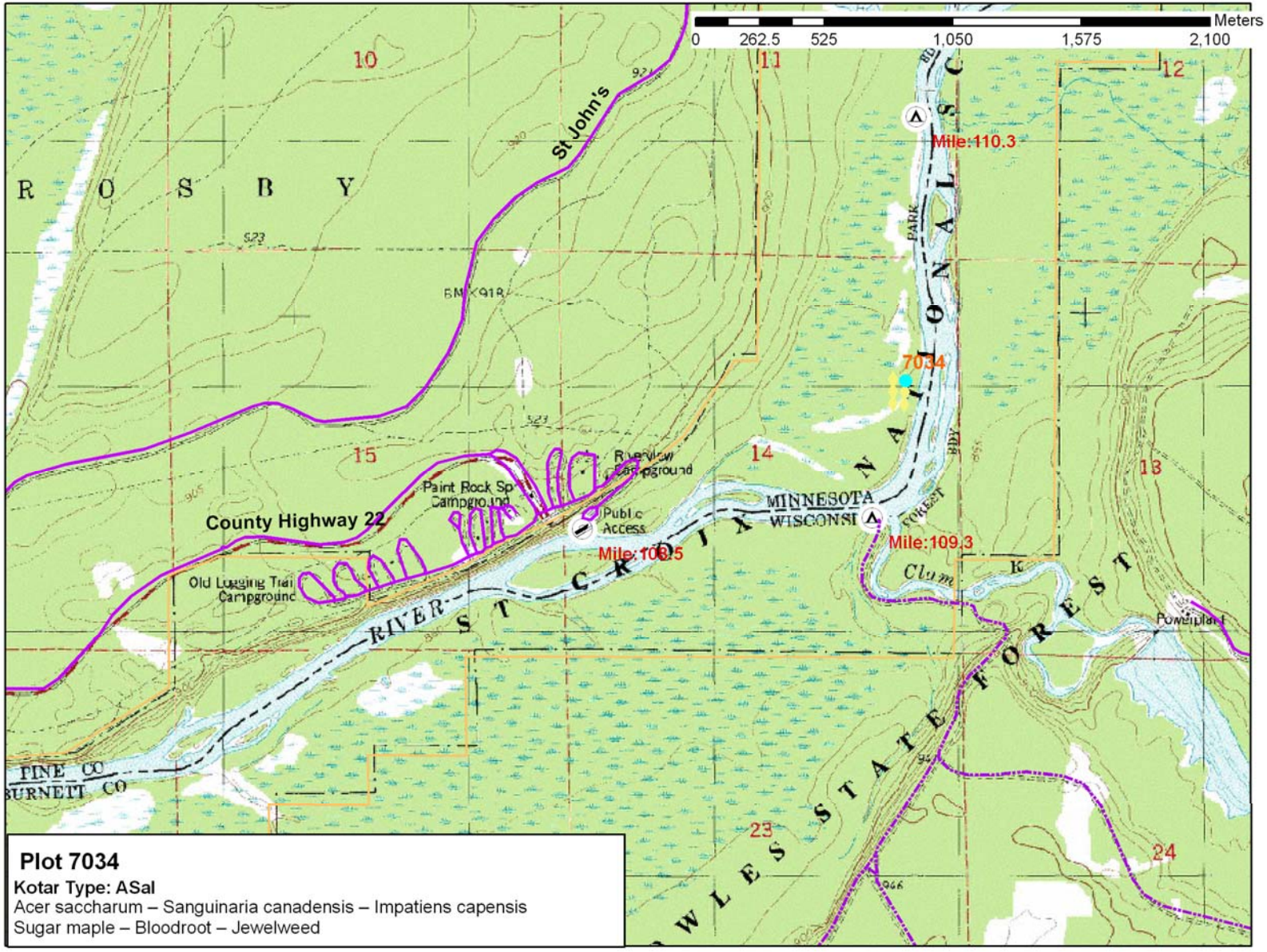

Plot 7031
Kotar Type: ASnMi
Acer rubrum - Sanicula spp - Mitchella repens
Red maple - Snakeroot - Partridgeberry
Meters
0 30 60 120 180 240
N: 5123260.89
E: 580254.76
N: 5123261.24
E: 580305.89
N: 5123212.18
E: 580257.58
N: 5123210.97
E: 580305.77
N: 5123164.27
E: 580258.85
N: 5123161.19
E: 580304.41
Mile:153.4


Plot 7031
Kotar Type: ASnMi
Acer rubrum - Sanicula spp - Mitchella repens
Red maple - Snakeroot - Partridgeberry
0
180
360
720
1,080
1,440
Meters
Mail
Holmes Camp
West
Creek
Arnold
27
26
Crotte Brook
7031
Mile 153.4
St Croix National Scenic River
St Croix


Plot 7033
Kotar Type: ASal
Acer rubrum - Sanguinaria canadensis - Impatiens capensis
Red maple - Bloodroot - Jewelweed
Meters
0 15 30 60 90 120
N: 5103816.87
E: 565857.52
N: 5103814.51
E: 565907.61
N: 5103766.37
E: 565856
N: 5103762.72
E: 565905.77
N: 5103718.75
E: 565855.57
N: 5103718.92
E: 565902.85


Plot 7033
Kotar Type: ASal
Acer rubrum - Sanguinaria canadensis - Impatiens capensis
Red maple - Bloodroot - Jewelweed
0 75 150 300 450 600 Meters
Mile:2.3
Mile:1.3
Mile:1.5
7001
7033
RIVER
1000
950
982
Snowmobile


N: 5089232.81
E: 534721.01
N: 5089229.39
E: 534771.78
N: 5089184.11
E: 534720.27
N: 5089181.46
E: 534768.54
N: 5089135.82
E: 534720.54
N: 5089131.08
E: 534765.8
Plot 7034
Kotar Type: ASal
Acer saccharum – Sanguinaria canadensis – Impatiens capensis
Sugar maple – Bloodroot – Jewelweed
Meters
0
20
40
80
120
160

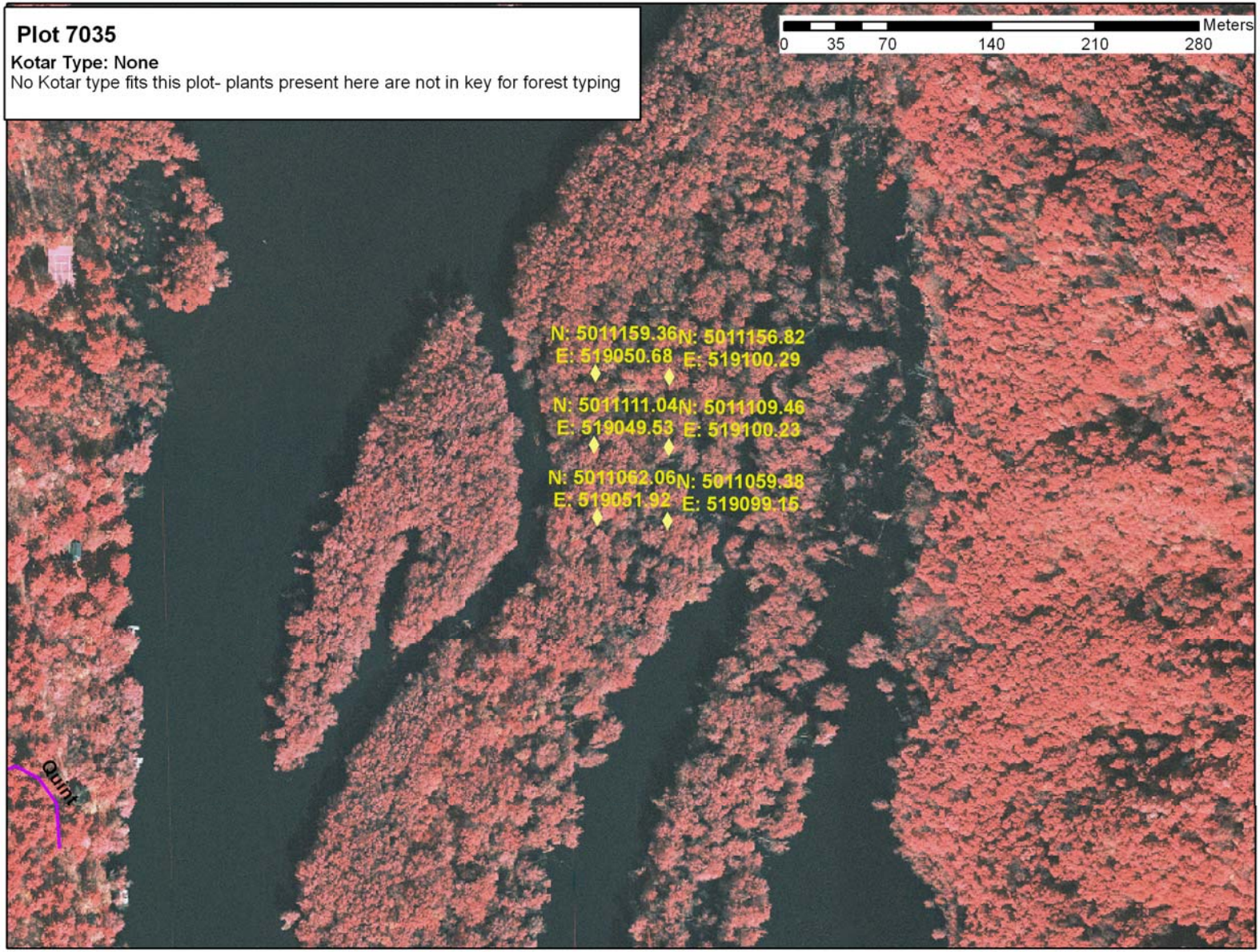


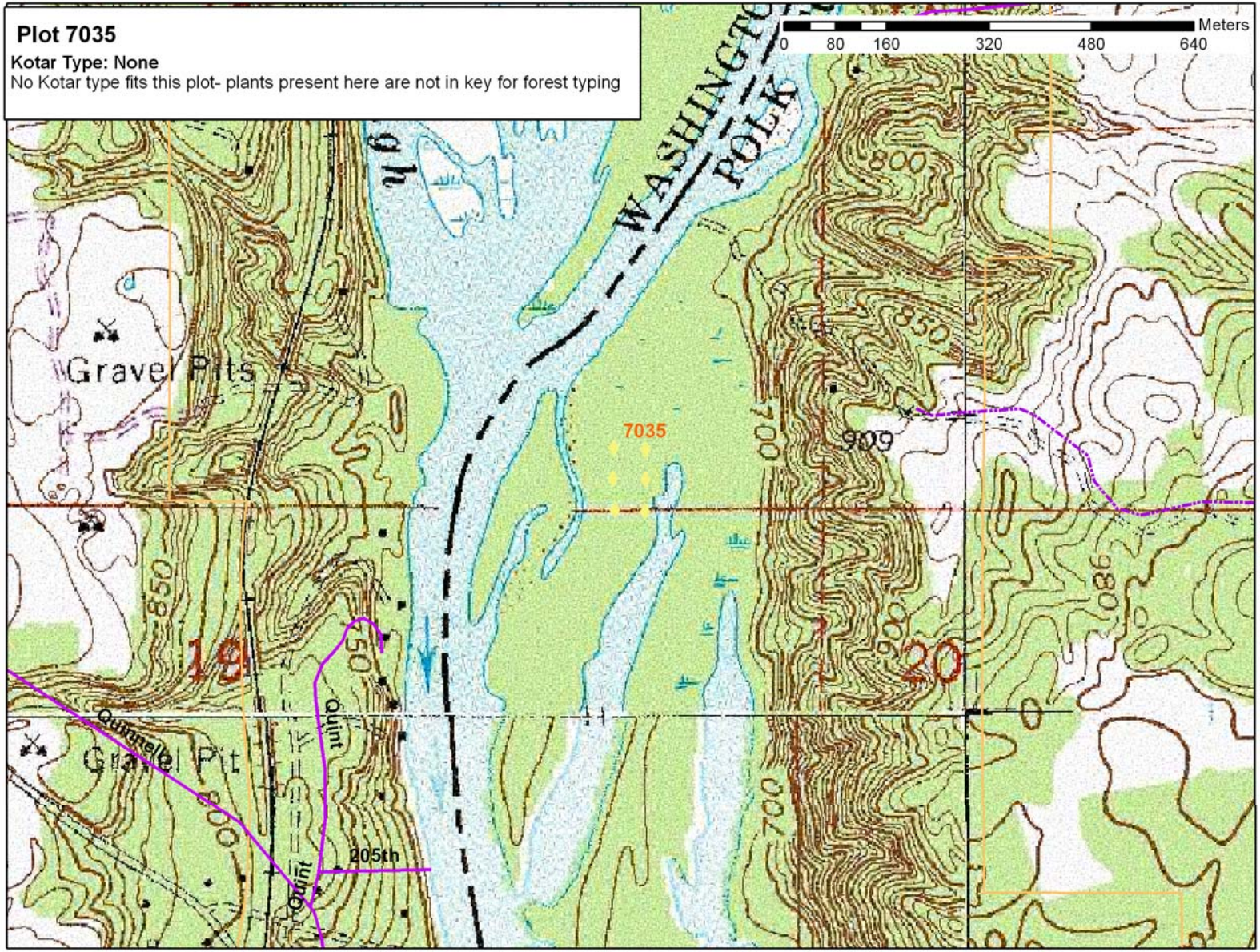
Plot 7034

Kotar Type: ASal

Acer saccharum – Sanguinaria canadensis – Impatiens capensis

Sugar maple – Bloodroot – Jewelweed


Plot 7035
Kotar Type: None
No Kotar type fits this plot- plants present here are not in key for forest typing
Meters
0 35 70 140 210 280
N: 5011159.36
E: 519050.68
N: 5011156.82
E: 519100.29
N: 5011111.04
E: 519049.53
N: 5011109.46
E: 519100.23
N: 5011062.06
E: 519051.92
N: 5011059.38
E: 519099.15
Quint


Plot 7035
Kotar Type: None
No Kotar type fits this plot- plants present here are not in key for forest typing
Meters
0 80 160 320 480 640
WASHINGTON
POLK
Gravel Pits
7035
909
19
20
Quinnell
Quint
Quint
205th
Gravel Pit
800
850
900
950
700

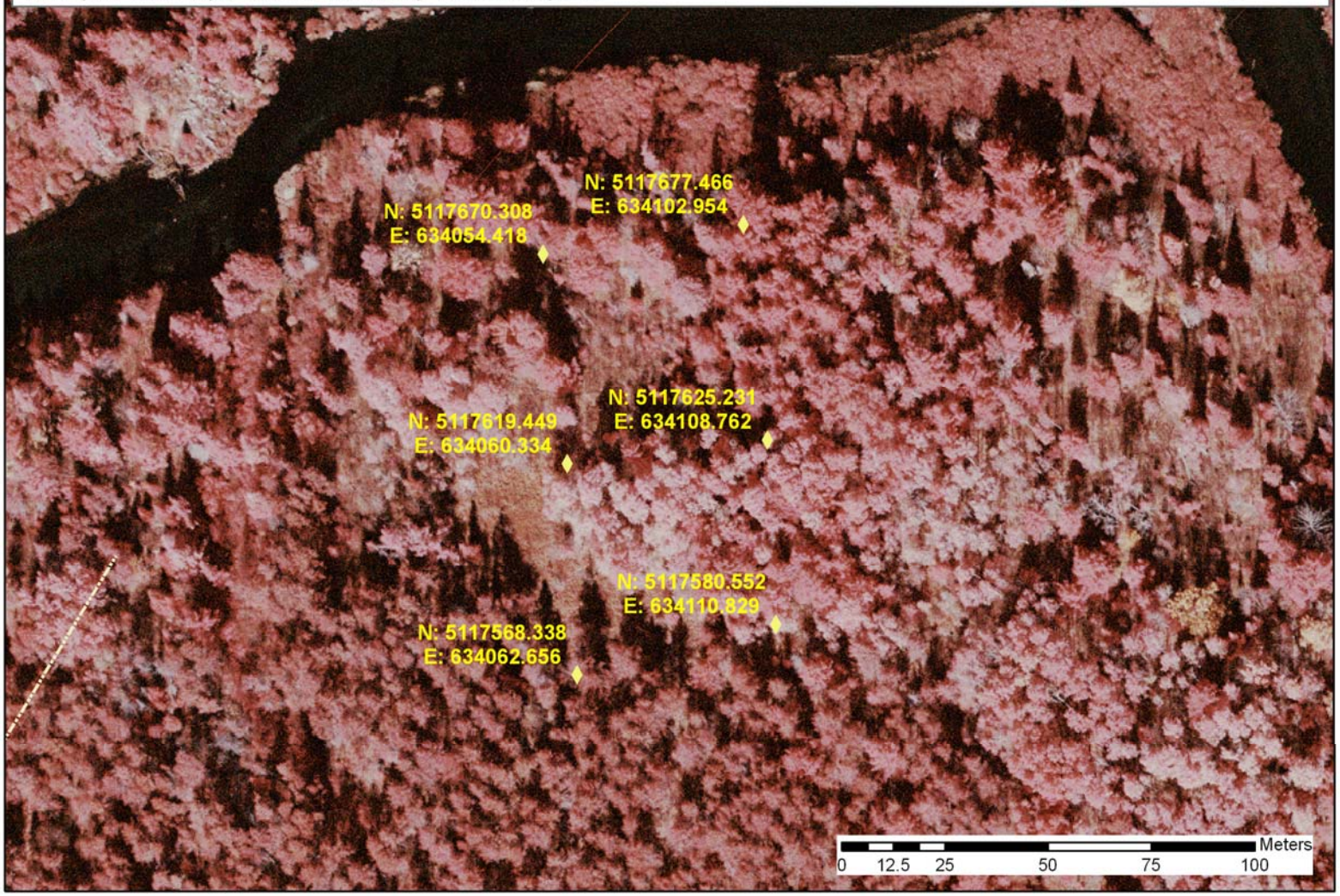
Plot 7036

KOTAR: PArVAa

Pinus strobus- Acer rubrum- Vaccinium angustifolium- Aralia nudicaulis

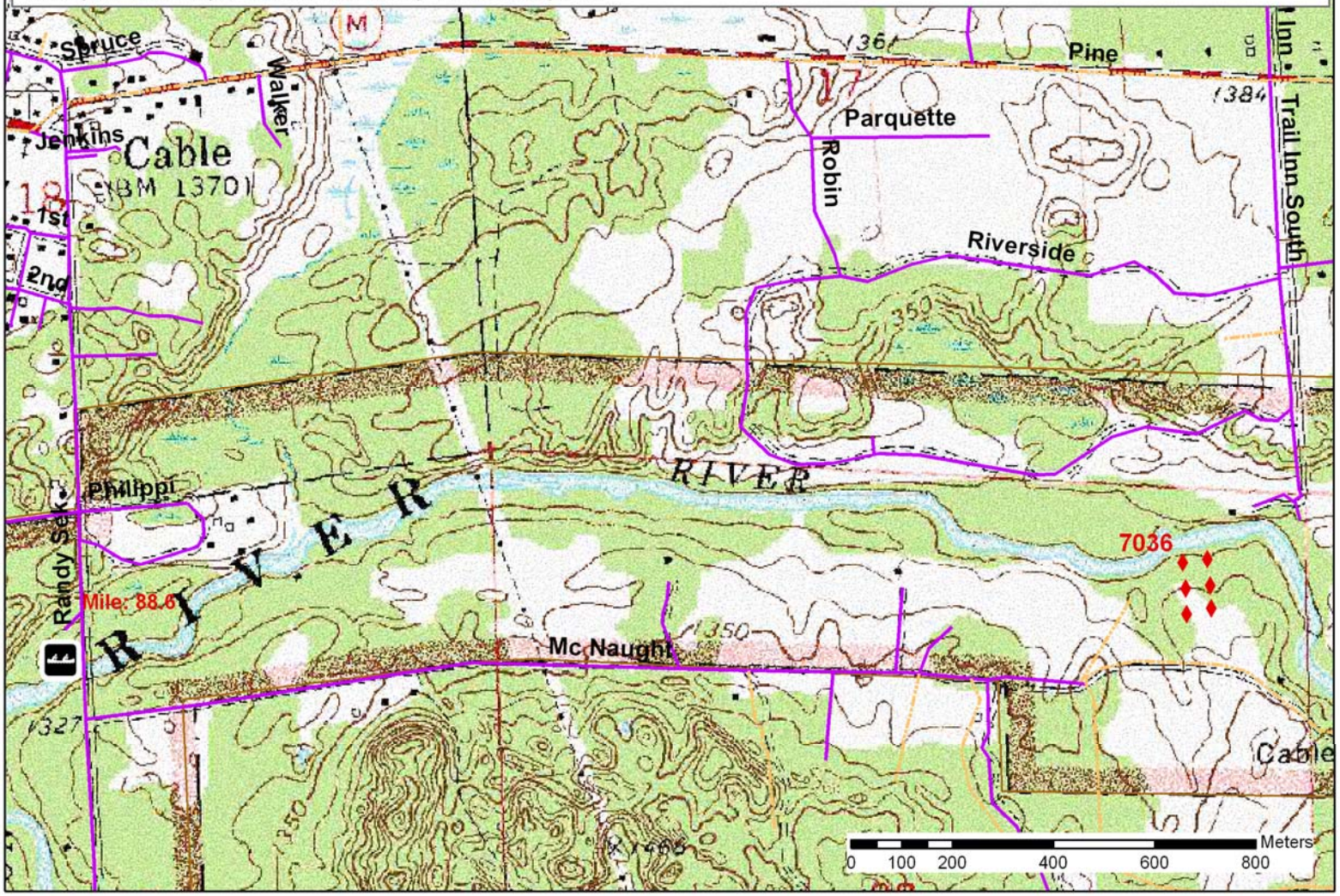
White pine- Red maple- Lowbush blueberry- Wild sarsasparilla

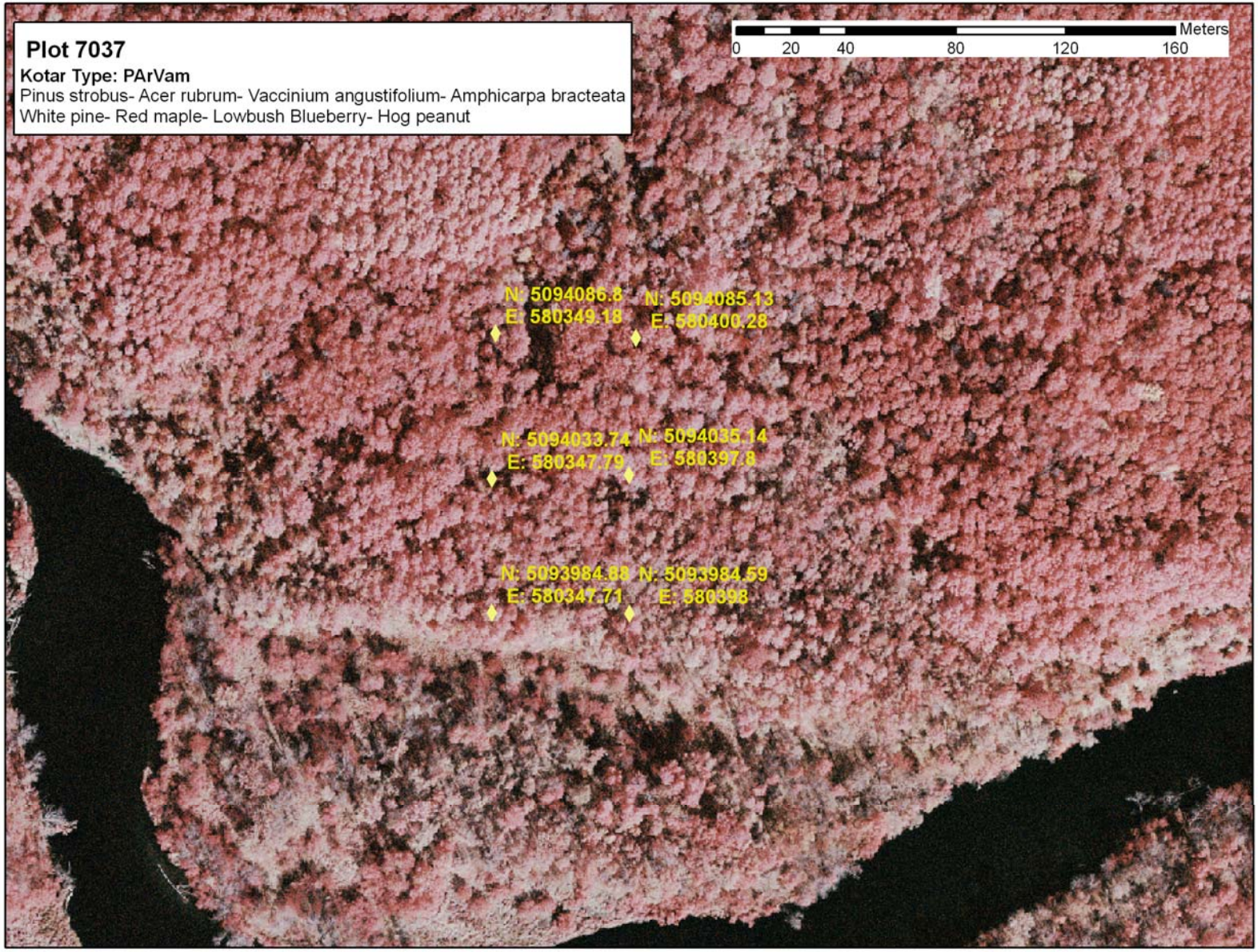
CAUTION: plot near rod and gun club

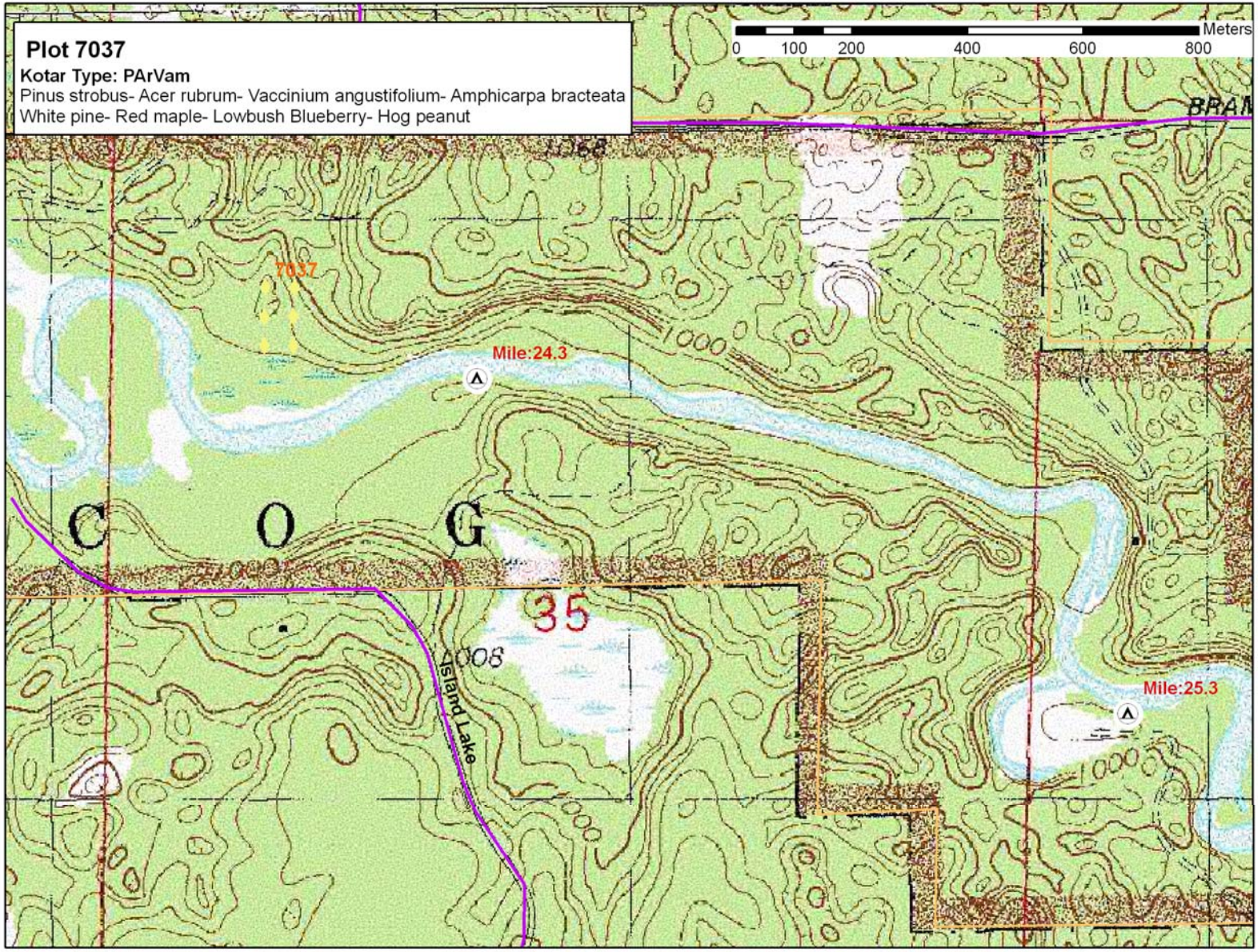


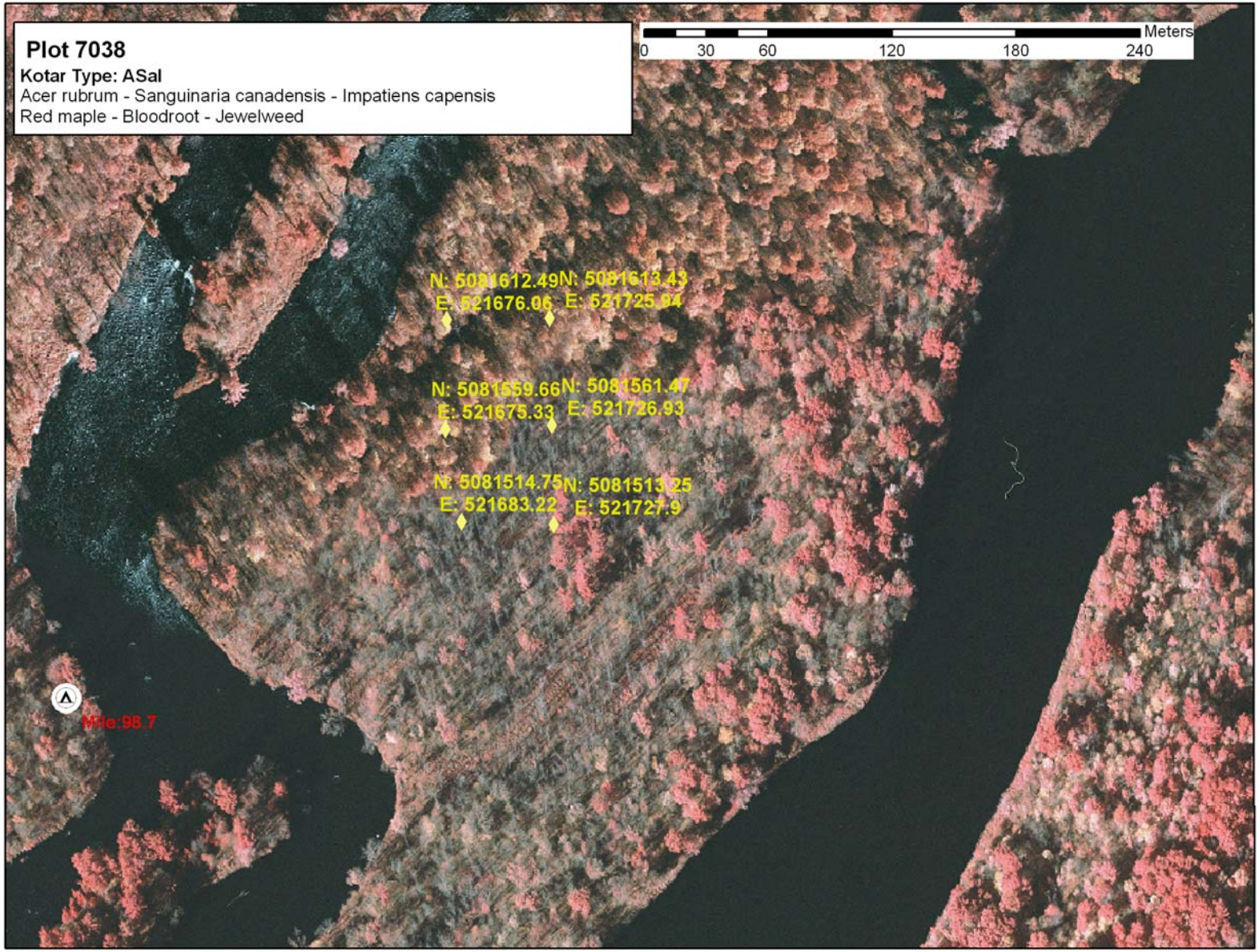
Plot 7036

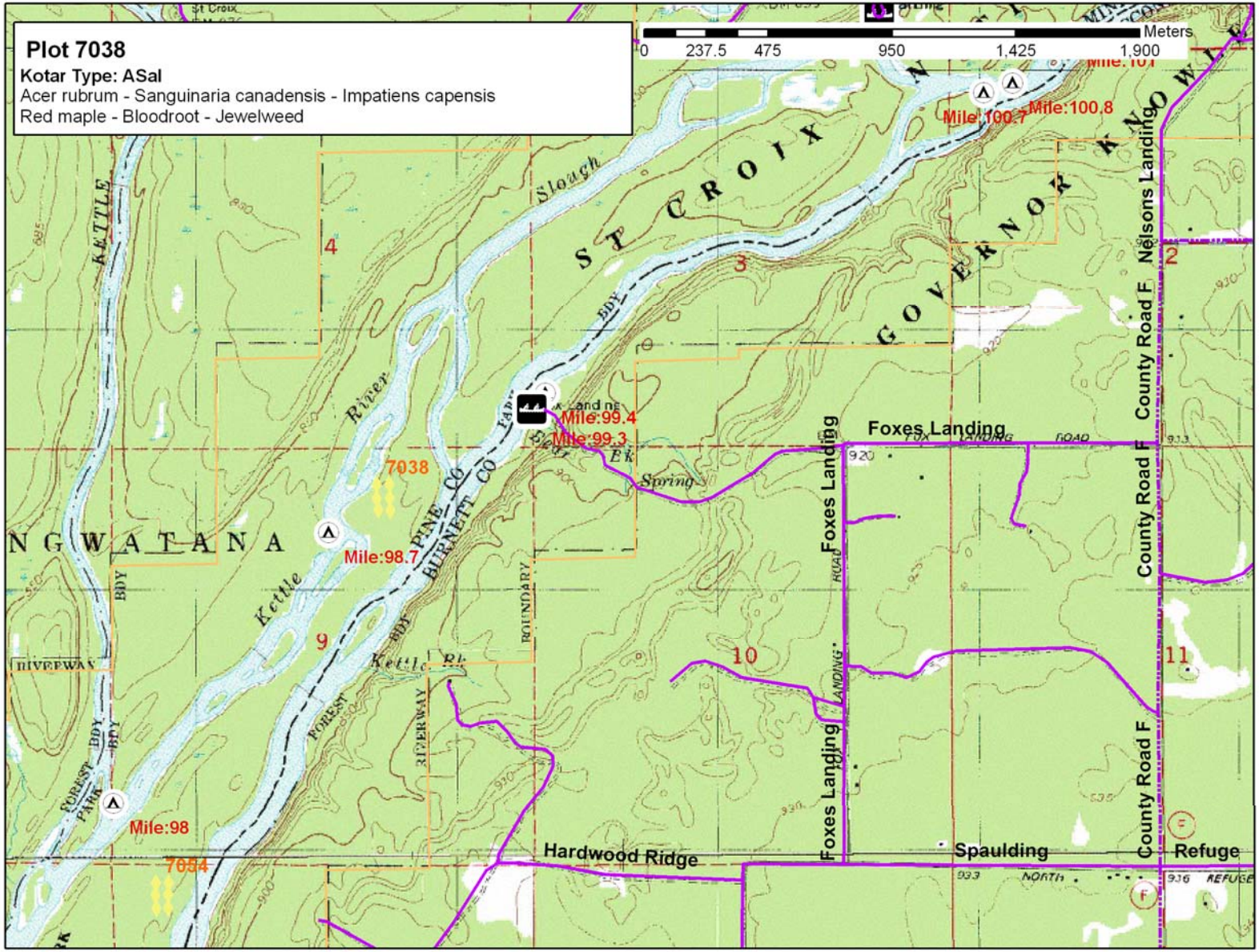
KOTAR: PArVAa
Pinus strobus- Acer rubrum- Vaccinium angustifolium- Aralia nudicaulis
White pine- Red maple- Lowbush blueberry- Wild sarsasparilla

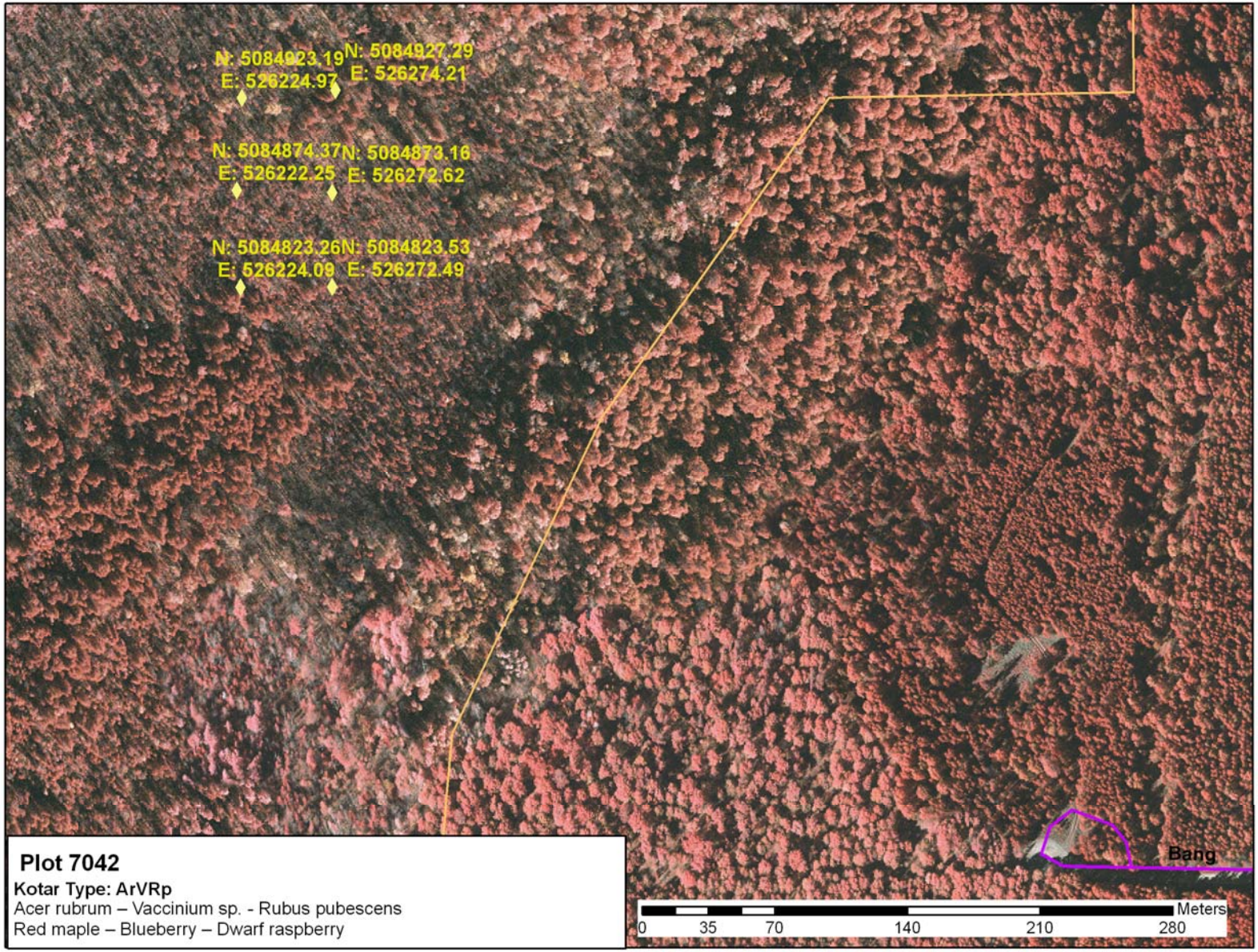



Plot 7037
Kotar Type: PArVam
Pinus strobus- Acer rubrum- Vaccinium angustifolium- Amphicarpa bracteata
White pine- Red maple- Lowbush Blueberry- Hog peanut
Meters
0 20 40 80 120 160
N: 5094086.8
E: 580349.18
N: 5094085.13
E: 580400.28
N: 5094033.74
E: 580347.79
N: 5094035.14
E: 580397.8
N: 5093984.88
E: 580347.71
N: 5093984.59
E: 580398


Plot 7037
Kotar Type: PArVam
Pinus strobus- Acer rubrum- Vaccinium angustifolium- Amphicarpa bracteata
White pine- Red maple- Lowbush Blueberry- Hog peanut
Meters
0 100 200 400 600 800
7037
Mile:24.3
1000
C O G
35
1008
Island Lake
Mile:25.3
1000


Plot 7038
Kotar Type: ASal
Acer rubrum - Sanguinaria canadensis - Impatiens capensis
Red maple - Bloodroot - Jewelweed
Meters
0 30 60 120 180 240
N: 5081612.49 E: 521676.06
N: 5081613.43 E: 521725.94
N: 5081559.66 E: 521675.33
N: 5081561.47 E: 521726.93
N: 5081514.75 E: 521683.22
N: 5081513.25 E: 521727.9
Mile:98.7


Plot 7038
Kotar Type: ASal
Acer rubrum - Sanguinaria canadensis - Impatiens capensis
Red maple - Bloodroot - Jewelweed
Meters
0 237.5 475 950 1,425 1,900
Mile:100.8
Mile:100.7
Mile:99.4
Mile:99.3
Mile:98.7
Mile:98
7038
7054
Foxes Landing
Foxes Landing
Foxes Landing
County Road F
County Road F
County Road F
Nelsons Landing
Hardwood Ridge
Spaulding
Refuge
ST CROIX
GOVERNOR KNOWLES
KETTLE
PINE CO
BURNETT CO
Kettle River
Slough
Spring
RIVERWAY
FOREST PARK
BDY
BOUNDARY
4
3
2
9
10
11

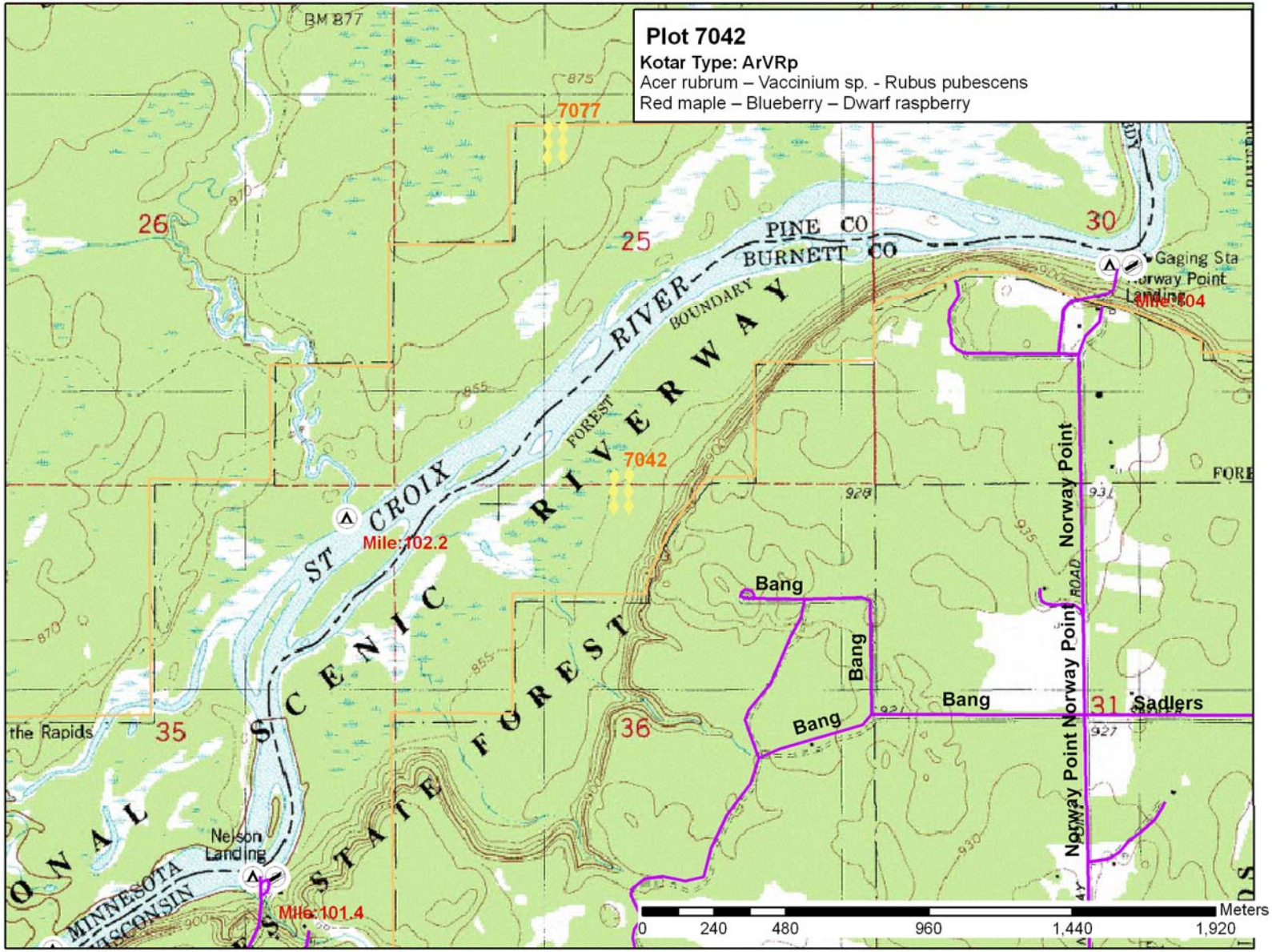


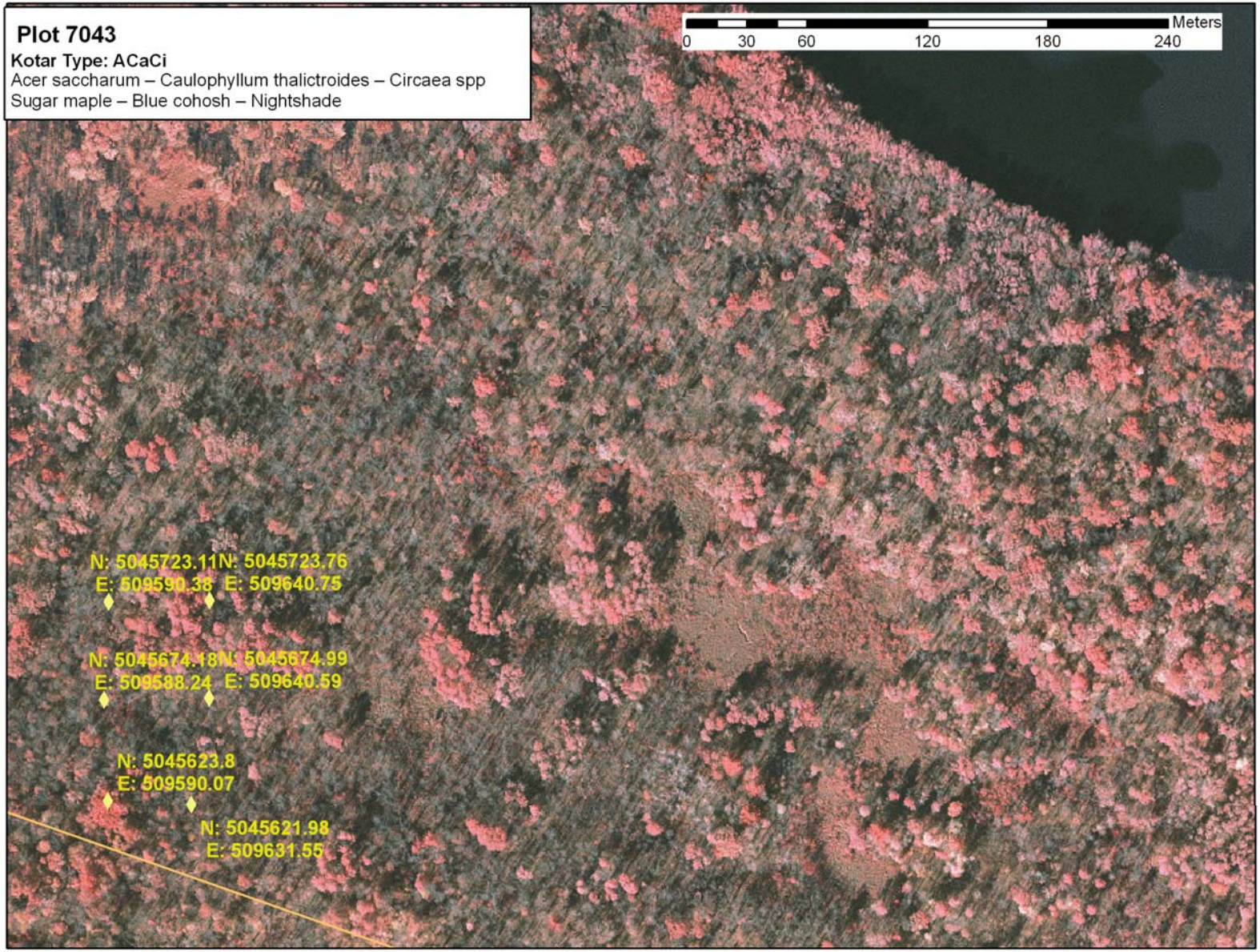
Plot 7042

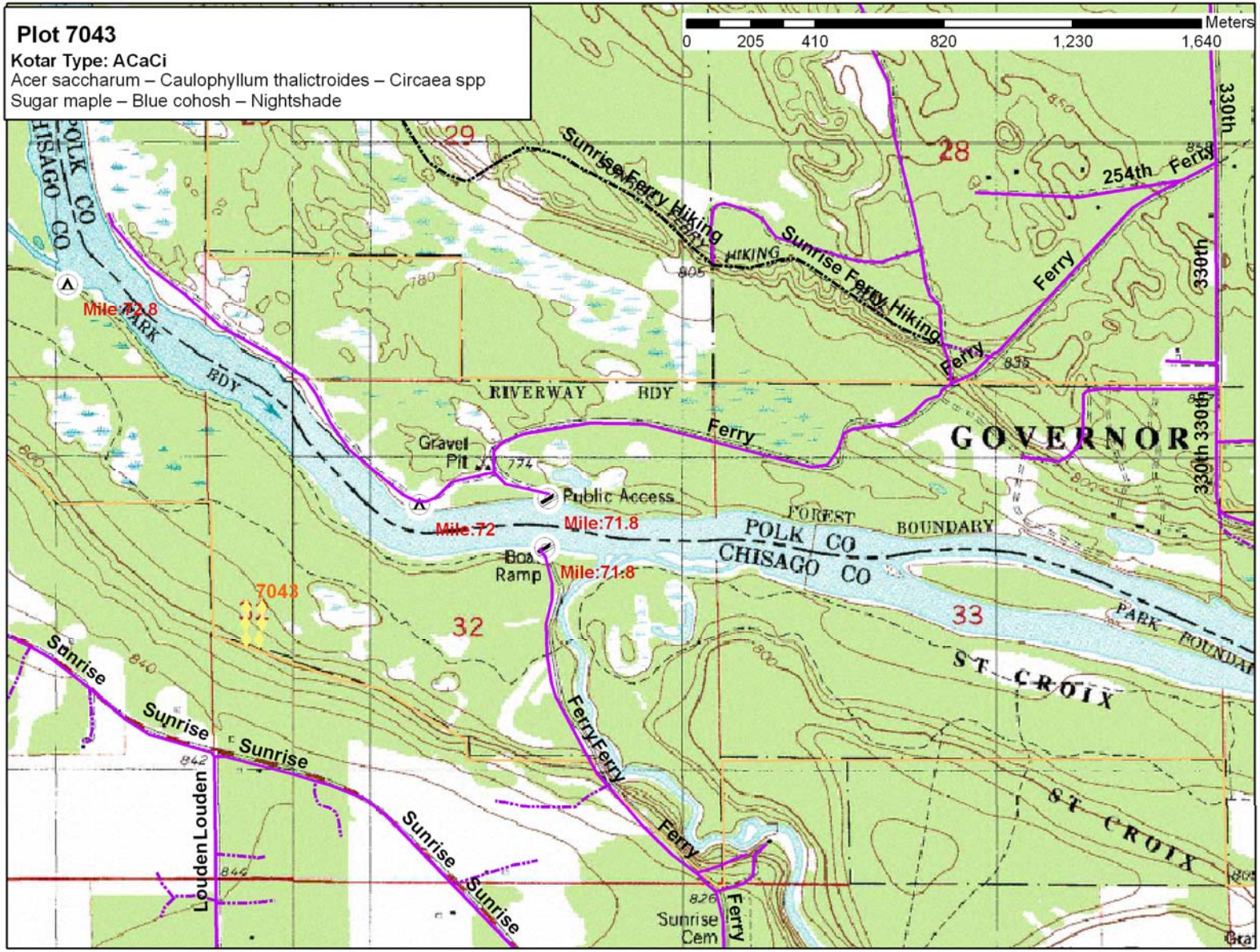
Kotar Type: ArVRp

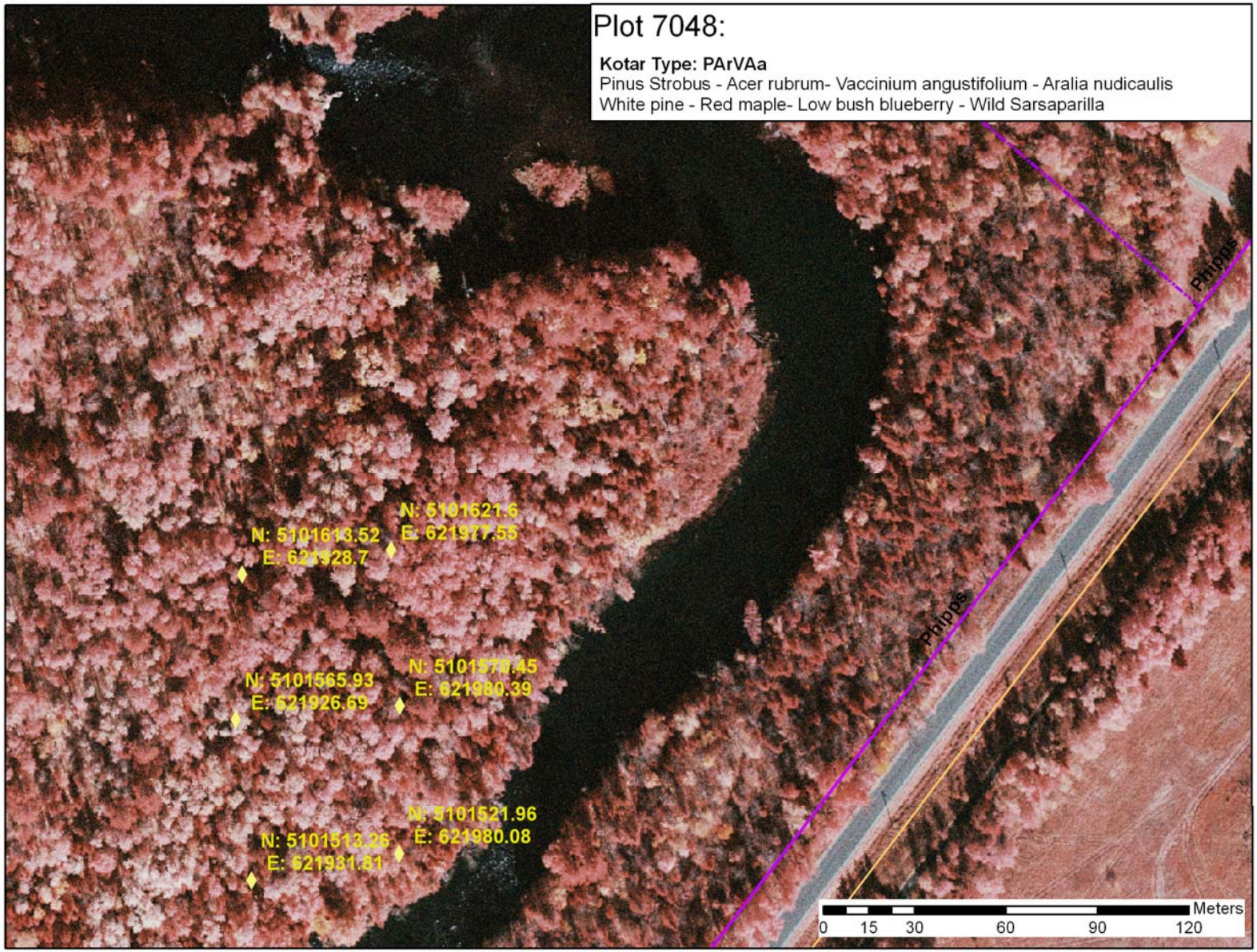
Acer rubrum – Vaccinium sp. - Rubus pubescens

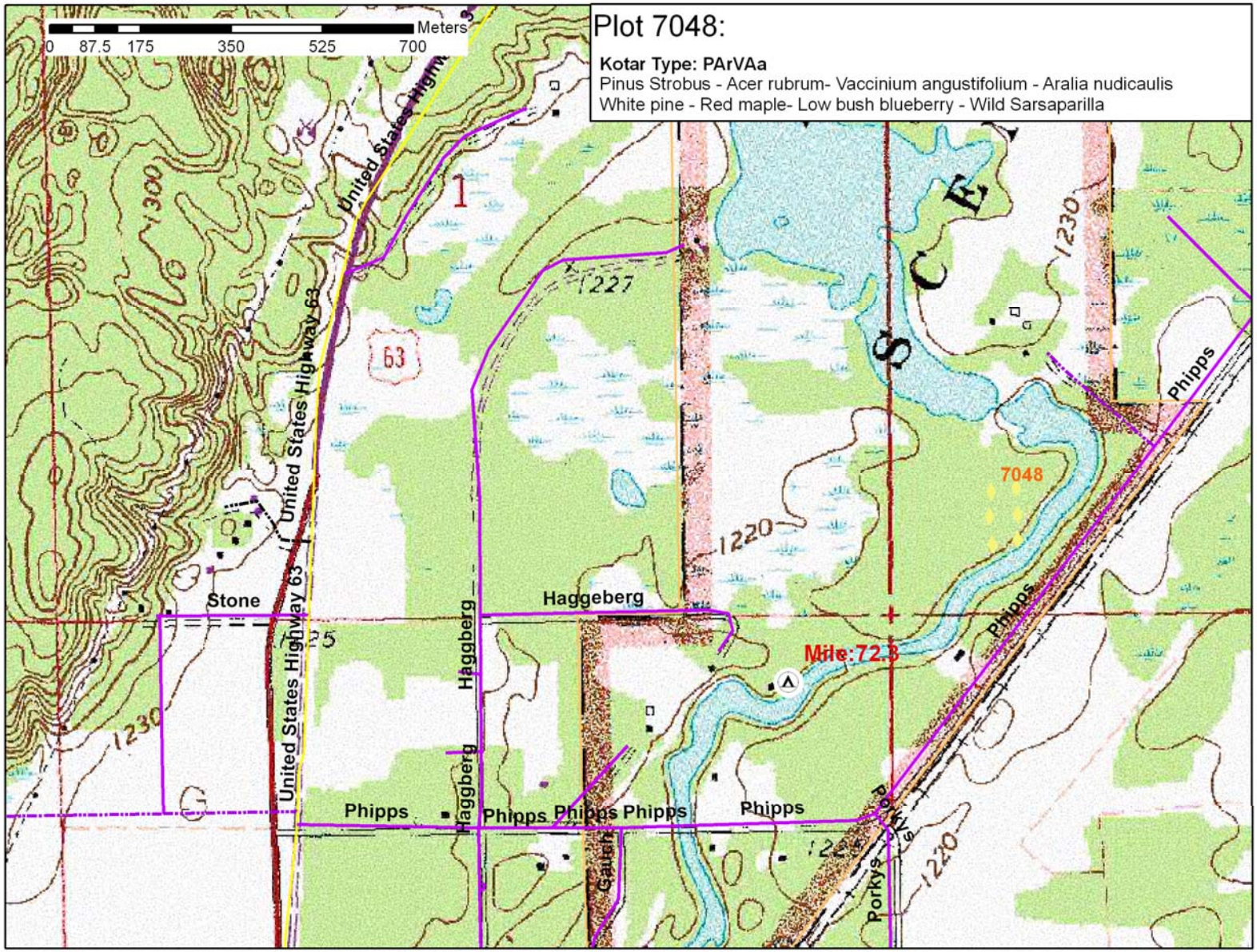
Red maple – Blueberry – Dwarf raspberry


Plot 7042
Kotar Type: ArVRp
Acer rubrum – Vaccinium sp. - Rubus pubescens
Red maple – Blueberry – Dwarf raspberry
7077
7042
26
25
30
35
36
31
PINE CO
BURNETT CO
BOUNDARY
ST CROIX RIVERWAY
SCENIC
FOREST
STATE FOREST
Gaging Sta
Norway Point Landing
Mile:104
Mile:102.2
Mile:101.4
Nelson Landing
the Rapids
MINNESOTA
WISCONSIN
Bang
Bang
Bang
Bang
Norway Point
Norway Point Norway Point ROAD
Sadlers
BM 877
875
870
855
900
928
931
935
927
930
Meters
0
240
480
960
1,440
1,920

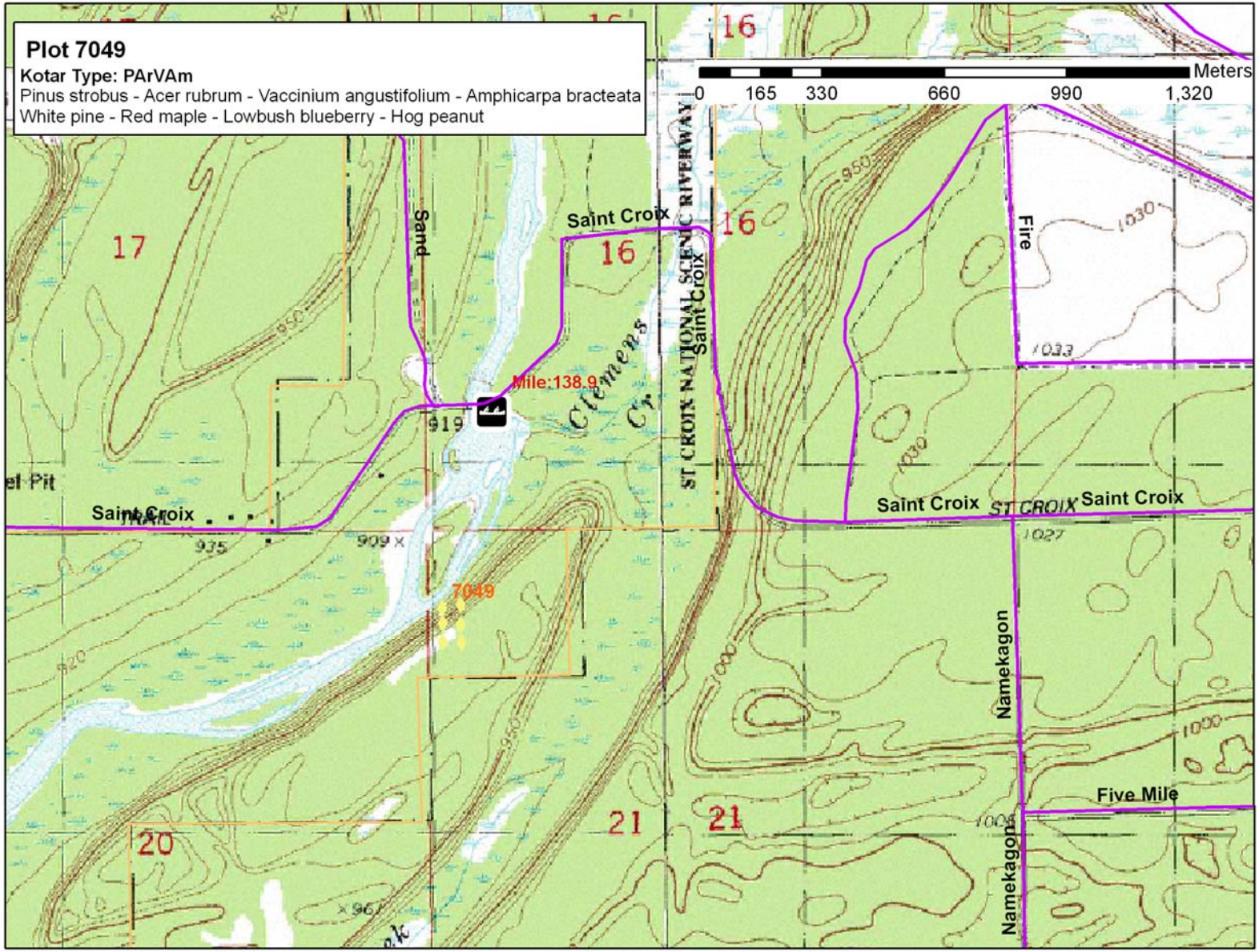

Plot 7043
Kotar Type: ACaCi
Acer saccharum – Caulophyllum thalictroides – Circaea spp
Sugar maple – Blue cohosh – Nightshade
Meters
0 30 60 120 180 240
N: 5045723.11 N: 5045723.76
E: 509590.38 E: 509640.75
N: 5045674.18 N: 5045674.99
E: 509588.24 E: 509640.59
N: 5045623.8
E: 509590.07
N: 5045621.98
E: 509631.55


Plot 7043
Kotar Type: ACaCi
Acer saccharum – Caulophyllum thalictroides – Circaea spp
Sugar maple – Blue cohosh – Nightshade
Meters
0 205 410 820 1,230 1,640
29
28
32
33
7043
Sunrise Ferry Hiking
Ferry
254th
330th
RIVERWAY BDY
Gravel Pit
Public Access
Boa Ramp
Mile:72.8
Mile:72
Mile:71.8
Mile:71.8
POLK CO
CHISAGO CO
FOREST BOUNDARY
GOVERNOR
ST CROIX
Sunrise
Louden
Sunrise Cem


Plot 7048:
Kotar Type: PArVAa
Pinus Strobus - Acer rubrum- Vaccinium angustifolium - Aralia nudicaulis
White pine - Red maple- Low bush blueberry - Wild Sarsaparilla
N: 5101621.6
E: 621977.55
N: 5101613.52
E: 621928.7
N: 5101570.45
E: 621980.39
N: 5101565.93
E: 621926.69
N: 5101521.96
E: 621980.08
N: 5101513.26
E: 621931.81
Philpps
Philpps
Meters
0 15 30 60 90 120


Plot 7048:
Kotar Type: PArVAa
Pinus Strobus - Acer rubrum- Vaccinium angustifolium - Aralia nudicaulis
White pine - Red maple- Low bush blueberry - Wild Sarsaparilla
Meters
0 87.5 175 350 525 700
United States Highway 63
Stone
Haggeberg
Haggberg
Phipps
Gauch
Porkys
7048
Mile:72.3
1300
1227
1230
1220
63


Plot 7049
Kotar Type: PArVAm
Pinus strobus - Acer rubrum - Vaccinium angustifolium - Amphicarpa bracteata
White pine - Red maple - Lowbush blueberry - Hog peanut
0 20 40 80 120 160 Meters
N: 5106826.08
E: 567058.68
N: 5106815.92
E: 567008.8
N: 5106775.06
E: 567010.53
N: 5106772.45
E: 567058.95
N: 5106725.4
E: 567010.45
N: 5106723.18
E: 567060.79

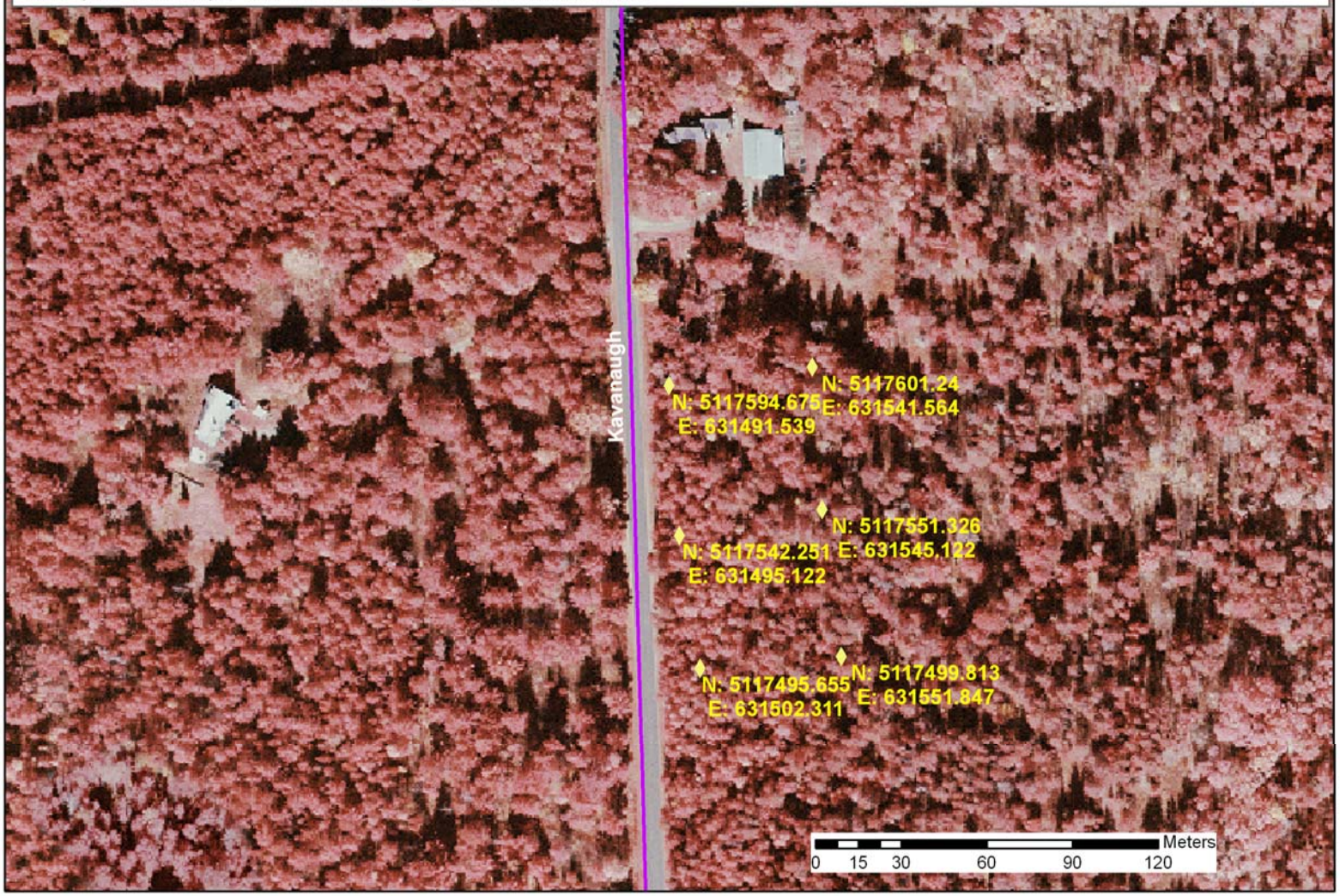

Plot 7049
Kotar Type: PArVAm
Pinus strobus - Acer rubrum - Vaccinium angustifolium - Amphicarpa bracteata
White pine - Red maple - Lowbush blueberry - Hog peanut
Meters
0 165 330 660 990 1,320
Mile:138.9
7049
Saint Croix
Saint Croix
Saint Croix
Saint Croix
Saint Croix
Saint Croix
Sand
Fire
Namekagon
Namekagon
Five Mile
ST CROIX NATIONAL SCENIC RIVERWAY
Clemens Cr.
16
16
16
17
20
21
21
950
1030
1033
1027
1000
1008
919
935
909
961

Plot 7052

KOTAR: PArV-U

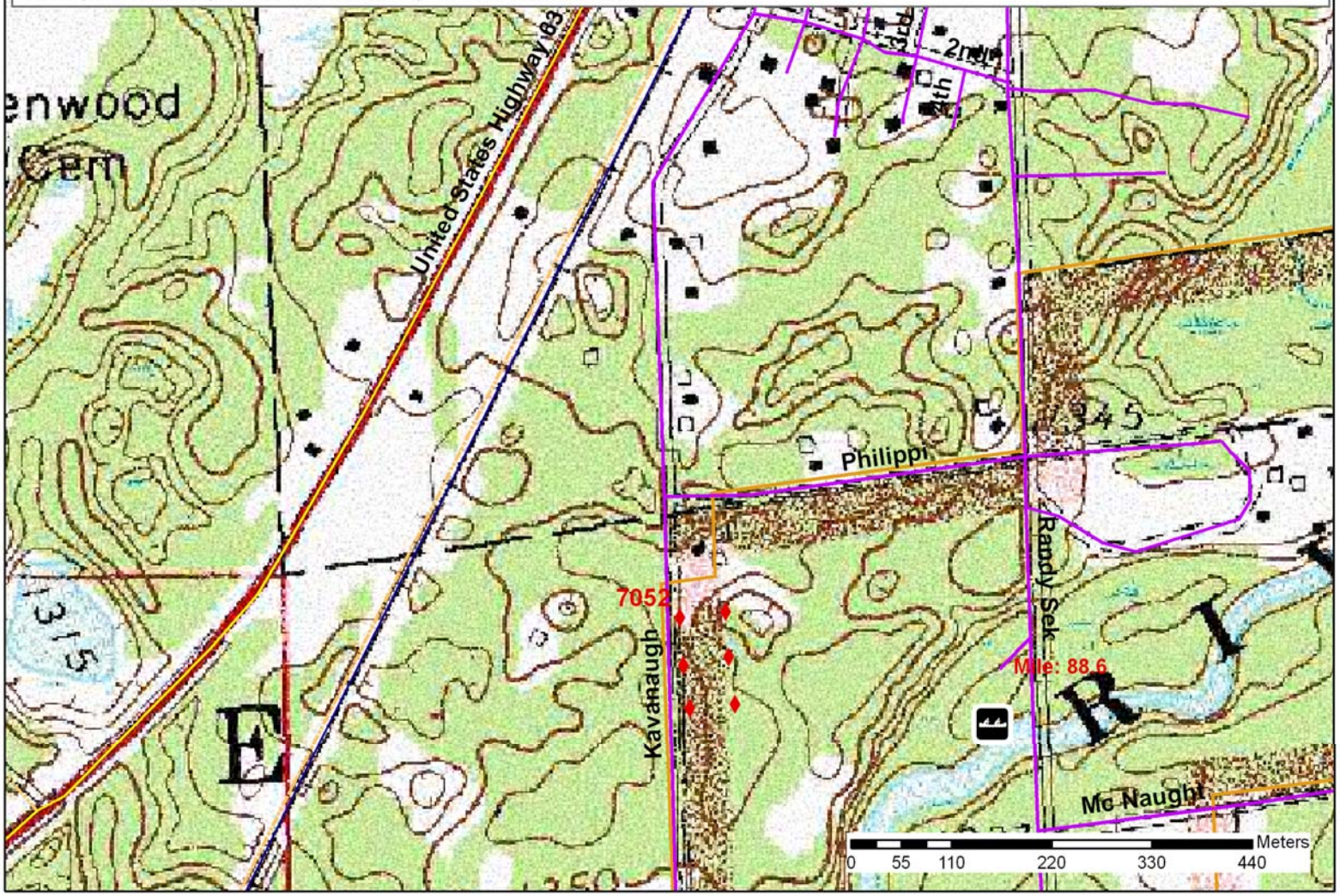
Pinus strobus- Acer rubrum- Vaccinium angustifolium- Uvularia sessifolia variant

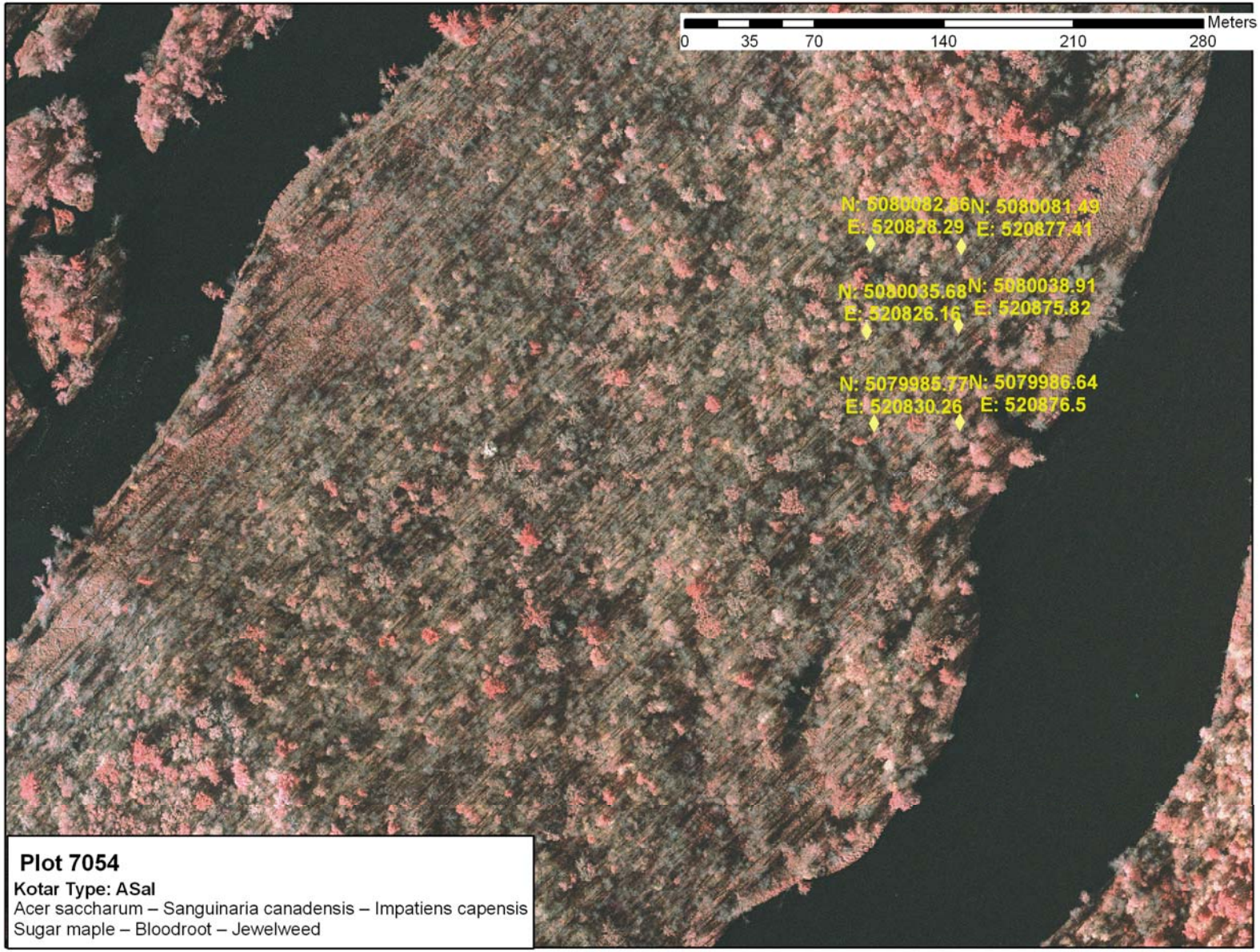
White pine- Red maple- Lowbush blueberry- Sessile leaved bellwort

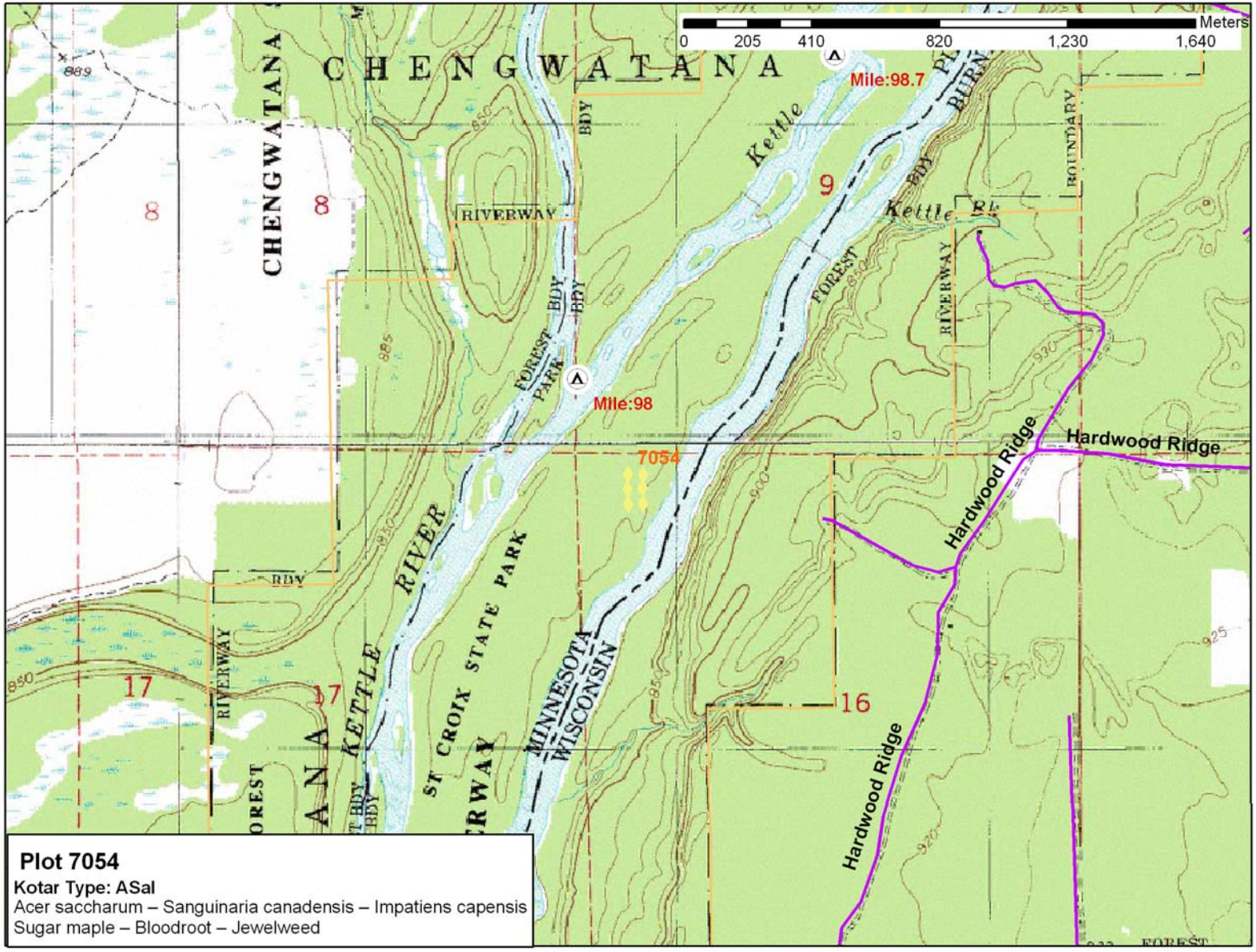


Plot 7052

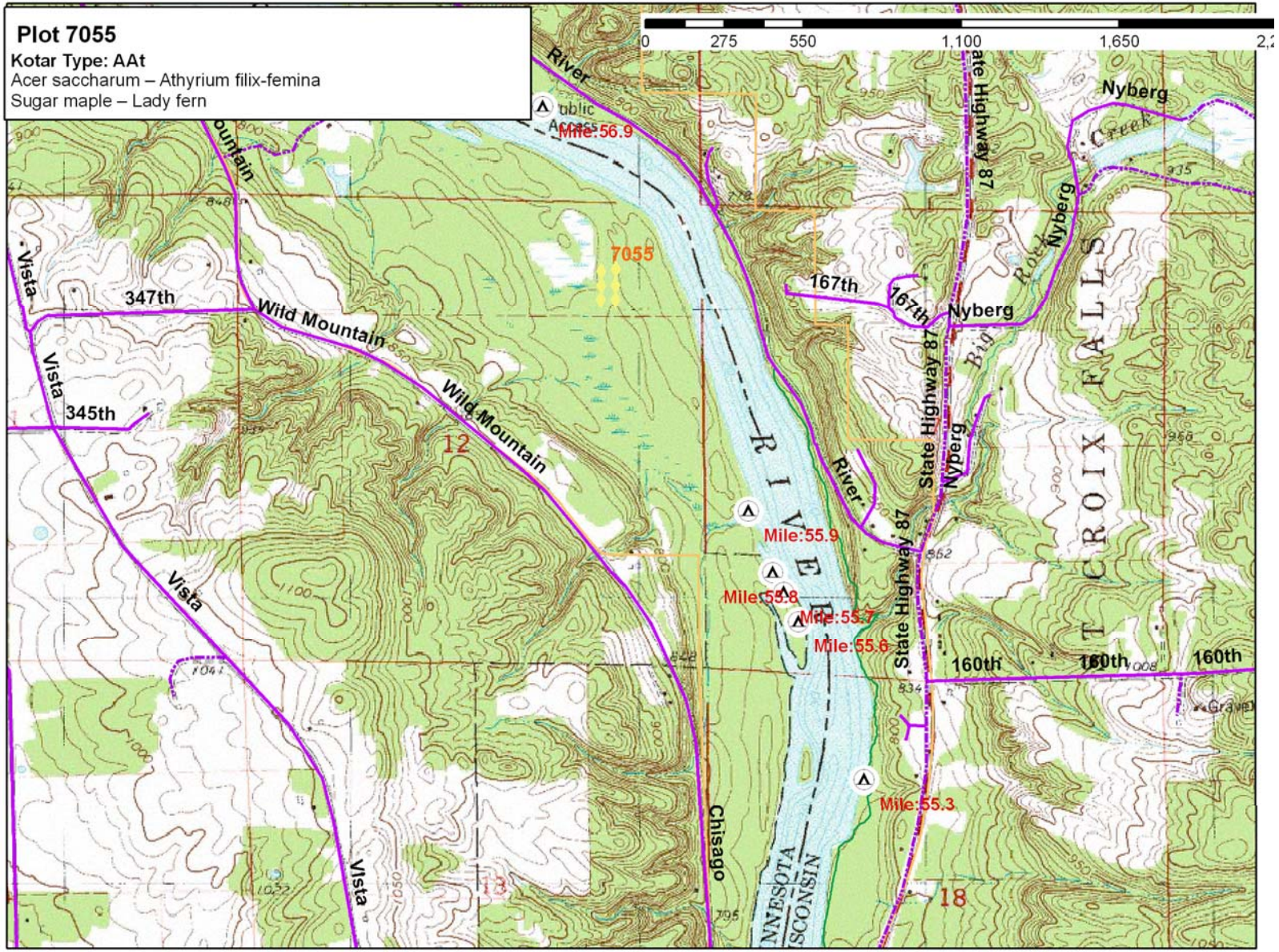
KOTAR: PArV-U
Pinus strobus- Acer rubrum- Vaccinium angustifolium- Uvularia sessifolia
White pine- Red maple- Lowbush blueberry- Sessile leaved bellwort

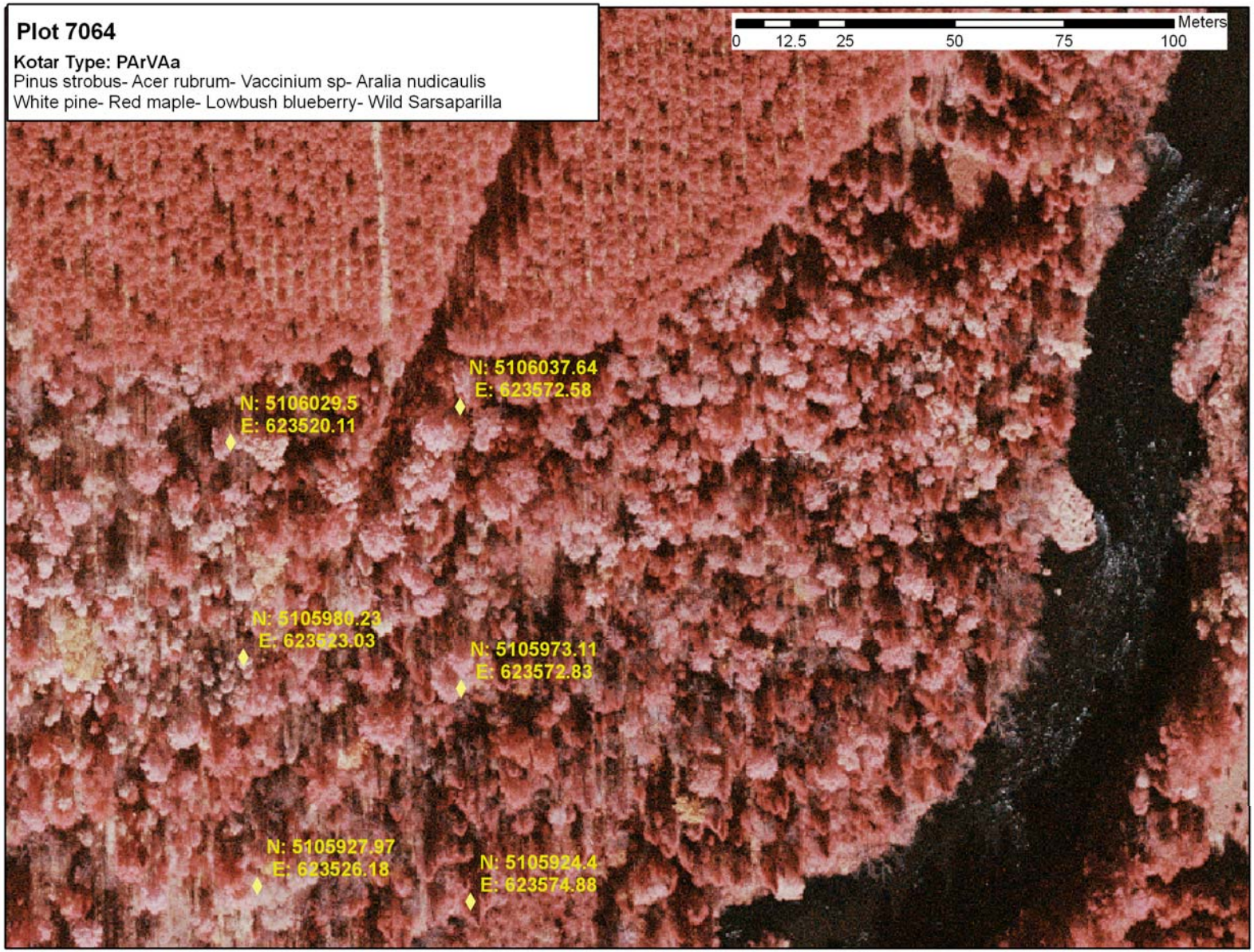


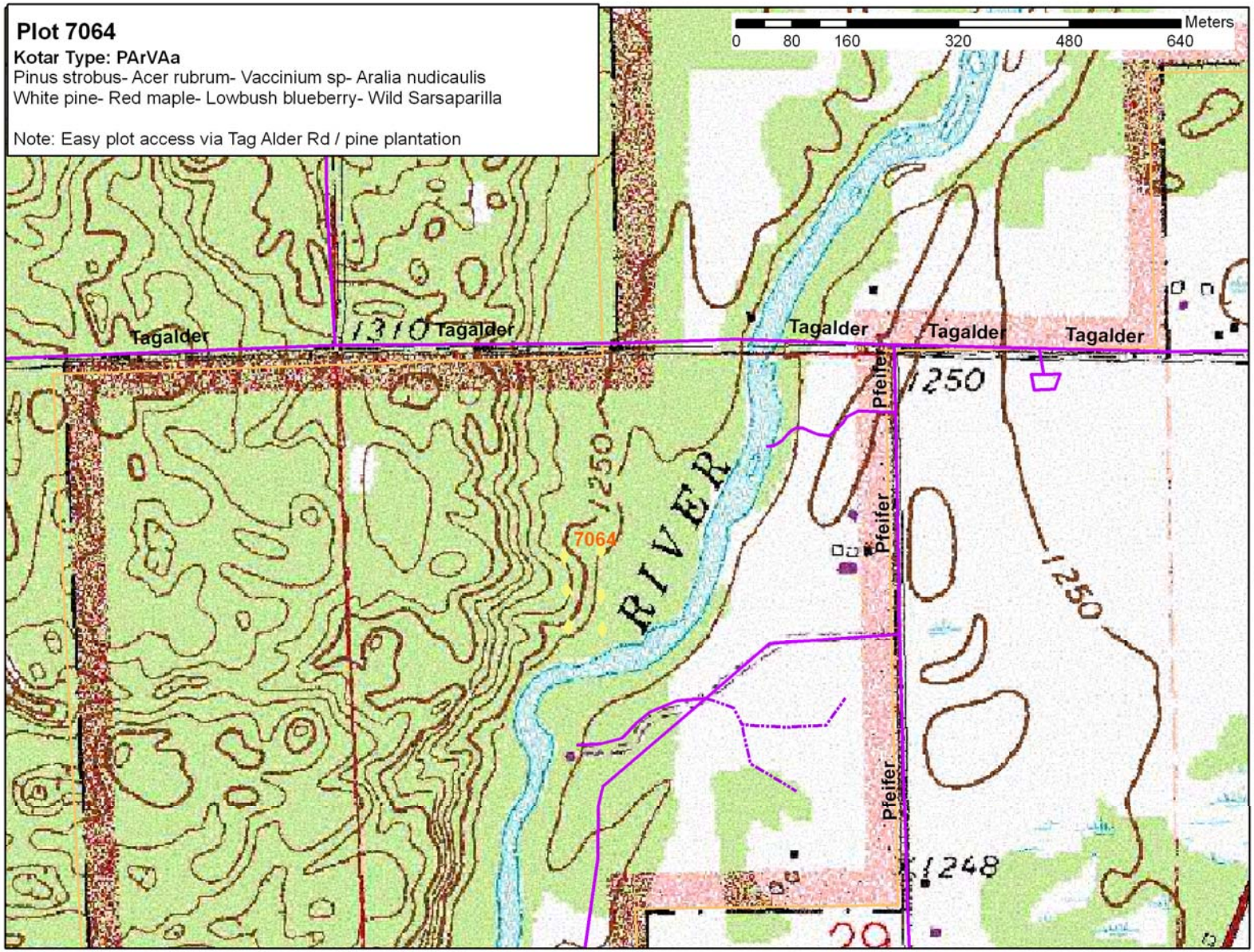

Meters
0
35
70
140
210
280
N: 5080082.86
E: 520828.29
N: 5080081.49
E: 520877.41
N: 5080035.68
E: 520826.16
N: 5080038.91
E: 520875.82
N: 5079985.77
E: 520830.26
N: 5079986.64
E: 520876.5
Plot 7054
Kotar Type: ASal
Acer saccharum – Sanguinaria canadensis – Impatiens capensis
Sugar maple – Bloodroot – Jewelweed

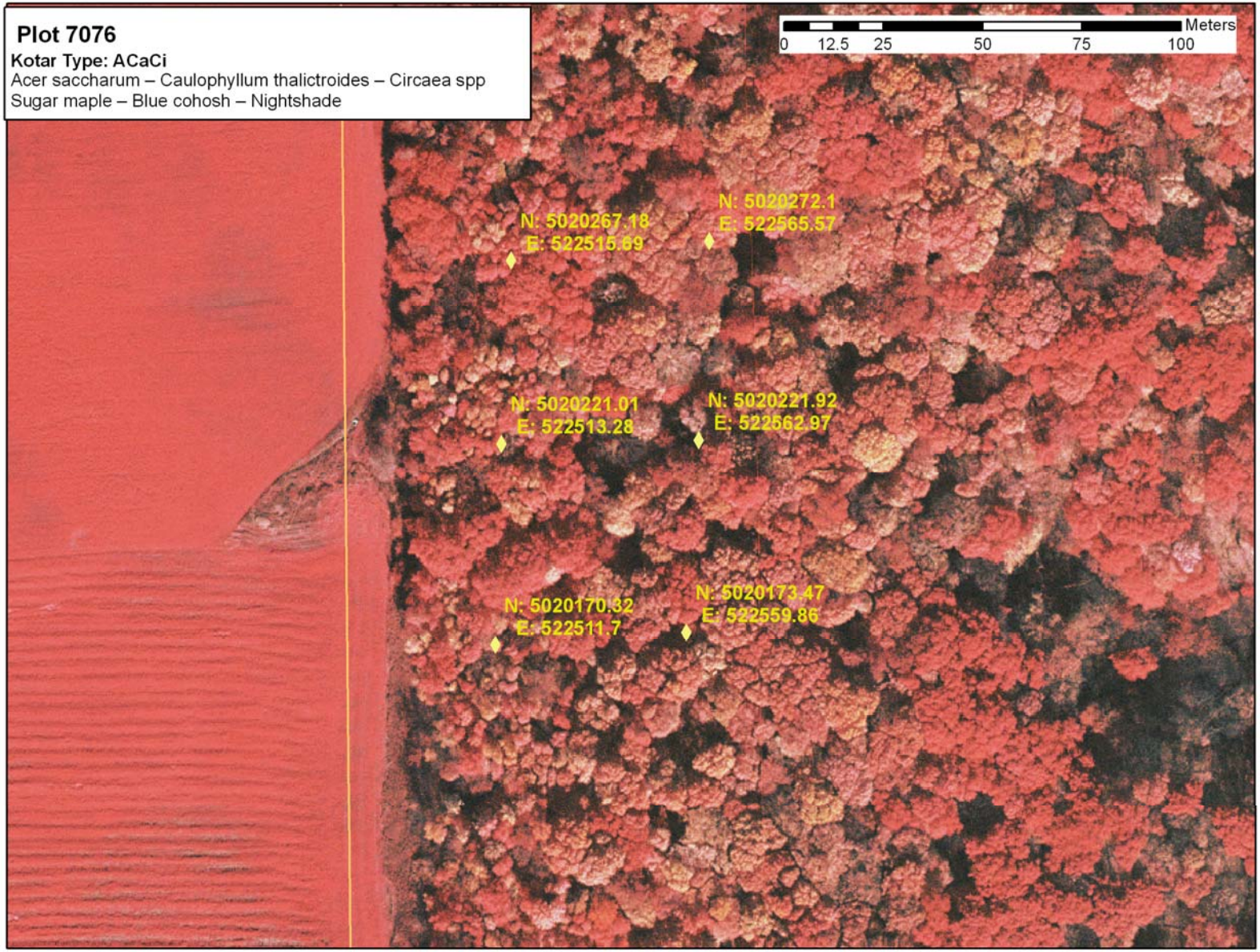

Meters
0 205 410 820 1,230 1,640
CHENGWATANA
Mile:98.7
Mile:98
7054
Kettle
RIVERWAY
FOREST
PARK
BDY
BOUNDARY
Hardwood Ridge
Hardwood Ridge
Hardwood Ridge
KETTLE RIVER
ST CROIX STATE PARK
MINNESOTA
WISCONSIN
8
9
17
16
Plot 7054
Kotar Type: ASal
Acer saccharum – Sanguinaria canadensis – Impatiens capensis
Sugar maple – Bloodroot – Jewelweed

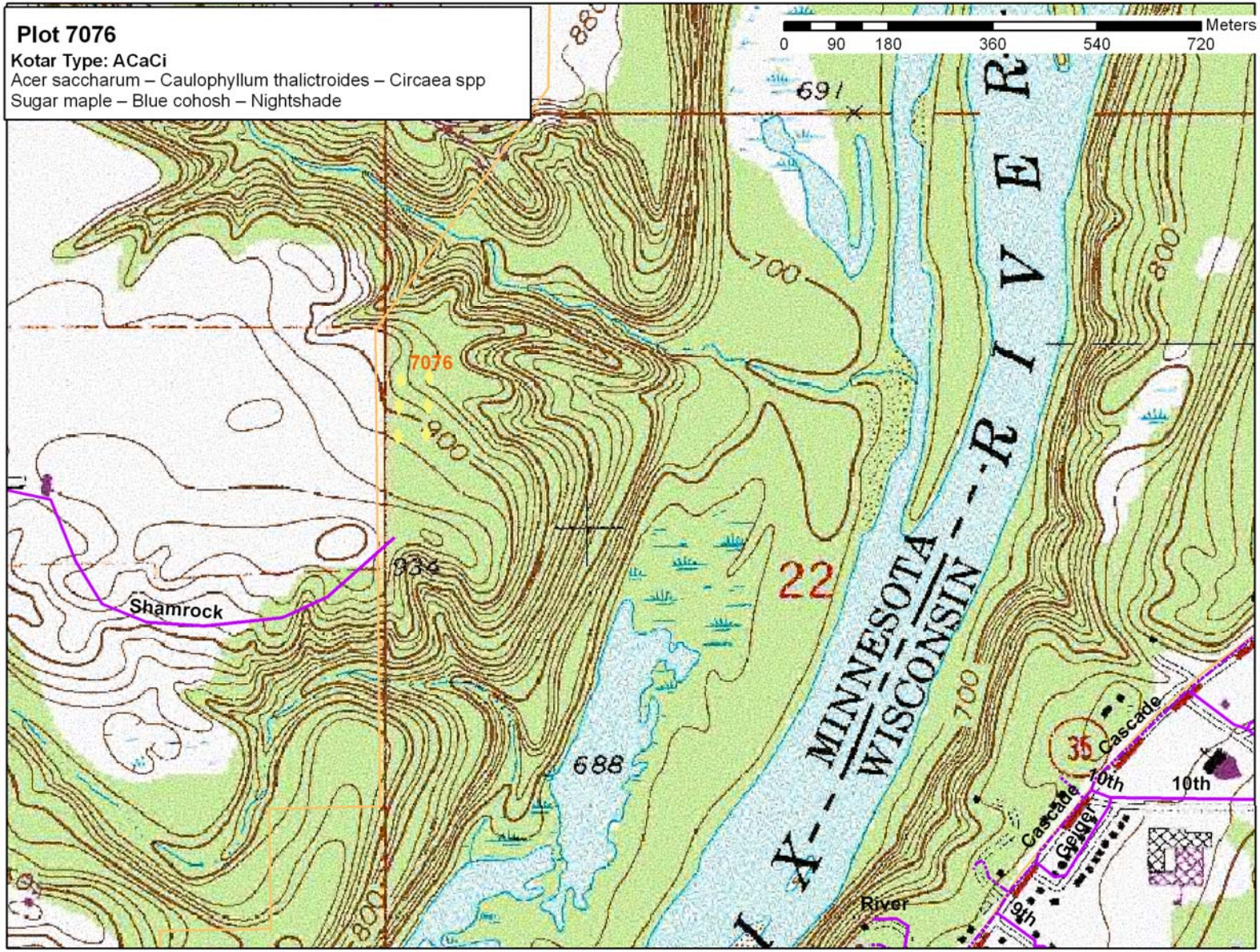

Plot 7055
Kotar Type: AAt
Acer saccharum – Athyrium filix-femina
Sugar maple – Lady fern
0
30
60
120
180
240
M
N: 5033348.76
E: 526905.61
N: 5033341.25
E: 526854.52
N: 5033290.78
E: 526854.85
N: 5033292.35
E: 526903.86
N: 5033242.01
E: 526852.53
N: 5033242.1
E: 526904.02

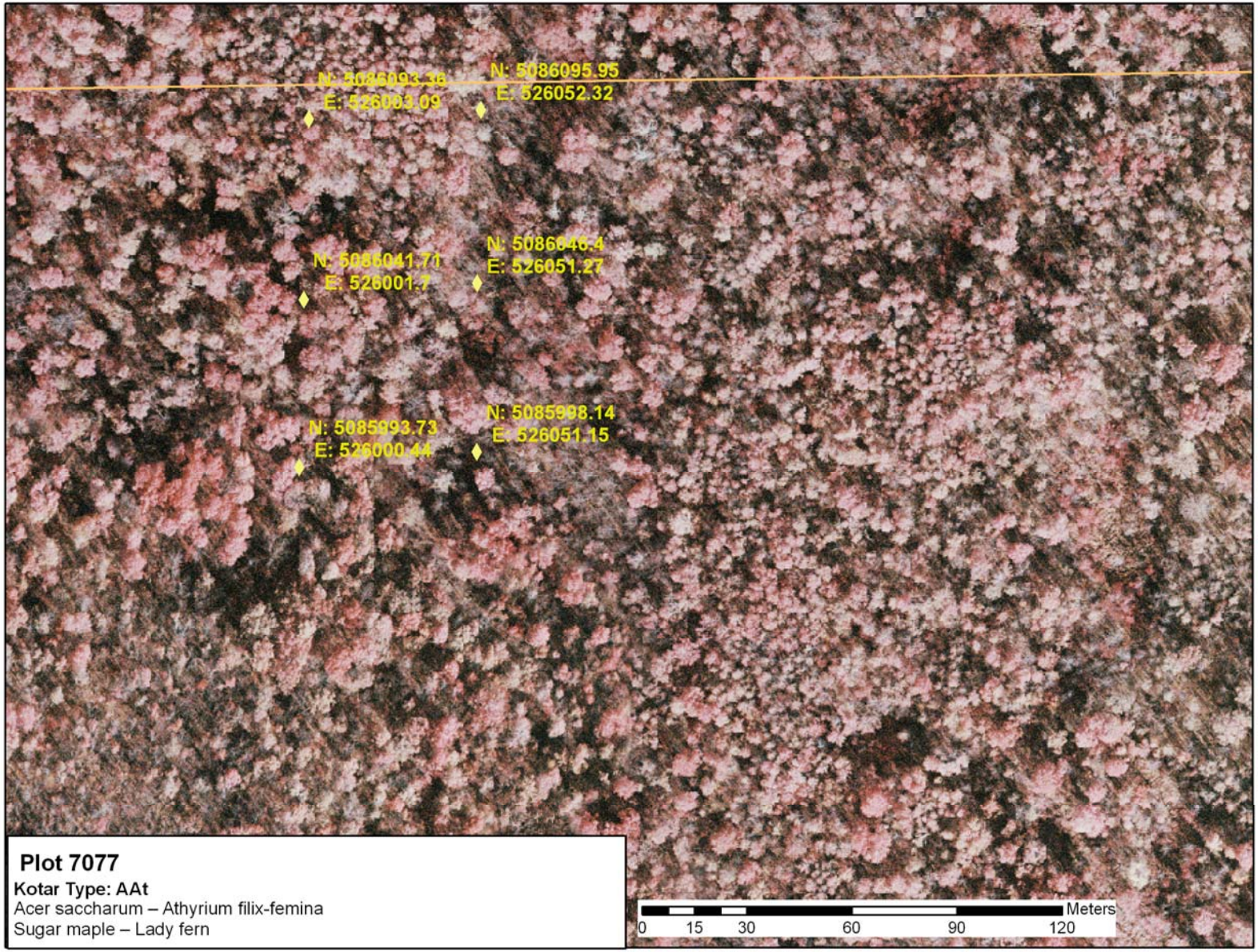

Plot 7055
Kotar Type: AAt
Acer saccharum – Athyrium filix-femina
Sugar maple – Lady fern
0
275
550
1,100
1,650
7055
Mile:56.9
Mile:55.9
Mile:55.8
Mile:55.7
Mile:55.6
Mile:55.3
347th
345th
Wild Mountain
Vista
167th
160th
Nyberg
State Highway 87
Chisago
River
Creek
Rock
Big
ST CROIX FALLS
12
13
18

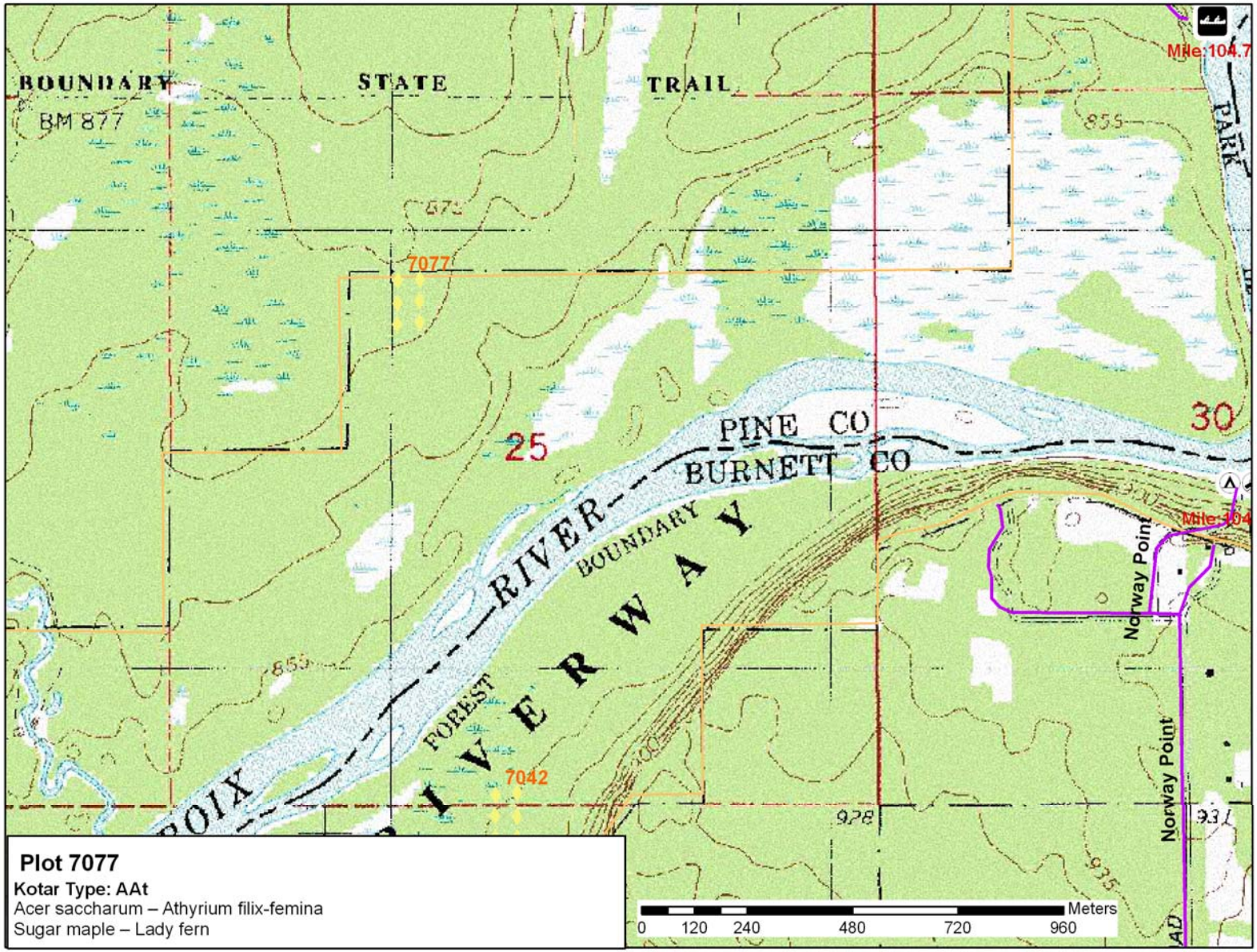

Plot 7064
Kotar Type: PArVAa
Pinus strobus- Acer rubrum- Vaccinium sp- Aralia nudicaulis
White pine- Red maple- Lowbush blueberry- Wild Sarsaparilla
Meters
0 12.5 25 50 75 100
N: 5106037.64
E: 623572.58
N: 5106029.5
E: 623520.11
N: 5105980.23
E: 623523.03
N: 5105973.11
E: 623572.83
N: 5105927.97
E: 623526.18
N: 5105924.4
E: 623574.88


Plot 7064
Kotar Type: PArVAa
Pinus strobus- Acer rubrum- Vaccinium sp- Aralia nudicaulis
White pine- Red maple- Lowbush blueberry- Wild Sarsaparilla
Note: Easy plot access via Tag Alder Rd / pine plantation
Meters
0 80 160 320 480 640
Tagalder
1310
Tagalder
Tagalder
Tagalder
Tagalder
Pfeifer
1250
7064
RIVER
1250
Pfeifer
Pfeifer
1250
1248


Plot 7076
Kotar Type: ACaCi
Acer saccharum – Caulophyllum thalictroides – Circaea spp
Sugar maple – Blue cohosh – Nightshade
Meters
0 12.5 25 50 75 100
N: 5020267.18
E: 522515.69
N: 5020272.1
E: 522565.57
N: 5020221.01
E: 522513.28
N: 5020221.92
E: 522562.97
N: 5020170.32
E: 522511.7
N: 5020173.47
E: 522559.86


Plot 7076
Kotar Type: ACaCi
Acer saccharum – Caulophyllum thalictroides – Circaea spp
Sugar maple – Blue cohosh – Nightshade
Meters
0 90 180 360 540 720
691
700
800
7076
900
934
22
Shamrock
688
MINNESOTA
WISCONSIN
RIVER
35
Cascade
10th
Geiger
9th
River


N: 5086093.36
E: 526003.09
N: 5086095.95
E: 526052.32
N: 5086041.71
E: 526001.7
N: 5086046.4
E: 526051.27
N: 5085993.73
E: 526000.44
N: 5085998.14
E: 526051.15
Plot 7077
Kotar Type: AAt
Acer saccharum – Athyrium filix-femina
Sugar maple – Lady fern
Meters
0 15 30 60 90 120



Plot 7077
Kotar Type: AAt
Acer saccharum – Athyrium filix-femina
Sugar maple – Lady fern

Appendix B

Complete Species List for the Park

Species Encountered during Site Visits - by Park

Park: SACN Year: 2007

Species

HERB

Alismataceae
- Alisma sp.
- Sagittaria latifolia

Apiaceae
- Cicuta maculata
- Cryptotaenia canadensis
- Daucus carota
- Osmorhiza claytonii
- Osmorhiza longistylis
- Osmorhiza sp.
- Sanicula marilandica
- Sanicula sp.
- Sium suave

Apocynaceae
- Apocynum androsaemifolium

Araceae
- Arisaema triphyllum
- Calla palustris
- Symplocarpus foetidus

Araliaceae
- Aralia nudicaulis
- Panax quinquefolius

Aristolochiaceae
- Asarum canadense

Asclepiadaceae
- Asclepias exaltata
- Asclepias sp.
- Asclepias syriaca

Asteraceae
- Achillea millefolium
- Ageratina altissima
- Antennaria sp.
- Artemisia serrata
- Aster cordifolius var. sagittifolius
- Aster lateriflorus
- Aster sp.
- Asteraceae sp.
- Bidens cernua
- Bidens connata
- Bidens discoidea
- Bidens frondosa
- Bidens sp.
- Cirsium arvense
- Cirsium sp.
- Cirsium vulgare
- Conyza canadensis
- Doellingeria umbellata
- Erigeron sp.
- Eupatorium maculatum
- Eupatorium perfoliatum
- Eurybia macrophylla
- Helianthus hirsutus

HERB

Asteraceae
- Hieracium kalmii
- Hieracium sp.
- Lactuca canadensis
- Lactuca sp.
- Liatris aspera
- Petasites frigidus var. palmatus
- Prenanthes alba
- Prenanthes sp.
- Rudbeckia laciniata
- Solidago altissima
- Solidago canadensis
- Solidago flexicaulis
- Solidago gigantea
- Solidago sp.
- Symphyotrichum ontarione
- Symphyotrichum puniceum
- Taraxacum officinale
- Tragopogon sp.

Balsaminaceae
- Impatiens capensis
- Impatiens pallida

Berberidaceae
- Caulophyllum thalictroides

Boraginaceae
- Lithospermum sp.

Brassicaceae
- Rorippa nasturtium-aquaticum

Campanulaceae
- Campanula rotundifolia
- Lobelia cardinalis

Caprifoliaceae
- Linnaea borealis

Caryophyllaceae
- Silene vulgaris
- Stellaria media

Clusiaceae
- Hypericum sp.
- Triadenum fraseri

Cornaceae
- Cornus canadensis

Cyperaceae
- Carex grayi
- Carex intumescens
- Carex lacustris
- Carex pensylvanica
- Carex projecta
- Carex sp.
- Eriophorum sp.
- Scirpus atrovirens

Dennstaedtiaceae
- Pteridium aquilinum

Dioscoreaceae
- Dioscorea villosa

Species Encountered during Site Visits - by Park

HERB

Dryopteridaceae
- Athyrium filix-femina ssp. angustum
- Dryopteris carthusiana
- Dryopteris cristata
- Gymnocarpium dryopteris
- Matteuccia struthiopteris
- Onoclea sensibilis
- Woodsia obtusa

Equisetaceae
- Equisetum arvense
- Equisetum palustre
- Equisetum pratense

Ericaceae
- Gaultheria procumbens
- Vaccinium oxycoccos

Fabaceae
- Amorpha canescens
- Desmodium glutinosum
- Trifolium pratense

Gentianaceae
- Gentiana sp.

Geraniaceae
- Geranium maculatum

Hydrophyllaceae
- Hydrophyllum virginianum

Iridaceae
- Iris versicolor

Lamiaceae
- Agastache sp.
- Glechoma hederacea
- Lamiaceae sp.
- Lycopus uniflorus
- Lycopus virginicus
- Mentha arvensis
- Monarda fistulosa
- Physostegia virginiana
- Prunella vulgaris
- Scutellaria lateriflora
- Stachys tenuifolia
- Teucrium canadense

Liliaceae
- Allium tricoccum
- Clintonia borealis
- Maianthemum canadense
- Maianthemum racemosum ssp. racemosum
- Maianthemum trifolium
- Medeola virginiana
- Polygonatum biflorum
- Polygonatum pubescens
- Streptopus lanceolatus var. roseus
- Trillium cernuum
- Trillium grandiflorum
- Uvularia grandiflora
- Uvularia sessilifolia

HERB

Lycopodiaceae
- Lycopodium annotinum
- Lycopodium clavatum
- Lycopodium complanatum
- Lycopodium dendroideum
- Lycopodium digitatum
- Lycopodium obscurum

Monotropaceae
- Monotropa uniflora

Onagraceae
- Chamerion angustifolium
- Circaea alpina
- Circaea lutetiana ssp. canadensis
- Epilobium coloratum
- Epilobium leptophyllum
- Epilobium sp.

Ophioglossaceae
- Botrychium virginianum

Orchidaceae
- Goodyera repens
- Goodyera sp.
- Orchidaceae sp.

Osmundaceae
- Osmunda cinnamomea
- Osmunda claytoniana
- Osmunda regalis

Oxalidaceae
- Oxalis montana
- Oxalis sp.
- Oxalis stricta

Papaveraceae
- Sanguinaria canadensis

Plantaginaceae
- Plantago major

Poaceae
- Brachyelytrum erectum
- Calamagrostis canadensis
- Elymus virginicus
- Leersia virginica
- Muhlenbergia mexicana
- Oryzopsis asperifolia
- Phalaris arundinacea
- Phleum pratense
- Poaceae sp.

Polemoniaceae
- Phlox divaricata
- Phlox pilosa

Polygalaceae
- Polygala paucifolia

Polygonaceae
- Polygonum hydropiperoides
- Polygonum lapathifolium
- Polygonum punctatum
- Polygonum sagittatum

Species Encountered during Site Visits - by Park

HERB

Polygonaceae
- Polygonum virginianum
- Rumex crispus

Primulaceae
- Lysimachia ciliata
- Lysimachia quadrifolia
- Trientalis borealis

Pteridaceae
- Adiantum pedatum

Pyrolaceae
- Chimaphila sp.
- Moneses uniflora
- Orthilia secunda
- Pyrola asarifolia
- Pyrola sp.

Ranunculaceae
- Actaea sp.
- Anemone canadensis
- Anemone quinquefolia
- Aquilegia canadensis
- Caltha palustris
- Clematis virginiana
- Coptis trifolia
- Hepatica nobilis var. acuta
- Hepatica nobilis var. obtusa
- Ranunculus hispidus var. nitidus
- Ranunculus recurvatus
- Ranunculus sp.
- Thalictrum dasycarpum
- Thalictrum dioicum

Rosaceae
- Agrimonia sp.
- Agrimonia striata
- Comarum palustre
- Fragaria virginiana
- Geum canadense
- Geum macrophyllum
- Geum sp.
- Potentilla recta
- Potentilla simplex
- Potentilla sp.
- Rosa sp.
- Waldsteinia fragarioides

Rubiaceae
- Galium boreale
- Galium concinnum
- Galium lanceolatum
- Galium trifidum
- Galium triflorum
- Mitchella repens

Salicaceae
- Salix sp.

Santalaceae
- Comandra umbellata

HERB

Sarraceniaceae
- Sarracenia purpurea

Saxifragaceae
- Mitella diphylla

Scrophulariaceae
- Chelone glabra
- Melampyrum lineare
- Mimulus ringens
- Pedicularis canadensis
- Verbascum thapsus
- Veronica scutellata

Smilacaceae
- Smilax ecirrata
- Smilax herbacea

Solanaceae
- Physalis virginiana
- Solanum dulcamara

Thelypteridaceae
- Phegopteris connectilis
- Thelypteris palustris

Urticaceae
- Boehmeria cylindrica
- Laportea canadensis
- Pilea pumila
- Pilea sp.
- Urtica dioica ssp. gracilis

Verbenaceae
- Verbena hastata

Violaceae
- Viola pubescens
- Viola sp.

HERBACEOUS VINE

Convolvulaceae
- Calystegia sepium
- Calystegia spithamaea

Cuscutaceae
- Cuscuta gronovii

Ericaceae
- Epigaea repens

Fabaceae
- Amphicarpaea bracteata
- Lathyrus ochroleucus
- Lathyrus sp.
- Lathyrus venosus
- Vicia americana
- Vicia sp.

Menispermaceae
- Menispermum canadense

Smilacaceae
- Smilax sp.

Species Encountered during Site Visits - by Park

SHRUB

Aquifoliaceae
- Ilex verticillata
- Nemopanthus mucronatus

Betulaceae
- Alnus incana ssp. rugosa
- Alnus viridis ssp. crispa
- Corylus americana
- Corylus cornuta

Caprifoliaceae
- Diervilla lonicera
- Lonicera canadensis
- Lonicera hirsuta
- Lonicera sp.
- Sambucus nigra ssp. canadensis
- Sambucus racemosa var. racemosa
- Symphoricarpos albus
- Viburnum acerifolium
- Viburnum lentago
- Viburnum rafinesquianum

Cornaceae
- Cornus alternifolia
- Cornus racemosa
- Cornus rugosa
- Cornus sericea ssp. sericea

Ericaceae
- Arctostaphylos uva-ursi
- Chamaedaphne calyculata
- Kalmia polifolia
- Ledum groenlandicum
- Vaccinium angustifolium
- Vaccinium myrtilloides

Grossulariaceae
- Ribes cynosbati
- Ribes glandulosum
- Ribes hirtellum
- Ribes hudsonianum
- Ribes lacustre
- Ribes triste

Myricaceae
- Comptonia peregrina
- Myrica gale

Rhamnaceae
- Ceanothus americanus
- Frangula alnus
- Rhamnus alnifolia
- Rhamnus cathartica

Rosaceae
- Amelanchier sp.
- Rosa blanda
- Rubus allegheniensis
- Rubus flagellaris
- Rubus hispidus
- Rubus idaeus ssp. strigosus
- Rubus occidentalis
- Rubus parviflorus

SHRUB

Rosaceae
- Rubus pensilvanicus
- Rubus pubescens
- Rubus sp.
- Spiraea alba

Rutaceae
- Zanthoxylum americanum

Salicaceae
- Salix discolor
- Salix pedicellaris
- Salix sp.

Staphyleaceae
- Staphylea trifolia

Thymelaeaceae
- Dirca palustris

TREE

Aceraceae
- Acer negundo
- Acer nigrum
- Acer rubrum
- Acer saccharinum
- Acer saccharum
- Acer spicatum

Betulaceae
- Betula alleghaniensis
- Betula papyrifera
- Carpinus caroliniana
- Ostrya virginiana

Cupressaceae
- Thuja occidentalis

Fagaceae
- Quercus alba
- Quercus ellipsoidalis
- Quercus macrocarpa
- Quercus rubra
- Quercus sp.

Juglandaceae
- Carya cordiformis
- Juglans cinerea

Oleaceae
- Fraxinus americana
- Fraxinus nigra
- Fraxinus pennsylvanica
- Fraxinus sp.

Pinaceae
- Abies balsamea
- Larix laricina
- Picea glauca
- Picea mariana
- Pinus banksiana
- Pinus resinosa
- Pinus sp.
- Pinus strobus
- Pinus sylvestris

Species Encountered during Site Visits - by Park

TREE

Pinaceae

Rosaceae

- Crataegus sp.
- Prunus serotina
- Prunus virginiana

Salicaceae

- Populus balsamifera
- Populus grandidentata
- Populus sp.
- Populus tremuloides
- Salix sp.

Tiliaceae

- Tilia americana

Ulmaceae

- Celtis occidentalis
- Ulmus americana
- Ulmus rubra

WOODY VINE

Anacardiaceae

- Toxicodendron rydbergii

Celastraceae

- Celastrus orbiculatus
- Celastrus scandens

Smilacaceae

- Smilax tamnoides

Vitaceae

- Parthenocissus sp.
- Vitis riparia

Appendix C

Individual Plot Data

Density and Basal Area of Tree Species (Live trees)

Plot: 7001	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	700.0	6.1
Betula alleghaniensis	22.2	0.1
Carpinus caroliniana	33.3	0.0
Fraxinus nigra	288.9	10.3
Ostrya virginiana	422.2	0.7
Populus grandidentata	11.1	1.0
Prunus virginiana	22.2	0.0
Quercus macrocarpa	44.4	1.3
Quercus rubra	11.1	0.2
Tilia americana	88.9	3.8
Ulmus americana	188.9	1.1
softwood		
Abies balsamea	155.6	2.4
Picea glauca	11.1	0.0
Pinus strobus	44.4	17.0
TOTAL	**2,044.4**	**44.1**

Plot: 7002	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	11.1	0.0
Acer saccharum	400.0	1.5
Acer spicatum	33.3	0.0
Betula alleghaniensis	22.2	0.3
Betula papyrifera	22.2	0.1
Carpinus caroliniana	11.1	0.0
Fraxinus nigra	2544.4	5.5
Ostrya virginiana	233.3	0.4
Populus balsamifera	33.3	0.2
Populus tremuloides	44.4	0.2
Quercus macrocarpa	111.1	3.5
Quercus rubra	66.7	0.1
Tilia americana	388.9	7.9
Ulmus americana	22.2	0.0
TOTAL	**3,944.4**	**19.6**

Plot: 7003	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	66.7	0.8
Carpinus caroliniana	11.1	0.0
Carya cordiformis	11.1	0.0
Fraxinus nigra	833.3	8.9
Fraxinus pennsylvanica	33.3	1.2
Ostrya virginiana	400.0	1.4
Populus tremuloides	11.1	0.1
Quercus macrocarpa	88.9	3.5
Quercus rubra	33.3	1.4
Tilia americana	144.4	2.9
TOTAL	**1,633.3**	**20.1**

Plot: 7005	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	33.3	0.0
Betula papyrifera	177.8	2.3
Populus grandidentata	33.3	0.3
Populus tremuloides	1666.7	8.7
Quercus macrocarpa	11.1	0.1
Quercus rubra	322.2	0.7
softwood		
Pinus resinosa	100.0	6.6
TOTAL	**2,344.4**	**18.8**

Plot: 7009	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	11.1	0.1
Betula papyrifera	11.1	0.0
Fraxinus nigra	88.9	0.3
Populus grandidentata	100.0	4.5
Populus tremuloides	533.3	8.8
Prunus serotina	55.6	0.4
Quercus alba	466.7	3.5
Quercus rubra	277.8	6.0
softwood		
Pinus banksiana	22.2	1.9
Pinus resinosa	11.1	0.1
TOTAL	**1,577.8**	**25.5**

Plot: 7011	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer negundo	44.4	0.6
Acer saccharinum	11.1	7.1
Carya cordiformis	11.1	0.4
Celtis occidentalis	11.1	0.1
Fraxinus nigra	77.8	11.8
Ostrya virginiana	22.2	0.0
Quercus macrocarpa	22.2	3.2
Tilia americana	200.0	14.7
Ulmus americana	44.4	1.2
Ulmus rubra	22.2	1.0
TOTAL	**466.7**	**40.0**

Plot: 7012

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	844.4	4.8
Betula papyrifera	33.3	0.1
Carpinus caroliniana	22.2	0.0
Populus grandidentata	55.6	1.3
Populus tremuloides	77.8	5.3
Prunus serotina	22.2	0.0
Quercus alba	44.4	0.3
Quercus ellipsoidalis	177.8	10.1
Quercus rubra	155.6	8.0
TOTAL	**1,433.3**	**29.9**

Plot: 7014

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Carpinus caroliniana	44.4	0.0
Fraxinus pennsylvanica	11.1	0.0
Ostrya virginiana	22.2	0.1
Quercus macrocarpa	188.9	2.3
Quercus rubra	55.6	1.5
softwood		
Pinus resinosa	22.2	4.2
Pinus strobus	33.3	3.7
TOTAL	**377.8**	**11.9**

Plot: 7015

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	11.1	0.2
Crataegus sp.	22.2	0.0
Fraxinus nigra	100.0	1.3
Ostrya virginiana	55.6	0.0
Populus grandidentata	33.3	0.2
Populus tremuloides	111.1	2.3
Prunus serotina	11.1	0.0
Prunus virginiana	11.1	0.0
Quercus macrocarpa	11.1	0.1
Quercus rubra	55.6	0.4
Ulmus americana	22.2	0.0
softwood		
Abies balsamea	588.9	4.6
Picea glauca	333.3	10.5
Pinus banksiana	11.1	0.7
Pinus resinosa	22.2	0.9
Pinus strobus	11.1	2.0
TOTAL	**1,411.1**	**23.4**

Plot: 7017

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Betula papyrifera	33.3	0.4
Populus grandidentata	66.7	0.1
Populus tremuloides	255.6	3.5
Quercus rubra	500.0	12.0
softwood		
Pinus resinosa	155.6	12.9
Pinus strobus	22.2	1.1
Pinus sylvestris	11.1	0.6
TOTAL	**1,044.4**	**30.7**

Plot: 7018

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Betula papyrifera	11.1	0.1
Ostrya virginiana	444.4	0.7
Populus grandidentata	22.2	0.8
Populus tremuloides	155.6	10.4
Quercus macrocarpa	166.7	0.9
Quercus rubra	355.6	7.5
softwood		
Picea glauca	11.1	0.0
Pinus resinosa	11.1	3.1
TOTAL	**1,177.8**	**23.6**

Plot: 7019

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	55.6	0.4
Acer saccharum	644.4	5.2
Carpinus caroliniana	200.0	0.2
Carya cordiformis	44.4	0.8
Fraxinus pennsylvanica	55.6	2.4
Ostrya virginiana	344.4	1.9
Quercus alba	100.0	5.8
Quercus rubra	33.3	3.9
Tilia americana	200.0	5.0
TOTAL	**1,677.8**	**25.7**

Plot: 7020

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	622.2	8.2
Acer saccharum	11.1	0.2
Betula alleghaniensis	55.6	2.1
Betula papyrifera	55.6	1.3
Fraxinus nigra	277.8	4.8
softwood		
Abies balsamea	755.6	10.4
Thuja occidentalis	11.1	1.9
TOTAL	**1,788.9**	**29.0**

Plot: 7021

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	11.1	0.0
Betula papyrifera	77.8	0.7
Populus grandidentata	22.2	0.9
Quercus macrocarpa	11.1	0.1
Quercus rubra	277.8	2.0
softwood		
Larix laricina	188.9	0.4
Picea mariana	811.1	3.4
Pinus banksiana	211.1	5.2
Pinus resinosa	111.1	3.7
Pinus strobus	22.2	0.4
TOTAL	**1,744.4**	**16.8**

Plot: 7025

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	311.1	0.7
Betula papyrifera	33.3	0.4
Populus grandidentata	122.2	2.0
Populus tremuloides	111.1	7.1
Prunus virginiana	22.2	0.0
Quercus macrocarpa	11.1	0.0
Quercus rubra	100.0	2.7
softwood		
Abies balsamea	11.1	0.0
Picea glauca	11.1	0.0
Pinus banksiana	11.1	0.0
Pinus resinosa	66.7	3.0
Pinus strobus	577.8	3.5
Pinus sylvestris	88.9	2.1
TOTAL	**1,477.8**	**21.5**

Plot: 7026

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	33.3	0.2
Betula papyrifera	44.4	0.4
Fraxinus nigra	1055.6	10.8
Fraxinus pennsylvanica	33.3	0.2
Ostrya virginiana	22.2	0.1
Populus tremuloides	44.4	1.0
Prunus virginiana	11.1	0.0
Quercus alba	211.1	4.9
Quercus rubra	11.1	0.0
Tilia americana	500.0	8.4
Ulmus americana	55.6	0.3
softwood		
Picea glauca	22.2	1.8
TOTAL	**2,044.4**	**27.9**

Plot: 7027

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer saccharum	55.6	1.6
Carpinus caroliniana	1055.6	1.4
Carya cordiformis	11.1	0.0
Fraxinus nigra	522.2	8.7
Ostrya virginiana	155.6	0.5
Quercus macrocarpa	33.3	4.0
Tilia americana	244.4	4.5
Ulmus americana	33.3	0.1
TOTAL	**2,111.1**	**20.7**

Plot: 7028

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	211.1	2.7
Betula papyrifera	55.6	1.7
Ostrya virginiana	88.9	0.1
Populus grandidentata	88.9	3.6
Populus tremuloides	66.7	2.3
Quercus ellipsoidalis	88.9	3.3
Quercus rubra	155.6	3.2
softwood		
Pinus banksiana	122.2	6.4
Pinus resinosa	133.3	6.8
Pinus strobus	11.1	0.1
TOTAL	**1,022.2**	**30.2**

Plot: 7031

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	33.3	0.3
Crataegus sp.	11.1	0.0
Fraxinus nigra	611.1	12.5
Quercus macrocarpa	33.3	1.3
Quercus rubra	33.3	0.1
Tilia americana	22.2	2.4
softwood		
Abies balsamea	22.2	0.7
Picea glauca	177.8	6.1
TOTAL	**944.4**	**23.5**

Plot: 7033

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	11.1	0.4
Carpinus caroliniana	22.2	0.0
Fraxinus nigra	488.9	20.1
Ostrya virginiana	155.6	0.4
Prunus virginiana	55.6	0.1
Quercus rubra	11.1	0.5
Tilia americana	244.4	5.6
Ulmus americana	344.4	2.8
TOTAL	**1,333.3**	**29.8**

Plot: 7034

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer saccharinum	255.6	15.5
Fraxinus nigra	255.6	4.7
Prunus virginiana	22.2	0.0
Quercus macrocarpa	66.7	11.2
Tilia americana	11.1	0.2
Ulmus americana	88.9	0.3
TOTAL	**700.0**	**32.0**

Plot: 7035

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer saccharinum	111.1	30.7
Celtis occidentalis	77.8	1.9
Fraxinus nigra	433.3	9.7
TOTAL	**622.2**	**42.2**

Plot: 7036

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	100.0	2.0
Populus tremuloides	133.3	1.0
Prunus virginiana	111.1	0.2
softwood		
Abies balsamea	166.7	3.4
Picea glauca	22.2	0.3
Pinus banksiana	33.3	3.7
Pinus strobus	55.6	1.7
TOTAL	**622.2**	**12.4**

Plot: 7037

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	11.1	0.0
Carpinus caroliniana	66.7	0.2
Fraxinus nigra	66.7	0.1
Populus tremuloides	211.1	15.1
Prunus serotina	111.1	0.3
Quercus alba	877.8	8.6
Quercus rubra	255.6	0.7
Tilia americana	88.9	4.1
Ulmus americana	11.1	0.1
softwood		
Pinus banksiana	11.1	0.7
TOTAL	**1,711.1**	**30.1**

Plot: 7038

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer saccharum	166.7	7.4
Carpinus caroliniana	277.8	0.3
Fraxinus nigra	488.9	12.8
Ostrya virginiana	255.6	1.0
Quercus macrocarpa	11.1	2.1
Tilia americana	66.7	3.4
TOTAL	**1,266.7**	**26.9**

Plot: 7042

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	700.0	2.4
Betula alleghaniensis	233.3	6.3
Fraxinus nigra	688.9	15.1
Ulmus americana	22.2	0.1
softwood		
Abies balsamea	611.1	1.9
Picea mariana	200.0	0.5
Thuja occidentalis	122.2	10.1
TOTAL	**2,577.8**	**36.4**

Plot: 7043

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer saccharum	44.4	0.2
Betula papyrifera	33.3	0.8
Carpinus caroliniana	33.3	0.0
Carya cordiformis	44.4	0.2
Crataegus sp.	11.1	0.0
Fraxinus nigra	388.9	9.9
Ostrya virginiana	344.4	1.7
Populus tremuloides	33.3	3.2
Quercus macrocarpa	33.3	2.0
Tilia americana	311.1	8.5
Ulmus americana	300.0	4.0
Ulmus rubra	11.1	0.1
TOTAL	**1,588.9**	**30.8**

Plot: 7048

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	255.6	4.5
Betula papyrifera	33.3	0.3
Populus grandidentata	155.6	11.3
Populus tremuloides	111.1	1.2
Prunus serotina	33.3	0.0
Prunus virginiana	44.4	0.1
Quercus rubra	22.2	0.1
Ulmus americana	11.1	0.0
softwood		
Abies balsamea	1455.6	9.0
Picea glauca	177.8	1.7
Pinus resinosa	11.1	1.4
TOTAL	**2,311.1**	**29.6**

Plot: 7049

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	88.9	1.0
Betula papyrifera	100.0	1.1
Carpinus caroliniana	22.2	0.0
Fraxinus pennsylvanica	11.1	0.1
Juglans cinerea	22.2	0.1
Ostrya virginiana	322.2	0.6
Populus grandidentata	377.8	5.8
Populus tremuloides	1000.0	2.6
Prunus serotina	11.1	0.1
Prunus virginiana	22.2	0.0
Quercus macrocarpa	11.1	0.0
Quercus rubra	266.7	4.1
softwood		
Pinus resinosa	22.2	2.3
TOTAL	**2,277.8**	**17.7**

Plot: 7052

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	111.1	0.6
Betula papyrifera	122.2	1.2
Fraxinus pennsylvanica	11.1	0.1
Populus grandidentata	11.1	0.4
Populus tremuloides	11.1	0.2
Prunus serotina	100.0	0.6
Prunus virginiana	11.1	0.0
Quercus rubra	11.1	0.1
softwood		
Abies balsamea	188.9	1.5
Pinus banksiana	144.4	10.6
Pinus resinosa	22.2	0.9
Pinus strobus	900.0	26.2
TOTAL	**1,644.4**	**42.5**

Plot: 7054

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer saccharum	155.6	1.6
Carpinus caroliniana	77.8	0.1
Fraxinus nigra	33.3	1.3
Ostrya virginiana	344.4	1.5
Quercus macrocarpa	22.2	2.6
Tilia americana	311.1	25.9
TOTAL	**944.4**	**32.9**

Plot: 7055

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer saccharum	455.6	7.5
Carpinus caroliniana	277.8	0.3
Carya cordiformis	33.3	0.1
Fraxinus nigra	11.1	1.2
Juglans cinerea	11.1	0.5
Ostrya virginiana	166.7	1.0
Prunus virginiana	11.1	0.0
Quercus macrocarpa	22.2	1.3
Tilia americana	88.9	4.5
Ulmus americana	177.8	1.8
TOTAL	**1,255.6**	**18.2**

Plot: 7064

Species	Density (individuals / ha)	Basal Area (m²/ ha)
hardwood		
Acer rubrum	400.0	5.8
Betula papyrifera	188.9	0.5
Carpinus caroliniana	33.3	0.0
Fraxinus nigra	122.2	4.0
Populus grandidentata	100.0	2.9
Populus tremuloides	77.8	3.2
Prunus serotina	11.1	0.0
Prunus virginiana	11.1	0.0
Ulmus americana	66.7	0.7
softwood		
Abies balsamea	1066.7	4.3
Picea glauca	77.8	3.6
Pinus banksiana	77.8	2.1
Pinus strobus	22.2	2.1
TOTAL	**2,255.6**	**29.2**

Plot: 7076	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Acer saccharum	733.3	18.6
Betula papyrifera	22.2	0.7
Carya cordiformis	166.7	2.3
Fraxinus pennsylvanica	22.2	0.3
Ostrya virginiana	11.1	0.0
Prunus virginiana	11.1	0.4
Quercus rubra	11.1	0.6
Tilia americana	44.4	0.6
Ulmus americana	33.3	0.8
TOTAL	**1,055.6**	**24.2**

Plot: 7077	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Acer rubrum	88.9	0.2
Carpinus caroliniana	211.1	0.4
Crataegus sp.	66.7	0.1
Fraxinus nigra	222.2	1.5
Populus tremuloides	211.1	3.8
Prunus serotina	111.1	1.0
Prunus virginiana	22.2	0.1
Quercus macrocarpa	177.8	7.5
Quercus rubra	22.2	0.5
Ulmus americana	44.4	1.4
TOTAL	**1,177.8**	**16.5**

Density and Basal Area of Tree Species (Dead trees)

Plot: 7001	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Acer rubrum	133.3	0.4
Fraxinus nigra	11.1	0.1
Ostrya virginiana	44.4	0.2
Tilia americana	11.1	0.6
softwood		
Abies balsamea	11.1	0.5
Pinus strobus	22.2	6.5
softwood / hardwood		
unknown dead tree	33.3	1.1
TOTAL	**266.7**	**9.4**

Plot: 7002	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Acer saccharum	22.2	0.1
Betula alleghaniensis	22.2	0.0
Fraxinus nigra	44.4	0.0
Quercus macrocarpa	33.3	0.7
Tilia americana	44.4	0.3
softwood / hardwood		
unknown dead tree	66.7	4.6
TOTAL	**233.3**	**5.7**

Plot: 7003	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Fraxinus nigra	22.2	0.0
softwood / hardwood		
unknown dead tree	55.6	1.0
TOTAL	**77.8**	**1.1**

Plot: 7005	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Betula papyrifera	11.1	0.0
Populus tremuloides	455.6	0.6
Quercus rubra	22.2	0.0
softwood / hardwood		
unknown dead tree	22.2	0.3
TOTAL	**511.1**	**0.9**

Plot: 7009	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Populus grandidentata	11.1	0.2
Populus sp.	11.1	1.1
Populus tremuloides	144.4	3.6
Quercus alba	55.6	0.2
softwood		
Pinus banksiana	11.1	0.7
Pinus sp.	11.1	1.0
softwood / hardwood		
unknown dead tree	55.6	0.4
TOTAL	**300.0**	**7.1**

Plot: 7011	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Fraxinus nigra	11.1	0.2
Ulmus americana	11.1	0.3
softwood / hardwood		
unknown dead tree	22.2	5.6
TOTAL	**44.4**	**6.1**

Plot: 7012	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Acer rubrum	11.1	0.0
Quercus ellipsoidalis	11.1	0.4
softwood / hardwood		
unknown dead tree	44.4	1.2
TOTAL	**66.7**	**1.6**

Plot: 7014	Density (individuals / ha)	Basal Area (m^2/ ha)
softwood / hardwood		
unknown dead tree	22.2	0.9
TOTAL	**22.2**	**0.9**

Plot: 7015	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Fraxinus nigra	11.1	0.0
Populus tremuloides	11.1	0.1
Quercus rubra	11.1	0.0
softwood		
Abies balsamea	22.2	0.1
softwood / hardwood		
unknown dead tree	66.7	0.7
TOTAL	**122.2**	**0.9**

Plot: 7017

Species	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Quercus rubra	22.2	0.3
softwood		
Pinus resinosa	11.1	0.1
TOTAL	**33.3**	**0.4**

Plot: 7018

Species	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Populus tremuloides	133.3	1.5
Quercus rubra	22.2	0.4
softwood / hardwood		
unknown dead tree	33.3	0.3
TOTAL	**188.9**	**2.2**

Plot: 7019

Species	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Acer spicatum	11.1	0.0
Carpinus caroliniana	22.2	0.0
Fraxinus pennsylvanica	11.1	0.1
Fraxinus sp.	11.1	0.1
Ostrya virginiana	11.1	0.0
Quercus alba	11.1	0.1
Tilia americana	11.1	0.1
softwood / hardwood		
unknown dead tree	33.3	1.6
TOTAL	**122.2**	**2.1**

Plot: 7020

Species	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Acer rubrum	100.0	0.5
Fraxinus nigra	55.6	1.1
Fraxinus sp.	11.1	0.1
softwood		
Abies balsamea	166.7	2.4
softwood / hardwood		
unknown dead tree	88.9	1.1
TOTAL	**422.2**	**5.2**

Plot: 7021

Species	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Quercus rubra	44.4	0.2
softwood		
Picea mariana	22.2	0.1
Pinus banksiana	22.2	0.7
softwood / hardwood		
unknown dead tree	44.4	1.2
TOTAL	**133.3**	**2.2**

Plot: 7025

Species	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Quercus rubra	11.1	0.0
softwood		
Pinus resinosa	11.1	0.4
Pinus sylvestris	33.3	0.9
softwood / hardwood		
unknown dead tree	33.3	0.5
TOTAL	**88.9**	**1.8**

Plot: 7026

Species	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Betula papyrifera	11.1	0.0
Fraxinus nigra	11.1	0.1
Tilia americana	44.4	0.4
softwood / hardwood		
unknown dead tree	77.8	1.8
TOTAL	**144.4**	**2.2**

Plot: 7027

Species	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Acer saccharum	11.1	0.0
Carpinus caroliniana	111.1	0.2
Fraxinus nigra	11.1	0.0
Tilia americana	11.1	0.2
softwood / hardwood		
unknown dead tree	22.2	0.1
TOTAL	**166.7**	**0.5**

Plot: 7028

Species	Density (individuals / ha)	Basal Area (m^2/ ha)
hardwood		
Acer rubrum	11.1	0.0
Populus sp.	22.2	0.5
Populus tremuloides	22.2	0.5
Quercus ellipsoidalis	22.2	0.5
Quercus rubra	22.2	0.2
Quercus sp.	11.1	0.1
softwood		
Pinus banksiana	11.1	0.2
Pinus sp.	33.3	1.7
softwood / hardwood		
unknown dead tree	33.3	0.4
TOTAL	**188.9**	**4.2**

Plot: 7031	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Fraxinus nigra	22.2	0.5
softwood		
Abies balsamea	55.6	1.0
TOTAL	**77.8**	**1.5**

Plot: 7033	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Fraxinus nigra	11.1	0.3
Tilia americana	33.3	0.5
Ulmus americana	122.2	1.6
TOTAL	**166.7**	**2.3**

Plot: 7034	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Prunus virginiana	11.1	0.0
softwood / hardwood		
unknown dead tree	33.3	0.6
TOTAL	**44.4**	**0.6**

Plot: 7035	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Fraxinus nigra	44.4	0.7
TOTAL	**44.4**	**0.7**

Plot: 7036	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Prunus virginiana	33.3	0.4
softwood		
Picea glauca	11.1	0.1
softwood / hardwood		
unknown dead tree	11.1	0.3
TOTAL	**55.6**	**0.8**

Plot: 7037	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Carpinus caroliniana	11.1	0.0
Populus tremuloides	22.2	0.5
Prunus serotina	11.1	0.0
Quercus alba	33.3	0.1
Quercus sp.	11.1	0.0
softwood / hardwood		
unknown dead tree	44.4	0.9
TOTAL	**133.3**	**1.6**

Plot: 7038	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Carpinus caroliniana	22.2	0.0
Ostrya virginiana	22.2	0.1
softwood / hardwood		
unknown dead tree	22.2	0.7
TOTAL	**66.7**	**0.7**

Plot: 7042	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Acer rubrum	55.6	0.1
Betula alleghaniensis	11.1	0.7
Fraxinus nigra	22.2	0.2
softwood		
Abies balsamea	11.1	0.2
Picea mariana	33.3	0.3
Thuja occidentalis	11.1	0.0
TOTAL	**144.4**	**1.5**

Plot: 7043	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Betula papyrifera	11.1	0.2
Carpinus caroliniana	22.2	0.0
Fraxinus nigra	11.1	0.1
Ostrya virginiana	33.3	0.1
Prunus serotina	11.1	0.1
Tilia americana	22.2	0.1
Ulmus americana	11.1	0.2
softwood / hardwood		
unknown dead tree	33.3	0.9
TOTAL	**155.6**	**1.7**

Plot: 7048	Density (individuals / ha)	Basal Area (m^2/ ha)
Species		
hardwood		
Betula papyrifera	44.4	1.2
Populus sp.	33.3	1.8
Populus tremuloides	11.1	0.9
softwood		
Abies balsamea	33.3	0.1
softwood / hardwood		
unknown dead tree	88.9	2.2
TOTAL	**211.1**	**6.2**

Plot: 7049	Density (individuals / ha)	Basal Area (m²/ ha)
Species		
hardwood		
Acer rubrum	22.2	0.2
Populus grandidentata	88.9	2.9
Populus tremuloides	111.1	0.1
Quercus rubra	44.4	0.0
softwood / hardwood		
unknown dead tree	44.4	0.7
TOTAL	**311.1**	**3.9**

Plot: 7052	Density (individuals / ha)	Basal Area (m²/ ha)
Species		
softwood		
Pinus sp.	22.2	1.0
Pinus strobus	55.6	1.6
softwood / hardwood		
unknown dead tree	155.6	3.3
TOTAL	**233.3**	**5.9**

Plot: 7054	Density (individuals / ha)	Basal Area (m²/ ha)
Species		
hardwood		
Acer saccharum	11.1	0.0
Carpinus caroliniana	22.2	0.2
Ostrya virginiana	100.0	0.7
TOTAL	**133.3**	**0.9**

Plot: 7055	Density (individuals / ha)	Basal Area (m²/ ha)
Species		
hardwood		
Carpinus caroliniana	11.1	0.0
Prunus virginiana	11.1	0.0
softwood / hardwood		
unknown dead tree	22.2	0.0
TOTAL	**44.4**	**0.1**

Plot: 7064	Density (individuals / ha)	Basal Area (m²/ ha)
Species		
hardwood		
Fraxinus nigra	11.1	0.0
Populus grandidentata	22.2	0.1
Populus sp.	11.1	0.8
Populus tremuloides	11.1	0.2
Prunus serotina	11.1	0.1
softwood		
Abies balsamea	11.1	0.0
Pinus banksiana	33.3	0.2
Pinus strobus	11.1	1.9
softwood / hardwood		
unknown dead tree	144.4	2.1
TOTAL	**266.7**	**5.4**

Plot: 7076	Density (individuals / ha)	Basal Area (m²/ ha)
Species		
hardwood		
Acer saccharum	55.6	0.1
Betula papyrifera	11.1	0.4
softwood / hardwood		
unknown dead tree	55.6	0.5
TOTAL	**122.2**	**1.0**

Plot: 7077	Density (individuals / ha)	Basal Area (m²/ ha)
Species		
hardwood		
Populus tremuloides	188.9	2.9
Prunus serotina	11.1	0.1
Prunus virginiana	11.1	0.0
Quercus macrocarpa	11.1	0.0
softwood / hardwood		
unknown dead tree	11.1	0.2
TOTAL	**233.3**	**3.2**

Frequency of Species in Groundlayer Quadrats

Plot: 7001

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.0	0.1	0.0	0.03
Amelanchier sp.	0.0	0.0	0.1	0.03
Amphicarpaea bracteata	0.0	0.3	0.2	0.17
Anemone quinquefolia	0.2	0.1	0.0	0.10
Aralia nudicaulis	0.2	0.8	0.6	0.53
Arisaema triphyllum	0.1	0.0	0.0	0.03
Asarum canadense	0.1	0.0	0.0	0.03
Asteraceae sp.	0.1	0.0	0.1	0.07
Athyrium filix-femina ssp. angustum	0.2	0.0	0.5	0.23
Carex sp.	1.0	1.0	0.3	0.77
Circaea lutetiana ssp. canadensis	0.0	0.0	0.2	0.07
Clintonia borealis	0.1	0.1	0.4	0.20
Coptis trifolia	0.0	0.0	0.4	0.13
Cornus alternifolia	0.0	0.0	0.1	0.03
Cornus canadensis	0.0	0.3	0.0	0.10
Cornus racemosa	0.0	0.1	0.0	0.03
Corylus cornuta	0.1	0.1	0.1	0.10
Crataegus sp.	0.0	0.1	0.0	0.03
Diervilla lonicera	0.0	0.2	0.0	0.07
Dryopteris carthusiana	0.2	0.0	0.0	0.07
Equisetum pratense	0.4	0.0	0.1	0.17
Eurybia macrophylla	0.2	1.0	0.7	0.63
Fragaria virginiana	0.3	0.2	0.1	0.20
Fraxinus nigra	0.1	0.7	0.0	0.27
Galium triflorum	0.4	0.0	0.1	0.17
Geum canadense	0.4	0.0	0.0	0.13
Gymnocarpium dryopteris	0.1	0.0	0.1	0.07
Hepatica nobilis var. obtusa	0.0	1.0	0.6	0.53
Ilex verticillata	0.0	0.1	0.1	0.07
Lathyrus ochroleucus	0.0	0.4	0.0	0.13
Lonicera canadensis	0.0	0.3	0.1	0.13
Lonicera hirsuta	0.0	0.2	0.0	0.07
Maianthemum canadense	0.5	0.8	0.9	0.73
Mitchella repens	0.0	0.7	0.2	0.30
Mitella diphylla	0.1	0.3	0.3	0.23
Onoclea sensibilis	0.1	0.0	0.0	0.03
Orthilia secunda	0.0	0.1	0.0	0.03
Oryzopsis asperifolia	0.0	0.4	0.2	0.20
Osmunda cinnamomea	0.0	0.0	0.2	0.07
Ostrya virginiana	0.0	0.7	0.6	0.43
Parthenocissus sp.	0.1	0.1	0.0	0.07
Poaceae sp.	0.2	1.0	0.4	0.53
Polygonatum pubescens	0.0	0.3	0.0	0.10
Pteridium aquilinum	0.0	0.1	0.1	0.07
Pyrola sp.	0.0	0.0	0.1	0.03
Quercus macrocarpa	0.1	0.0	0.0	0.03
Quercus rubra	0.0	0.0	0.1	0.03
Ribes cynosbati	0.0	0.1	0.0	0.03
Rubus pubescens	0.3	0.8	0.4	0.50
Solidago flexicaulis	0.1	0.0	0.0	0.03
Solidago sp.	0.1	0.0	0.0	0.03
Streptopus lanceolatus var. roseus	0.2	0.1	0.1	0.13
Symplocarpus foetidus	0.1	0.0	0.1	0.07

Plot: 7001

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Taraxacum officinale	0.1	0.0	0.0	0.03
Thalictrum dioicum	0.1	0.7	0.1	0.30
Tilia americana	0.0	0.0	0.1	0.03
Toxicodendron rydbergii	0.0	0.5	0.0	0.17
Trientalis borealis	0.2	0.5	0.7	0.47
Ulmus americana	0.2	0.1	0.0	0.10
Urtica dioica ssp. gracilis	0.1	0.0	0.0	0.03
Uvularia grandiflora	0.0	0.4	0.0	0.13
Uvularia sessilifolia	0.1	0.7	0.2	0.33
Vaccinium angustifolium	0.0	0.3	0.0	0.10
Viola sp.	0.1	0.1	0.0	0.07

Plot: 7002

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.0	0.1	0.0	0.03
Acer spicatum	0.0	0.0	0.1	0.03
Adiantum pedatum	0.0	0.1	0.2	0.10
Anemone canadensis	0.3	0.0	0.1	0.13
Aralia nudicaulis	0.4	0.2	0.0	0.20
Asarum canadense	0.0	0.1	0.0	0.03
Aster lateriflorus	0.5	0.2	0.1	0.27
Athyrium filix-femina ssp. angustum	0.0	0.1	0.0	0.03
Carex sp.	0.2	0.0	0.6	0.27
Caulophyllum thalictroides	0.0	0.1	0.0	0.03
Circaea lutetiana ssp. canadensis	0.0	0.0	0.1	0.03
Diervilla lonicera	0.1	0.0	0.0	0.03
Equisetum arvense	0.2	0.0	0.0	0.07
Eurybia macrophylla	0.8	0.7	0.7	0.73
Fragaria virginiana	0.1	0.2	0.0	0.10
Fraxinus nigra	0.4	0.5	0.6	0.50
Galium triflorum	0.1	0.2	0.2	0.17
Hepatica nobilis var. obtusa	0.7	0.6	0.4	0.57
Maianthemum canadense	0.6	0.5	0.5	0.53
Mitella diphylla	0.5	0.6	0.6	0.57
Osmorhiza longistylis	0.0	0.1	0.0	0.03
Parthenocissus sp.	0.3	0.0	0.1	0.13
Poaceae sp.	0.6	0.5	0.4	0.50
Prenanthes alba	0.0	0.0	0.1	0.03
Prunus serotina	0.0	0.1	0.0	0.03
Prunus virginiana	0.0	0.1	0.0	0.03
Ribes lacustre	0.2	0.0	0.0	0.07
Rosa blanda	0.0	0.1	0.0	0.03
Rubus pensilvanicus	0.4	0.2	0.1	0.23
Rubus pubescens	0.4	0.4	0.3	0.37
Sanicula marilandica	0.1	0.1	0.1	0.10
Taraxacum officinale	0.1	0.0	0.0	0.03
Thalictrum dioicum	0.0	0.4	0.1	0.17
Toxicodendron rydbergii	0.7	0.5	0.0	0.40
Trientalis borealis	0.1	0.1	0.0	0.07
Ulmus americana	0.0	0.1	0.0	0.03
Uvularia grandiflora	0.0	0.2	0.1	0.10
Uvularia sessilifolia	0.6	0.5	0.3	0.47
Viola sp.	0.4	0.3	0.5	0.40

Plot: 7003

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Ageratina altissima	0.0	0.0	0.1	0.03
Alisma sp.	0.1	0.0	0.0	0.03
Amphicarpaea bracteata	0.2	0.1	0.1	0.13
Aralia nudicaulis	0.0	0.1	0.1	0.07
Aster lateriflorus	0.0	0.1	0.0	0.03
Athyrium filix-femina ssp. angustum	0.1	0.0	0.0	0.03
Bidens frondosa	0.2	0.0	0.0	0.07
Carex sp.	1.0	0.5	0.5	0.67
Carpinus caroliniana	0.0	0.1	0.2	0.10
Circaea lutetiana ssp. canadensis	0.1	0.3	0.0	0.13
Cornus racemosa	0.0	0.0	0.1	0.03
Desmodium glutinosum	0.0	0.1	0.1	0.07
Dryopteris carthusiana	0.0	0.2	0.0	0.07
Epilobium leptophyllum	0.1	0.0	0.0	0.03
Eurybia macrophylla	0.0	0.5	0.2	0.23
Fraxinus nigra	0.0	0.2	0.2	0.13
Galium concinnum	0.0	0.1	0.2	0.10
Galium triflorum	0.5	0.1	0.0	0.20
Geranium maculatum	0.0	0.2	0.0	0.07
Geum canadense	0.2	0.3	0.0	0.17
Geum sp.	0.0	0.1	0.0	0.03
Hepatica nobilis var. obtusa	0.0	0.0	0.3	0.10
Ilex verticillata	0.2	0.0	0.1	0.10
Impatiens capensis	0.4	0.0	0.0	0.13
Lamiaceae sp.	0.3	0.1	0.0	0.13
Laportea canadensis	0.2	0.0	0.0	0.07
Lycopus uniflorus	0.4	0.0	0.0	0.13
Lysimachia ciliata	0.4	0.0	0.0	0.13
Maianthemum canadense	0.0	0.2	0.1	0.10
Ostrya virginiana	0.0	0.1	0.1	0.07
Oxalis stricta	0.0	0.2	0.0	0.07
Parthenocissus sp.	0.3	0.1	0.1	0.17
Physostegia virginiana	0.1	0.1	0.0	0.07
Pilea sp.	0.7	0.2	0.0	0.30
Poaceae sp.	0.6	0.4	0.3	0.43
Polygonum sagittatum	0.4	0.1	0.3	0.27
Prunella vulgaris	0.0	0.2	0.0	0.07
Quercus macrocarpa	0.0	0.1	0.0	0.03
Rhamnus cathartica	0.0	0.2	0.2	0.13
Ribes hirtellum	0.0	0.0	0.1	0.03
Rosa blanda	0.0	0.0	0.1	0.03
Rubus idaeus ssp. strigosus	0.1	0.0	0.0	0.03
Rubus pubescens	0.0	0.1	0.0	0.03
Rudbeckia laciniata	0.0	0.1	0.0	0.03
Sanicula marilandica	0.0	0.6	0.0	0.20
Scirpus atrovirens	0.0	0.0	0.1	0.03
Smilax tamnoides	0.0	0.1	0.0	0.03
Solidago canadensis	0.1	0.0	0.0	0.03
Solidago sp.	0.0	0.1	0.0	0.03
Symphyotrichum puniceum	0.2	0.1	0.1	0.13
Thalictrum dioicum	0.0	0.1	0.0	0.03
Thelypteris palustris	0.0	0.0	0.1	0.03
Veronica scutellata	0.0	0.0	0.2	0.07
Viola sp.	0.1	0.3	0.0	0.13
Zanthoxylum americanum	0.0	0.1	0.2	0.10

Plot: 7005

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.2	0.0	0.1	0.10
Achillea millefolium	0.0	0.0	0.1	0.03
Amelanchier sp.	0.2	0.0	0.1	0.10
Amphicarpaea bracteata	0.4	0.0	0.0	0.13
Anemone canadensis	0.0	0.4	0.2	0.20
Anemone quinquefolia	0.4	0.6	0.2	0.40
Apocynum androsaemifolium	0.0	0.0	0.1	0.03
Aquilegia canadensis	0.0	0.1	0.0	0.03
Aralia nudicaulis	0.0	0.2	0.5	0.23
Asclepias syriaca	0.1	0.0	0.0	0.03
Calystegia spithamaea	0.1	0.0	0.0	0.03
Carex sp.	1.0	1.0	0.7	0.90
Comptonia peregrina	0.1	0.0	0.0	0.03
Corylus americana	0.4	0.6	0.2	0.40
Corylus cornuta	0.0	0.0	0.3	0.10
Eurybia macrophylla	0.0	0.5	0.5	0.33
Fraxinus nigra	0.0	0.1	0.1	0.07
Galium boreale	0.6	0.6	0.7	0.63
Gaultheria procumbens	0.6	0.2	0.6	0.47
Helianthus hirsutus	0.2	0.1	0.7	0.33
Ilex verticillata	0.0	0.0	0.1	0.03
Lathyrus venosus	0.1	0.4	0.3	0.27
Lycopodium digitatum	0.0	0.0	0.2	0.07
Lysimachia quadrifolia	0.0	0.1	0.4	0.17
Maianthemum canadense	0.9	0.9	0.9	0.90
Maianthemum racemosum ssp. racemosum	0.0	0.2	0.2	0.13
Melampyrum lineare	0.0	0.0	0.3	0.10
Monarda fistulosa	0.0	0.3	0.0	0.10
Monotropa uniflora	0.1	0.0	0.0	0.03
Pinus resinosa	0.1	0.0	0.0	0.03
Poaceae sp.	0.4	0.8	0.6	0.60
Polygala paucifolia	0.0	0.1	0.0	0.03
Polygonatum pubescens	0.1	0.0	0.0	0.03
Potentilla simplex	0.2	0.3	0.0	0.17
Prenanthes alba	0.0	0.0	0.1	0.03
Pteridium aquilinum	0.8	0.4	0.4	0.53
Pyrola sp.	0.0	0.1	0.1	0.07
Quercus alba	0.0	0.1	0.1	0.07
Quercus rubra	0.4	0.3	0.4	0.37
Rubus allegheniensis	0.2	0.1	0.2	0.17
Rubus idaeus ssp. strigosus	0.0	0.2	0.0	0.07
Spiraea alba	0.0	0.1	0.0	0.03
Trientalis borealis	0.0	0.2	0.2	0.13
Uvularia sessilifolia	0.0	0.5	0.2	0.23
Vaccinium angustifolium	0.7	0.9	0.6	0.73
Viola sp.	0.1	0.0	0.0	0.03

Plot: 7009

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Amelanchier sp.	0.5	0.2	0.6	0.43
Amorpha canescens	0.2	0.0	0.0	0.07
Amphicarpaea bracteata	0.0	0.0	0.1	0.03
Anemone canadensis	0.2	0.1	0.1	0.13
Anemone quinquefolia	0.3	0.2	0.2	0.23
Apocynum androsaemifolium	0.0	0.1	0.0	0.03
Calystegia spithamaea	0.0	0.0	0.1	0.03
Carex pensylvanica	0.9	1.0	1.0	0.97
Chamerion angustifolium	0.1	0.0	0.0	0.03
Cornus racemosa	0.2	0.3	0.5	0.33
Corylus americana	0.2	0.4	0.3	0.30
Corylus cornuta	0.0	0.0	0.1	0.03
Diervilla lonicera	0.1	0.1	0.2	0.13
Eurybia macrophylla	0.3	0.6	0.6	0.50
Fragaria virginiana	0.2	0.1	0.0	0.10
Fraxinus nigra	0.3	0.0	0.1	0.13
Galium boreale	0.6	0.6	0.5	0.57
Gaultheria procumbens	0.4	0.2	0.2	0.27
Helianthus hirsutus	0.2	0.4	0.4	0.33
Lathyrus venosus	0.2	0.3	0.3	0.27
Lysimachia quadrifolia	0.7	0.4	0.0	0.37
Maianthemum canadense	0.6	0.6	0.7	0.63
Orthilia secunda	0.0	0.0	0.4	0.13
Parthenocissus sp.	0.0	0.0	0.1	0.03
Phlox pilosa	0.1	0.0	0.0	0.03
Poaceae sp.	0.7	1.0	0.9	0.87
Populus tremuloides	0.1	0.4	0.0	0.17
Prunus serotina	0.0	0.1	0.0	0.03
Prunus virginiana	0.1	0.0	0.0	0.03
Pteridium aquilinum	0.5	0.3	0.6	0.47
Pyrola sp.	0.0	0.3	0.0	0.10
Quercus alba	0.1	0.1	0.3	0.17
Quercus rubra	0.0	0.2	0.1	0.10
Rosa blanda	0.4	0.2	0.2	0.27
Rubus pubescens	0.1	0.1	0.1	0.10
Smilax sp.	0.0	0.0	0.1	0.03
Streptopus lanceolatus var. roseus	0.2	0.0	0.1	0.10
Symphoricarpos albus	0.1	0.0	0.1	0.07
Thalictrum dioicum	0.0	0.5	0.4	0.30
Toxicodendron rydbergii	0.2	0.4	0.0	0.20
Uvularia sessilifolia	0.8	0.4	0.7	0.63
Vaccinium angustifolium	0.7	0.8	0.7	0.73
Vaccinium myrtilloides	0.1	0.1	0.0	0.07
Viburnum rafinesquianum	0.1	0.5	0.1	0.23
Vicia americana	0.0	0.0	0.1	0.03

Plot: 7011

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Ageratina altissima	0.1	0.0	0.1	0.07
Arisaema triphyllum	0.1	0.0	0.2	0.10
Aster lateriflorus	0.1	0.2	0.3	0.20
Athyrium filix-femina ssp. angustum	0.0	0.2	0.0	0.07
Boehmeria cylindrica	0.2	0.0	0.0	0.07
Carex lacustris	0.0	0.0	0.1	0.03
Carex sp.	0.8	0.7	0.3	0.60
Carpinus caroliniana	0.0	0.0	0.1	0.03
Circaea lutetiana ssp. canadensis	0.4	0.2	0.0	0.20
Dioscorea villosa	0.0	0.1	0.2	0.10
Fraxinus nigra	0.2	0.2	0.0	0.13
Galium concinnum	0.1	0.0	0.0	0.03
Galium triflorum	0.2	0.3	0.0	0.17
Geum canadense	0.0	0.1	0.1	0.07
Ilex verticillata	0.0	0.0	0.1	0.03
Lathyrus sp.	0.1	0.0	0.0	0.03
Matteuccia struthiopteris	0.8	0.7	0.8	0.77
Menispermum canadense	0.2	0.1	0.1	0.13
Mentha arvensis	0.0	0.1	0.0	0.03
Onoclea sensibilis	0.0	0.2	0.3	0.17
Osmunda claytoniana	0.1	0.0	0.0	0.03
Ostrya virginiana	0.0	0.1	0.0	0.03
Oxalis montana	0.0	0.1	0.0	0.03
Parthenocissus sp.	0.7	0.2	0.2	0.37
Pilea sp.	0.0	0.2	0.0	0.07
Poaceae sp.	0.3	0.1	0.2	0.20
Polygonum virginianum	0.0	0.2	0.1	0.10
Rhamnus alnifolia	0.0	0.1	0.0	0.03
Rubus pubescens	0.1	0.0	0.0	0.03
Smilax tamnoides	0.0	0.1	0.0	0.03
Stachys tenuifolia	0.0	0.1	0.0	0.03
Thalictrum dioicum	0.0	0.0	0.1	0.03
Ulmus americana	0.0	0.1	0.0	0.03
Urtica dioica ssp. gracilis	0.2	0.0	0.0	0.07
Viola sp.	0.2	0.2	0.0	0.13
Zanthoxylum americanum	0.3	0.1	0.0	0.13

Plot: 7012

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.0	0.3	0.4	0.23
Amelanchier sp.	0.3	0.4	0.1	0.27
Amphicarpaea bracteata	0.1	0.6	0.5	0.40
Anemone canadensis	0.0	0.0	0.1	0.03
Anemone quinquefolia	0.2	0.2	0.6	0.33
Apocynum androsaemifolium	0.0	0.0	0.1	0.03
Aralia nudicaulis	0.6	0.3	0.1	0.33
Carex pensylvanica	1.0	1.0	1.0	1.00
Corylus americana	0.0	0.1	0.3	0.13
Corylus cornuta	0.0	0.0	0.1	0.03
Diervilla lonicera	0.0	0.0	0.1	0.03
Eurybia macrophylla	0.3	0.6	0.7	0.53
Fragaria virginiana	0.0	0.0	0.1	0.03
Galium boreale	0.0	0.0	0.3	0.10
Gaultheria procumbens	0.2	0.1	0.2	0.17
Hepatica nobilis var. obtusa	0.0	0.2	0.9	0.37
Hieracium kalmii	0.0	0.1	0.0	0.03
Lathyrus venosus	0.2	0.0	0.3	0.17
Lycopodium clavatum	0.1	0.0	0.0	0.03
Lycopodium digitatum	0.2	0.0	0.0	0.07
Maianthemum canadense	0.2	0.2	0.3	0.23
Maianthemum racemosum ssp. racemosum	0.0	0.1	0.0	0.03
Monotropa uniflora	0.0	0.0	0.1	0.03
Orthilia secunda	0.0	0.0	0.2	0.07
Poaceae sp.	0.3	0.6	0.3	0.40
Polygala paucifolia	0.2	0.4	0.1	0.23
Populus tremuloides	0.3	0.2	0.2	0.23
Prenanthes alba	0.0	0.1	0.0	0.03
Pteridium aquilinum	1.0	0.6	0.7	0.77
Quercus rubra	0.1	0.1	0.0	0.07
Rosa blanda	0.0	0.0	0.3	0.10
Rubus allegheniensis	0.0	0.0	0.1	0.03
Thalictrum dioicum	0.0	0.0	0.2	0.07
Trientalis borealis	0.6	0.5	0.0	0.37
Uvularia sessilifolia	0.2	0.5	0.4	0.37
Vaccinium angustifolium	0.8	0.7	0.6	0.70

Plot: 7014

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.0	0.0	0.1	0.03
Amelanchier sp.	0.1	0.0	0.3	0.13
Amphicarpaea bracteata	0.3	0.2	0.2	0.23
Anemone canadensis	0.0	0.1	0.1	0.07
Anemone quinquefolia	0.2	0.0	0.0	0.07
Apocynum androsaemifolium	0.1	0.1	0.0	0.07
Carex intumescens	0.1	0.0	0.0	0.03
Carex sp.	0.2	0.8	0.7	0.57
Carpinus caroliniana	0.2	0.1	0.1	0.13
Conyza canadensis	0.2	0.0	0.0	0.07
Cornus canadensis	0.1	0.0	0.0	0.03
Cornus racemosa	0.4	0.5	0.6	0.50
Corylus americana	0.1	0.6	0.1	0.27
Corylus cornuta	0.1	0.0	0.0	0.03
Desmodium glutinosum	0.1	0.1	0.0	0.07
Diervilla lonicera	0.5	0.1	0.2	0.27
Dioscorea villosa	0.1	0.0	0.0	0.03
Eurybia macrophylla	0.4	0.0	0.0	0.13
Fragaria virginiana	0.5	0.0	0.1	0.20
Fraxinus pennsylvanica	0.2	0.0	0.4	0.20
Galium boreale	0.4	0.8	0.7	0.63
Galium concinnum	0.4	0.4	0.2	0.33
Galium triflorum	0.1	0.0	0.0	0.03
Geranium maculatum	0.1	0.0	0.0	0.03
Hypericum sp.	0.0	0.0	0.1	0.03
Ilex verticillata	0.1	0.0	0.0	0.03
Lathyrus sp.	0.0	0.2	0.0	0.07
Lonicera hirsuta	0.6	0.1	0.0	0.23
Maianthemum canadense	0.1	0.0	0.0	0.03
Orthilia secunda	0.1	0.0	0.0	0.03
Parthenocissus sp.	0.0	0.0	0.3	0.10
Poaceae sp.	0.1	0.0	0.1	0.07
Populus grandidentata	0.0	0.4	0.0	0.13
Populus tremuloides	0.7	0.2	0.8	0.57
Potentilla recta	0.2	0.0	0.0	0.07
Prunella vulgaris	0.1	0.0	0.0	0.03
Prunus serotina	0.0	0.1	0.0	0.03
Prunus virginiana	0.1	0.2	0.2	0.17
Pteridium aquilinum	0.3	0.1	0.3	0.23
Quercus alba	0.0	0.1	0.0	0.03
Quercus macrocarpa	0.1	0.2	0.1	0.13
Rubus allegheniensis	0.1	0.0	0.4	0.17
Solidago sp.	0.2	0.0	0.1	0.10
Streptopus lanceolatus var. roseus	0.2	0.0	0.0	0.07
Symphoricarpos albus	0.0	0.4	0.0	0.13
Thalictrum dioicum	0.4	0.0	0.1	0.17
Tilia americana	0.1	0.0	0.1	0.07
Toxicodendron rydbergii	0.3	0.8	0.7	0.60
Trillium grandiflorum	0.1	0.0	0.0	0.03
Uvularia sessilifolia	0.1	0.0	0.1	0.07
Verbascum thapsus	0.0	0.1	0.1	0.07
Verbena hastata	0.0	0.2	0.6	0.27
Viburnum lentago	0.0	0.0	0.1	0.03
Viburnum rafinesquianum	0.2	0.3	0.3	0.27
Viola sp.	0.2	0.0	0.1	0.10
Vitis riparia	0.1	0.0	0.0	0.03
Zanthoxylum americanum	0.5	0.7	0.4	0.53

Plot: 7014

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency

Plot: 7015

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Abies balsamea	0.0	0.0	0.1	0.03
Achillea millefolium	0.1	0.0	0.0	0.03
Alnus incana ssp. rugosa	0.0	0.0	0.1	0.03
Amelanchier sp.	0.2	0.2	0.2	0.20
Amphicarpaea bracteata	0.6	0.3	0.1	0.33
Anemone quinquefolia	0.0	0.2	0.1	0.10
Antennaria sp.	0.3	0.1	0.0	0.13
Aquilegia canadensis	0.1	0.1	0.2	0.13
Calystegia spithamaea	0.0	0.1	0.0	0.03
Carex sp.	0.8	0.6	0.6	0.67
Clematis virginiana	0.0	0.2	0.0	0.07
Cornus canadensis	0.2	0.3	0.4	0.30
Cornus racemosa	0.1	0.1	0.1	0.10
Corylus cornuta	0.3	0.1	0.3	0.23
Diervilla lonicera	0.5	0.6	0.6	0.57
Dryopteris carthusiana	0.0	0.0	0.2	0.07
Dryopteris cristata	0.0	0.0	0.1	0.03
Eurybia macrophylla	1.0	0.7	0.5	0.73
Fragaria virginiana	0.4	0.5	0.2	0.37
Fraxinus americana	0.4	0.0	0.0	0.13
Fraxinus nigra	0.0	0.0	0.4	0.13
Galium boreale	0.6	0.6	0.0	0.40
Galium triflorum	0.1	0.0	0.1	0.07
Hieracium sp.	0.1	0.0	0.0	0.03
Impatiens capensis	0.0	0.0	0.1	0.03
Lathyrus ochroleucus	0.1	0.3	0.0	0.13
Liatris aspera	0.2	0.1	0.0	0.10
Lycopodium clavatum	0.0	0.0	0.1	0.03
Maianthemum canadense	0.3	0.4	0.5	0.40
Mentha arvensis	0.0	0.0	0.2	0.07
Monarda fistulosa	0.3	0.0	0.0	0.10
Onoclea sensibilis	0.0	0.0	0.2	0.07
Orthilia secunda	0.0	0.0	0.1	0.03
Oryzopsis asperifolia	0.0	0.3	0.0	0.10
Poaceae sp.	0.2	0.5	0.5	0.40
Polygala paucifolia	0.0	0.0	0.1	0.03
Populus grandidentata	0.0	0.0	0.1	0.03
Prunella vulgaris	0.2	0.1	0.0	0.10
Prunus virginiana	0.1	0.0	0.0	0.03
Quercus rubra	0.1	0.1	0.0	0.07
Ribes hirtellum	0.1	0.1	0.0	0.07
Rosa blanda	0.1	0.4	0.1	0.20
Rubus idaeus ssp. strigosus	0.1	0.0	0.0	0.03
Rubus pubescens	0.1	0.3	0.4	0.27
Sanicula marilandica	0.6	0.1	0.1	0.27
Scutellaria lateriflora	0.0	0.0	0.1	0.03
Solidago sp.	0.1	0.2	0.2	0.17
Symphoricarpos albus	0.4	0.0	0.0	0.13
Taraxacum officinale	0.0	0.2	0.0	0.07
Thalictrum dioicum	0.1	0.0	0.0	0.03
Tilia americana	0.0	0.0	0.1	0.03
Ulmus americana	0.1	0.0	0.0	0.03
Uvularia sessilifolia	0.1	0.0	0.0	0.03
Vaccinium angustifolium	0.0	0.2	0.0	0.07
Viburnum lentago	0.0	0.4	0.0	0.13
Viburnum rafinesquianum	0.5	0.2	0.0	0.23
Viola sp.	0.4	0.0	0.1	0.17

Plot: 7015

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency

Plot: 7017

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Amelanchier sp.	0.3	0.3	0.3	0.30
Anemone quinquefolia	0.4	0.0	0.0	0.13
Apocynum androsaemifolium	0.2	0.2	0.0	0.13
Aralia nudicaulis	0.2	0.1	0.0	0.10
Campanula rotundifolia	0.0	0.1	0.0	0.03
Carex sp.	0.6	0.7	0.9	0.73
Comandra umbellata	0.0	0.0	0.1	0.03
Corylus americana	0.3	0.4	0.2	0.30
Corylus cornuta	0.2	0.1	0.0	0.10
Diervilla lonicera	0.0	0.0	0.1	0.03
Eurybia macrophylla	0.4	0.4	0.9	0.57
Fragaria virginiana	0.1	0.1	0.1	0.10
Galium boreale	0.3	0.5	0.1	0.30
Gaultheria procumbens	0.2	0.2	0.4	0.27
Helianthus hirsutus	0.2	0.0	0.0	0.07
Lathyrus ochroleucus	0.0	0.1	0.1	0.07
Linnaea borealis	0.0	0.1	0.0	0.03
Lysimachia quadrifolia	0.4	0.3	0.6	0.43
Maianthemum canadense	1.0	0.9	0.9	0.93
Melampyrum lineare	0.3	0.0	0.3	0.20
Mitchella repens	0.0	0.1	0.0	0.03
Orthilia secunda	0.0	0.1	0.0	0.03
Oryzopsis asperifolia	0.3	0.3	0.4	0.33
Pinus strobus	0.1	0.0	0.0	0.03
Poaceae sp.	0.0	0.0	0.1	0.03
Polygala paucifolia	0.1	0.4	0.0	0.17
Polygonatum pubescens	0.2	0.0	0.0	0.07
Populus tremuloides	0.2	0.0	0.0	0.07
Pteridium aquilinum	0.4	0.8	0.9	0.70
Quercus rubra	0.4	0.0	0.0	0.13
Rosa blanda	0.1	0.3	0.2	0.20
Rubus allegheniensis	0.4	0.0	0.5	0.30
Rubus flagellaris	0.0	0.1	0.0	0.03
Rubus pensilvanicus	0.1	0.0	0.1	0.07
Streptopus lanceolatus var. roseus	0.3	0.4	0.4	0.37
Trientalis borealis	0.1	0.0	0.2	0.10
Uvularia sessilifolia	0.3	0.7	0.9	0.63
Vaccinium angustifolium	0.9	0.9	0.9	0.90

Plot: 7018

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.1	0.0	0.0	0.03
Achillea millefolium	0.1	0.1	0.0	0.07
Amelanchier sp.	0.6	0.6	0.0	0.40
Apocynum androsaemifolium	0.0	0.2	0.0	0.07
Aquilegia canadensis	0.0	0.0	0.1	0.03
Aralia nudicaulis	0.0	0.4	0.4	0.27
Carex sp.	0.9	0.4	0.0	0.43
Cornus racemosa	0.5	0.0	0.0	0.17
Corylus americana	0.2	0.1	0.1	0.13
Corylus cornuta	0.1	0.0	0.6	0.23
Diervilla lonicera	0.0	0.3	0.4	0.23
Eurybia macrophylla	0.8	1.0	1.0	0.93
Fragaria virginiana	0.3	0.2	0.0	0.17
Fraxinus pennsylvanica	0.2	0.0	0.0	0.07
Galium boreale	0.1	0.8	0.5	0.47
Gaultheria procumbens	0.0	0.1	0.0	0.03
Lathyrus ochroleucus	0.1	0.3	0.2	0.20
Lonicera hirsuta	0.0	0.0	0.1	0.03
Maianthemum canadense	0.5	0.0	0.7	0.40
Monarda fistulosa	0.1	0.1	0.0	0.07
Oryzopsis asperifolia	0.8	0.5	0.6	0.63
Ostrya virginiana	0.3	0.1	0.0	0.13
Poaceae sp.	0.3	0.0	0.0	0.10
Potentilla sp.	0.0	0.1	0.0	0.03
Prunus virginiana	0.3	0.1	0.0	0.13
Pteridium aquilinum	0.0	0.6	0.9	0.50
Quercus macrocarpa	0.0	0.1	0.0	0.03
Quercus rubra	0.0	0.3	0.1	0.13
Rosa blanda	0.2	0.0	0.0	0.07
Rubus pensilvanicus	0.5	0.4	0.3	0.40
Rubus pubescens	0.1	0.0	0.0	0.03
Sanicula marilandica	0.0	0.0	0.1	0.03
Solidago sp.	0.1	0.0	0.0	0.03
Symphoricarpos albus	0.3	0.5	0.1	0.30
Toxicodendron rydbergii	0.4	0.5	0.0	0.30
Vaccinium angustifolium	0.4	0.8	0.5	0.57
Viburnum rafinesquianum	0.3	0.0	0.2	0.17

Plot: 7019

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer saccharum	0.1	0.0	0.1	0.07
Ageratina altissima	0.0	0.1	0.0	0.03
Amphicarpaea bracteata	0.6	0.0	0.0	0.20
Asteraceae sp.	0.0	0.1	0.0	0.03
Carex sp.	0.9	0.7	0.8	0.80
Carpinus caroliniana	0.0	0.0	0.1	0.03
Desmodium glutinosum	0.2	0.0	0.0	0.07
Diervilla lonicera	0.0	0.0	0.1	0.03
Eurybia macrophylla	0.9	0.5	0.2	0.53
Galium concinnum	0.4	0.1	0.0	0.17
Galium triflorum	0.0	0.0	0.1	0.03
Hepatica nobilis var. obtusa	0.0	0.3	0.0	0.10
Ilex verticillata	0.1	0.0	0.0	0.03
Orthilia secunda	0.0	0.1	0.0	0.03
Osmorhiza sp.	0.0	0.2	0.0	0.07
Ostrya virginiana	0.2	0.1	0.0	0.10
Parthenocissus sp.	0.1	0.2	0.1	0.13
Poaceae sp.	0.4	0.3	0.7	0.47
Polygonatum biflorum	0.0	0.0	0.1	0.03
Polygonatum pubescens	0.0	0.0	0.1	0.03
Ribes lacustre	0.0	0.1	0.0	0.03
Solidago flexicaulis	0.2	0.1	0.0	0.10
Uvularia grandiflora	0.2	0.0	0.1	0.10
Uvularia sessilifolia	0.1	0.0	0.0	0.03

Plot: 7020

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Agastache sp.	0.1	0.0	0.1	0.07
Alnus incana ssp. rugosa	0.5	0.0	0.0	0.17
Anemone quinquefolia	0.1	0.0	0.0	0.03
Aralia nudicaulis	0.0	0.1	0.0	0.03
Athyrium filix-femina ssp. angustum	0.0	0.1	0.0	0.03
Brachyelytrum erectum	0.3	0.2	0.3	0.27
Carex intumescens	0.0	0.0	0.3	0.10
Carex sp.	0.5	0.0	0.2	0.23
Clintonia borealis	0.2	0.7	0.5	0.47
Coptis trifolia	0.1	0.4	0.7	0.40
Cornus canadensis	0.1	0.3	0.8	0.40
Corylus cornuta	0.1	0.2	0.3	0.20
Dryopteris carthusiana	0.7	0.0	0.3	0.33
Equisetum arvense	0.8	0.1	0.3	0.40
Eurybia macrophylla	0.0	0.2	0.0	0.07
Fragaria virginiana	0.2	0.0	0.0	0.07
Galium triflorum	0.0	0.0	0.1	0.03
Gymnocarpium dryopteris	0.0	0.0	0.2	0.07
Ilex verticillata	0.2	0.0	0.0	0.07
Impatiens capensis	0.0	0.0	0.2	0.07
Lycopodium annotinum	0.0	0.0	0.2	0.07
Lycopodium clavatum	0.0	0.5	0.1	0.20
Lycopodium dendroideum	0.0	0.5	0.4	0.30
Lycopus virginicus	0.1	0.0	0.2	0.10
Maianthemum canadense	0.6	1.0	1.0	0.87
Onoclea sensibilis	0.5	0.0	0.0	0.17
Osmunda claytoniana	0.0	0.2	0.0	0.07
Oxalis montana	0.2	0.1	0.7	0.33
Petasites frigidus var. palmatus	0.0	0.1	0.0	0.03
Phegopteris connectilis	0.0	0.0	0.1	0.03
Poaceae sp.	0.7	0.0	0.2	0.30
Polygonatum pubescens	0.1	0.0	0.0	0.03
Polygonum sagittatum	0.1	0.0	0.0	0.03
Pteridium aquilinum	0.0	0.2	0.2	0.13
Rubus allegheniensis	0.1	0.0	0.0	0.03
Rubus idaeus ssp. strigosus	0.2	0.0	0.0	0.07
Rubus pensilvanicus	0.2	0.0	0.0	0.07
Rubus pubescens	0.7	0.0	0.3	0.33
Solidago sp.	0.2	0.0	0.0	0.07
Taraxacum officinale	0.1	0.0	0.0	0.03
Trientalis borealis	0.2	0.8	0.8	0.60
Trillium grandiflorum	0.2	0.0	0.0	0.07
Vaccinium angustifolium	0.0	0.0	0.1	0.03
Viola sp.	0.3	0.1	0.3	0.23

Plot: 7021

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Apocynum androsaemifolium	0.2	0.0	0.0	0.07
Aralia nudicaulis	0.1	0.0	0.0	0.03
Carex sp.	0.6	0.7	0.5	0.60
Chamaedaphne calyculata	0.0	0.0	0.7	0.23
Clintonia borealis	0.2	0.0	0.0	0.07
Comandra umbellata	0.1	0.1	0.0	0.07
Corylus americana	0.0	0.1	0.0	0.03
Corylus cornuta	0.2	0.2	0.0	0.13
Eurybia macrophylla	0.1	0.3	0.0	0.13
Fragaria virginiana	0.0	0.1	0.0	0.03
Galium boreale	0.0	0.1	0.0	0.03
Gaultheria procumbens	0.5	0.6	0.0	0.37
Ilex verticillata	0.1	0.0	0.0	0.03
Kalmia polifolia	0.0	0.0	0.4	0.13
Lathyrus ochroleucus	0.0	0.2	0.0	0.07
Ledum groenlandicum	0.0	0.0	0.9	0.30
Lycopodium complanatum	0.5	0.0	0.0	0.17
Lysimachia quadrifolia	0.0	0.4	0.0	0.13
Maianthemum canadense	0.9	0.8	0.0	0.57
Maianthemum trifolium	0.0	0.0	1.0	0.33
Oryzopsis asperifolia	0.1	0.1	0.0	0.07
Picea mariana	0.0	0.1	0.6	0.23
Pinus resinosa	0.2	0.0	0.0	0.07
Poaceae sp.	0.1	0.1	0.0	0.07
Polygala paucifolia	0.1	0.0	0.0	0.03
Populus grandidentata	0.0	0.1	0.0	0.03
Pteridium aquilinum	0.5	0.8	0.0	0.43
Quercus rubra	0.1	0.4	0.0	0.17
Rosa blanda	0.1	0.2	0.0	0.10
Rubus pensilvanicus	0.0	0.2	0.0	0.07
Salix sp.	0.0	0.1	0.0	0.03
Sarracenia purpurea	0.0	0.0	0.2	0.07
Trientalis borealis	0.0	0.2	0.0	0.07
Uvularia sessilifolia	0.1	0.3	0.0	0.13
Vaccinium angustifolium	0.8	1.0	0.1	0.63
Vaccinium oxycoccos	0.0	0.0	0.6	0.20

Plot: 7025

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.0	0.3	0.4	0.23
Amelanchier sp.	0.0	0.1	0.1	0.07
Amphicarpaea bracteata	0.0	0.9	0.2	0.37
Anemone canadensis	0.2	0.2	0.0	0.13
Anemone quinquefolia	0.0	0.3	0.5	0.27
Aralia nudicaulis	0.0	0.9	0.1	0.33
Asclepias syriaca	0.1	0.0	0.0	0.03
Carex sp.	0.0	0.2	0.5	0.23
Chimaphila sp.	0.0	0.0	0.1	0.03
Clintonia borealis	0.0	0.1	0.0	0.03
Corylus americana	0.2	0.1	0.4	0.23
Corylus cornuta	0.1	0.4	0.1	0.20
Eurybia macrophylla	0.3	0.6	0.2	0.37
Fragaria virginiana	0.2	0.0	0.0	0.07
Galium boreale	0.0	0.2	0.4	0.20
Galium triflorum	0.1	0.0	0.0	0.03
Gaultheria procumbens	0.0	0.0	0.1	0.03
Hieracium sp.	0.3	0.0	0.0	0.10
Lathyrus sp.	0.1	0.2	0.2	0.17
Maianthemum canadense	0.5	0.8	1.0	0.77
Maianthemum racemosum ssp. racemosum	0.0	0.1	0.0	0.03
Melampyrum lineare	0.0	0.0	0.1	0.03
Mitchella repens	0.1	0.4	0.2	0.23
Monarda fistulosa	0.0	0.0	0.1	0.03
Physalis virginiana	0.2	0.0	0.0	0.07
Pinus strobus	0.2	0.0	0.5	0.23
Poaceae sp.	1.0	0.1	0.6	0.57
Polygonatum pubescens	0.0	0.1	0.0	0.03
Prunus virginiana	0.0	0.1	0.0	0.03
Pteridium aquilinum	0.1	0.3	0.4	0.27
Quercus alba	0.1	0.0	0.0	0.03
Quercus rubra	0.3	0.0	0.1	0.13
Rosa blanda	0.0	0.1	0.0	0.03
Rosa sp.	0.2	0.0	0.0	0.07
Rubus allegheniensis	0.3	0.2	0.0	0.17
Rubus flagellaris	0.4	0.4	0.2	0.33
Spiraea alba	0.0	0.0	0.1	0.03
Thalictrum dioicum	0.0	0.2	0.1	0.10
Toxicodendron rydbergii	0.0	0.3	0.0	0.10
Trientalis borealis	0.2	0.0	0.3	0.17
Uvularia sessilifolia	0.0	0.3	0.0	0.10
Vaccinium angustifolium	0.0	0.2	1.0	0.40
Viburnum rafinesquianum	0.0	0.0	0.1	0.03
Viola sp.	0.1	0.0	0.0	0.03

Plot: 7026

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Adiantum pedatum	0.2	0.0	0.0	0.07
Agrimonia striata	0.0	0.0	0.3	0.10
Amphicarpaea bracteata	0.1	0.2	0.7	0.34
Anemone quinquefolia	0.2	0.0	0.0	0.07
Aralia nudicaulis	0.2	0.1	0.6	0.30
Arisaema triphyllum	0.2	0.2	0.0	0.14
Asarum canadense	0.1	0.1	0.0	0.07
Aster lateriflorus	0.4	0.7	0.1	0.39
Athyrium filix-femina ssp. angustum	0.8	0.8	0.5	0.69
Carex sp.	1.0	0.7	0.6	0.76
Carpinus caroliniana	0.0	0.1	0.0	0.04
Cicuta maculata	0.0	0.2	0.0	0.07
Circaea lutetiana ssp. canadensis	0.0	0.2	0.2	0.14
Cirsium sp.	0.1	0.1	0.3	0.17
Cornus canadensis	0.0	0.0	0.1	0.03
Cornus racemosa	0.1	0.3	0.3	0.24
Corylus americana	0.4	0.7	0.4	0.49
Corylus cornuta	0.2	0.1	0.1	0.14
Desmodium glutinosum	0.1	0.1	0.0	0.07
Diervilla lonicera	0.0	0.0	0.2	0.07
Doellingeria umbellata	0.3	0.0	0.0	0.10
Dryopteris carthusiana	0.1	0.0	0.0	0.03
Equisetum arvense	0.8	0.9	0.3	0.66
Eurybia macrophylla	0.1	0.7	1.0	0.59
Fragaria virginiana	0.6	0.7	0.9	0.72
Fraxinus nigra	0.2	0.2	0.7	0.37
Galium triflorum	0.5	0.1	0.5	0.37
Geranium maculatum	0.1	0.6	0.7	0.45
Hepatica nobilis var. obtusa	0.2	0.0	0.0	0.07
Ilex verticillata	0.3	0.1	0.0	0.14
Lonicera canadensis	0.0	0.0	0.1	0.03
Maianthemum canadense	0.3	0.7	0.7	0.56
Mitella diphylla	0.9	1.0	1.0	0.97
Onoclea sensibilis	0.0	0.2	0.0	0.07
Parthenocissus sp.	0.2	0.0	0.0	0.07
Petasites frigidus var. palmatus	0.5	0.8	0.4	0.56
Poaceae sp.	0.2	0.3	0.2	0.24
Polygonatum pubescens	0.0	0.0	0.1	0.03
Polygonum sagittatum	0.2	0.0	0.0	0.07
Populus tremuloides	0.1	0.0	0.0	0.03
Potentilla simplex	0.0	0.0	0.1	0.03
Prenanthes alba	0.1	0.0	0.2	0.10
Prunella vulgaris	0.2	0.0	0.0	0.07
Prunus virginiana	0.1	0.0	0.0	0.03
Pyrola asarifolia	0.0	0.0	0.4	0.13
Quercus macrocarpa	0.1	0.2	0.1	0.14
Ribes lacustre	0.1	0.0	0.0	0.03
Ribes triste	0.0	0.1	0.1	0.07
Rubus idaeus ssp. strigosus	0.0	0.0	0.1	0.03
Rubus pensilvanicus	0.0	0.0	0.1	0.03
Rubus pubescens	1.0	0.9	0.9	0.93
Sambucus nigra ssp. canadensis	0.2	0.0	0.0	0.07
Sanicula marilandica	0.1	0.3	0.7	0.38
Scutellaria lateriflora	0.1	0.0	0.0	0.03
Smilax tamnoides	0.0	0.1	0.2	0.10
Solidago flexicaulis	0.2	0.0	0.2	0.13

Plot: 7026

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Solidago gigantea	0.1	0.1	0.0	0.07
Streptopus lanceolatus var. roseus	0.6	0.6	0.3	0.49
Symphyotrichum ontarione	0.1	0.2	0.0	0.11
Taraxacum officinale	0.1	0.0	0.0	0.03
Thalictrum dioicum	0.2	0.1	0.3	0.20
Tilia americana	0.0	0.0	0.2	0.07
Toxicodendron rydbergii	0.4	0.7	0.4	0.49
Trillium grandiflorum	0.0	0.0	0.3	0.10
Ulmus americana	0.2	0.0	0.0	0.07
Uvularia grandiflora	0.3	0.4	0.0	0.25
Uvularia sessilifolia	0.0	0.1	0.7	0.27
Viburnum lentago	0.0	0.3	0.0	0.11
Viburnum rafinesquianum	0.0	0.1	0.1	0.07
Viola sp.	0.7	0.4	0.4	0.51

Plot: 7027

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer saccharum	0.0	0.1	0.0	0.03
Adiantum pedatum	0.5	0.1	0.3	0.30
Agrimonia sp.	0.1	0.0	0.0	0.03
Amphicarpaea bracteata	0.2	0.0	0.6	0.27
Asarum canadense	0.2	0.1	0.0	0.10
Aster lateriflorus	0.8	0.4	0.5	0.57
Athyrium filix-femina ssp. angustum	0.4	0.1	0.6	0.37
Bidens connata	0.0	0.3	0.0	0.10
Calla palustris	0.0	0.2	0.0	0.07
Carex lacustris	0.0	0.4	0.1	0.17
Carex sp.	0.7	0.4	0.4	0.50
Carpinus caroliniana	0.6	0.3	0.4	0.43
Circaea lutetiana ssp. canadensis	0.2	0.0	0.5	0.23
Comarum palustre	0.0	0.1	0.0	0.03
Cornus racemosa	0.0	0.0	0.1	0.03
Desmodium glutinosum	0.0	0.0	0.2	0.07
Dioscorea villosa	0.5	0.1	0.0	0.20
Doellingeria umbellata	0.0	0.0	0.1	0.03
Dryopteris carthusiana	0.0	0.2	0.0	0.07
Equisetum arvense	0.0	0.0	0.2	0.07
Eupatorium perfoliatum	0.0	0.1	0.0	0.03
Eurybia macrophylla	0.0	0.2	0.2	0.13
Fragaria virginiana	0.1	0.1	0.1	0.10
Fraxinus nigra	0.3	0.1	0.4	0.27
Galium concinnum	0.6	0.2	0.5	0.43
Galium triflorum	0.4	0.1	0.1	0.20
Geranium maculatum	0.2	0.1	0.1	0.13
Geum canadense	0.2	0.0	0.1	0.10
Hepatica nobilis var. acuta	0.5	0.2	0.6	0.43
Ilex verticillata	0.1	0.1	0.0	0.07
Impatiens capensis	0.0	0.4	0.0	0.13
Laportea canadensis	0.1	0.0	0.5	0.20
Lonicera sp.	0.0	0.1	0.0	0.03
Maianthemum canadense	0.1	0.1	0.1	0.10
Mentha arvensis	0.0	0.3	0.1	0.13
Mitella diphylla	0.0	0.0	0.5	0.17
Parthenocissus sp.	0.3	0.0	0.0	0.10
Pilea sp.	0.2	0.5	0.1	0.27
Poaceae sp.	0.1	0.7	0.4	0.40
Polygonatum pubescens	0.0	0.1	0.0	0.03
Polygonum sagittatum	0.0	0.3	0.1	0.13
Ranunculus sp.	0.1	0.0	0.0	0.03
Rhamnus cathartica	0.2	0.0	0.0	0.07
Ribes hirtellum	0.0	0.0	0.1	0.03
Rubus pubescens	0.5	0.5	0.5	0.50
Rudbeckia laciniata	0.1	0.0	0.1	0.07
Sagittaria latifolia	0.0	0.2	0.0	0.07
Sanicula marilandica	0.0	0.0	0.3	0.10
Scutellaria lateriflora	0.1	0.3	0.0	0.13
Smilax tamnoides	0.0	0.1	0.0	0.03
Solidago flexicaulis	0.2	0.0	0.2	0.13
Stachys tenuifolia	0.0	0.1	0.0	0.03
Toxicodendron rydbergii	0.1	0.0	0.0	0.03
Trillium grandiflorum	0.0	0.0	0.1	0.03
Urtica dioica ssp. gracilis	0.2	0.0	0.0	0.07
Uvularia grandiflora	0.2	0.1	0.2	0.17

Plot: 7027

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Uvularia sessilifolia	0.1	0.2	0.0	0.10
Viburnum lentago	0.1	0.0	0.0	0.03
Viola sp.	0.8	0.3	0.5	0.53
Zanthoxylum americanum	0.2	0.0	0.0	0.07

Plot: 7028

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.8	0.0	0.2	0.33
Amelanchier sp.	0.9	0.0	0.6	0.50
Amphicarpaea bracteata	0.1	0.0	0.1	0.07
Anemone quinquefolia	1.1	0.0	0.3	0.47
Aralia nudicaulis	0.8	0.0	0.0	0.27
Betula papyrifera	0.0	0.0	0.1	0.03
Calystegia sepium	0.0	0.0	0.1	0.03
Carex pensylvanica	1.9	0.0	1.0	0.97
Clintonia borealis	0.1	0.0	0.0	0.03
Comptonia peregrina	0.0	0.0	0.1	0.03
Corylus americana	0.0	0.0	0.3	0.10
Corylus cornuta	1.2	0.0	0.1	0.43
Diervilla lonicera	0.1	0.0	0.0	0.03
Eurybia macrophylla	1.1	0.0	0.7	0.60
Fragaria virginiana	0.0	0.0	0.1	0.03
Galium boreale	0.4	0.0	0.2	0.20
Gaultheria procumbens	0.6	0.0	0.7	0.43
Helianthus hirsutus	0.0	0.0	0.1	0.03
Hepatica nobilis var. acuta	0.1	0.0	0.0	0.03
Hepatica nobilis var. obtusa	0.6	0.0	0.2	0.27
Lathyrus venosus	0.3	0.0	0.2	0.17
Lonicera canadensis	0.1	0.0	0.0	0.03
Lycopodium clavatum	0.0	0.0	0.1	0.03
Lysimachia quadrifolia	0.4	0.0	0.8	0.40
Maianthemum canadense	1.7	0.0	0.8	0.83
Maianthemum racemosum ssp. racemosum	0.1	0.0	0.0	0.03
Mitchella repens	0.7	0.0	0.0	0.23
Moneses uniflora	0.0	0.0	0.2	0.07
Orthilia secunda	0.0	0.0	0.2	0.07
Poaceae sp.	0.8	0.0	0.4	0.40
Polygala paucifolia	0.4	0.0	0.1	0.17
Polygonatum biflorum	0.0	0.0	0.3	0.10
Potentilla simplex	0.0	0.0	0.1	0.03
Pteridium aquilinum	1.0	0.0	0.8	0.60
Quercus alba	0.1	0.0	0.0	0.03
Quercus rubra	0.2	0.0	0.2	0.13
Rosa blanda	0.2	0.0	0.0	0.07
Rubus allegheniensis	0.4	0.0	0.0	0.13
Rubus flagellaris	0.0	0.0	0.1	0.03
Streptopus lanceolatus var. roseus	0.5	0.0	0.0	0.17
Toxicodendron rydbergii	0.3	0.0	0.1	0.13
Trientalis borealis	1.2	0.0	0.3	0.50
Uvularia sessilifolia	1.0	0.0	0.0	0.33
Vaccinium angustifolium	1.6	0.0	1.0	0.87
Viburnum rafinesquianum	0.1	0.0	0.0	0.03

Plot: 7031

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Abies balsamea	0.0	0.1	0.0	0.03
Acer rubrum	0.0	0.2	0.0	0.07
Achillea millefolium	0.0	0.1	0.0	0.03
Actaea sp.	0.0	0.0	0.1	0.03
Agrimonia striata	0.0	0.2	0.2	0.13
Amelanchier sp.	0.0	0.2	0.3	0.17
Anemone quinquefolia	0.0	0.1	0.3	0.13
Aralia nudicaulis	0.0	0.0	0.1	0.03
Asarum canadense	0.0	0.0	0.3	0.10
Aster lateriflorus	0.0	0.3	0.6	0.30
Athyrium filix-femina ssp. angustum	0.2	0.1	0.2	0.17
Botrychium virginianum	0.0	0.0	0.2	0.07
Calamagrostis canadensis	0.7	0.0	0.0	0.23
Caltha palustris	0.2	0.0	0.0	0.07
Carex lacustris	0.6	0.0	0.0	0.20
Carex projecta	0.4	0.0	0.0	0.13
Carex sp.	1.0	0.6	0.8	0.80
Celastrus orbiculatus	0.0	0.0	0.1	0.03
Cirsium arvense	0.0	0.1	0.0	0.03
Clematis virginiana	0.0	0.0	0.1	0.03
Clintonia borealis	0.0	0.1	0.0	0.03
Cornus canadensis	0.0	0.0	0.2	0.07
Corylus cornuta	0.0	0.4	0.2	0.20
Diervilla lonicera	0.0	0.2	0.1	0.10
Dryopteris carthusiana	0.2	0.0	0.0	0.07
Dryopteris cristata	0.2	0.0	0.0	0.07
Epilobium coloratum	0.1	0.0	0.0	0.03
Equisetum arvense	0.2	0.0	0.0	0.07
Equisetum palustre	0.0	0.0	0.3	0.10
Eurybia macrophylla	0.0	0.9	0.8	0.57
Fragaria virginiana	0.0	0.7	0.7	0.47
Fraxinus nigra	0.0	0.2	0.4	0.20
Galium lanceolatum	0.0	0.4	0.0	0.13
Galium triflorum	0.0	0.1	0.7	0.27
Hepatica nobilis var. obtusa	0.0	0.6	0.5	0.37
Ilex verticillata	0.0	0.2	0.5	0.23
Impatiens capensis	0.8	0.0	0.0	0.27
Iris versicolor	0.0	0.0	0.1	0.03
Lonicera hirsuta	0.0	0.4	0.0	0.13
Maianthemum canadense	0.0	0.5	0.6	0.37
Mentha arvensis	0.3	0.0	0.0	0.10
Mitella diphylla	0.0	0.0	0.2	0.07
Monarda fistulosa	0.0	0.0	0.1	0.03
Onoclea sensibilis	0.2	0.0	0.0	0.07
Orthilia secunda	0.0	0.1	0.3	0.13
Osmorhiza claytonii	0.0	0.1	0.0	0.03
Oxalis montana	0.4	0.1	0.0	0.17
Phleum pratense	0.0	0.5	0.0	0.17
Plantago major	0.0	0.2	0.0	0.07
Poaceae sp.	0.0	0.8	0.9	0.57
Polygonatum pubescens	0.0	0.0	0.3	0.10
Polygonum sagittatum	0.3	0.0	0.0	0.10
Prunus virginiana	0.0	0.2	0.2	0.13
Pteridium aquilinum	0.0	0.1	0.0	0.03
Quercus rubra	0.0	0.3	0.1	0.13
Rhamnus alnifolia	0.0	0.0	0.1	0.03

Plot: 7031

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Ribes hirtellum	0.0	0.1	0.0	0.03
Rosa blanda	0.0	0.1	0.1	0.07
Rubus idaeus ssp. strigosus	0.0	0.0	0.1	0.03
Rubus pubescens	0.1	0.3	0.6	0.33
Sanguinaria canadensis	0.0	0.0	0.1	0.03
Sanicula marilandica	0.0	0.0	0.4	0.13
Scutellaria lateriflora	0.5	0.0	0.0	0.17
Solidago sp.	0.1	0.3	0.2	0.20
Streptopus lanceolatus var. roseus	0.0	0.1	0.0	0.03
Taraxacum officinale	0.0	0.2	0.5	0.23
Thalictrum dasycarpum	0.0	0.1	0.2	0.10
Toxicodendron rydbergii	0.0	0.1	0.1	0.07
Trientalis borealis	0.0	0.1	0.1	0.07
Trillium grandiflorum	0.0	0.1	0.3	0.13
Ulmus americana	0.1	0.0	0.0	0.03
Urtica dioica ssp. gracilis	0.3	0.0	0.0	0.10
Uvularia sessilifolia	0.0	0.1	0.0	0.03
Viburnum lentago	0.1	0.0	0.3	0.13
Viburnum rafinesquianum	0.0	0.1	0.1	0.07
Viola sp.	0.5	0.3	0.4	0.40

Plot: 7033

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Amphicarpaea bracteata	0.0	0.1	0.2	0.10
Anemone quinquefolia	0.1	0.0	0.1	0.07
Aralia nudicaulis	0.2	0.1	0.4	0.23
Arisaema triphyllum	0.1	0.1	0.0	0.07
Asarum canadense	0.2	0.1	0.6	0.30
Athyrium filix-femina ssp. angustum	0.2	0.2	0.5	0.30
Calystegia sepium	0.1	0.0	0.1	0.07
Carex lacustris	0.2	0.7	0.1	0.33
Carex sp.	0.9	0.9	1.0	0.93
Carpinus caroliniana	0.2	0.0	0.0	0.07
Caulophyllum thalictroides	0.4	0.0	0.0	0.13
Celastrus orbiculatus	0.1	0.0	0.0	0.03
Circaea lutetiana ssp. canadensis	0.0	0.1	0.2	0.10
Clematis virginiana	0.0	0.1	0.2	0.10
Clintonia borealis	0.1	0.0	0.0	0.03
Cornus sericea ssp. sericea	0.0	0.0	0.2	0.07
Corylus cornuta	0.1	0.0	0.0	0.03
Crataegus sp.	0.1	0.0	0.0	0.03
Dryopteris cristata	0.0	0.0	0.1	0.03
Equisetum palustre	0.1	0.0	0.1	0.07
Eurybia macrophylla	0.7	0.0	0.2	0.30
Fragaria virginiana	0.3	0.0	0.0	0.10
Fraxinus nigra	0.3	0.1	0.1	0.17
Galium triflorum	0.1	0.0	0.1	0.07
Geranium maculatum	0.0	0.0	0.2	0.07
Geum canadense	0.0	0.1	0.0	0.03
Hepatica nobilis var. obtusa	0.5	0.0	0.0	0.17
Impatiens capensis	0.0	0.3	0.0	0.10
Laportea canadensis	0.3	0.9	0.6	0.60
Lathyrus ochroleucus	0.2	0.0	0.0	0.07
Lycopus uniflorus	0.0	0.1	0.0	0.03
Maianthemum canadense	0.4	0.0	0.1	0.17
Matteuccia struthiopteris	0.0	0.2	0.2	0.13
Mentha arvensis	0.1	0.4	0.1	0.20
Mitella diphylla	0.6	0.0	0.5	0.37
Moneses uniflora	0.1	0.0	0.0	0.03
Onoclea sensibilis	0.0	0.3	0.2	0.17
Orthilia secunda	0.2	0.0	0.0	0.07
Oryzopsis asperifolia	0.4	0.0	0.0	0.13
Osmorhiza claytonii	0.3	0.0	0.0	0.10
Ostrya virginiana	0.4	0.0	0.1	0.17
Parthenocissus sp.	0.7	0.0	0.2	0.30
Poaceae sp.	0.3	0.0	0.2	0.17
Polygonatum pubescens	0.1	0.1	0.2	0.13
Polygonum sagittatum	0.0	0.2	0.2	0.13
Prunus virginiana	0.2	0.0	0.1	0.10
Quercus macrocarpa	0.2	0.0	0.1	0.10
Quercus rubra	0.1	0.0	0.0	0.03
Ribes cynosbati	0.1	0.0	0.0	0.03
Ribes glandulosum	0.0	0.0	0.2	0.07
Rubus idaeus ssp. strigosus	0.3	0.3	0.7	0.43
Rubus pubescens	0.4	0.3	0.7	0.47
Sanguinaria canadensis	0.3	0.0	0.0	0.10
Scutellaria lateriflora	0.1	0.6	0.2	0.30
Solidago altissima	0.0	0.1	0.0	0.03
Solidago flexicaulis	0.1	0.0	0.1	0.07

Plot: 7033

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Streptopus lanceolatus var. roseus	0.3	0.0	0.3	0.20
Symphyotrichum ontarione	0.0	0.8	0.5	0.43
Symplocarpus foetidus	0.2	0.7	0.3	0.40
Taraxacum officinale	0.0	0.0	0.1	0.03
Thalictrum dioicum	0.0	0.0	0.2	0.07
Trientalis borealis	0.2	0.0	0.0	0.07
Ulmus americana	0.2	0.0	0.0	0.07
Uvularia grandiflora	0.4	0.0	0.4	0.27
Uvularia sessilifolia	0.5	0.0	0.4	0.30
Viola sp.	0.0	0.1	0.3	0.13
Zanthoxylum americanum	0.2	0.0	0.0	0.07

Plot: 7034

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Anemone quinquefolia	0.2	0.0	0.0	0.07
Artemisia serrata	0.0	0.2	0.0	0.07
Aster lateriflorus	0.5	0.3	0.0	0.27
Athyrium filix-femina ssp. angustum	0.0	0.0	0.2	0.07
Carex lacustris	0.0	0.3	0.0	0.10
Carex sp.	0.6	0.3	0.3	0.40
Carpinus caroliniana	0.0	0.0	0.2	0.07
Circaea lutetiana ssp. canadensis	0.4	0.1	0.4	0.30
Corylus americana	0.1	0.0	0.0	0.03
Dioscorea villosa	0.2	0.1	0.3	0.20
Dryopteris carthusiana	0.0	0.0	0.1	0.03
Fraxinus nigra	0.3	0.1	0.1	0.17
Galium triflorum	0.1	0.1	0.0	0.07
Geum canadense	0.4	0.2	0.5	0.37
Ilex verticillata	0.1	0.1	0.2	0.13
Impatiens capensis	0.1	0.0	0.0	0.03
Laportea canadensis	1.0	1.0	0.9	0.97
Matteuccia struthiopteris	0.3	0.1	0.2	0.20
Mentha arvensis	0.1	0.1	0.0	0.07
Onoclea sensibilis	0.1	0.1	0.0	0.07
Osmorhiza claytonii	0.0	0.0	0.1	0.03
Parthenocissus sp.	0.1	0.0	0.0	0.03
Poaceae sp.	0.3	0.4	0.2	0.30
Polygonatum pubescens	0.0	0.0	0.1	0.03
Polygonum hydropiperoides	0.0	0.1	0.0	0.03
Prunus virginiana	0.0	0.0	0.1	0.03
Rubus pubescens	0.1	0.2	0.3	0.20
Rudbeckia laciniata	0.0	0.1	0.0	0.03
Smilax tamnoides	0.2	0.0	0.2	0.13
Staphylea trifolia	0.0	0.0	0.4	0.13
Thalictrum dasycarpum	0.0	0.0	0.1	0.03
Tilia americana	0.0	0.1	0.0	0.03
Trillium grandiflorum	0.0	0.0	0.3	0.10
Ulmus americana	0.1	0.2	0.1	0.13
Urtica dioica ssp. gracilis	0.0	0.1	0.1	0.07
Uvularia sessilifolia	0.4	0.0	0.5	0.30
Viola sp.	0.4	0.0	0.0	0.13

Plot: 7035

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Ageratina altissima	0.0	0.0	0.2	0.07
Aster lateriflorus	0.1	0.0	0.3	0.13
Asteraceae sp.	0.1	0.5	0.0	0.20
Carex sp.	0.5	0.3	0.6	0.47
Celtis occidentalis	0.1	0.0	0.0	0.03
Equisetum pratense	0.0	0.0	0.1	0.03
Fraxinus nigra	0.1	0.0	0.3	0.13
Geum canadense	0.3	0.0	0.0	0.10
Glechoma hederacea	1.0	0.9	1.0	0.97
Iris versicolor	0.0	0.0	0.1	0.03
Laportea canadensis	0.9	0.9	0.8	0.87
Matteuccia struthiopteris	0.0	0.1	0.0	0.03
Menispermum canadense	0.4	0.0	0.0	0.13
Osmorhiza sp.	0.0	0.1	0.0	0.03
Parthenocissus sp.	0.1	0.0	0.1	0.07
Pilea sp.	0.1	0.2	0.2	0.17
Poaceae sp.	0.7	0.6	1.0	0.77
Polygonum virginianum	0.8	0.5	0.6	0.63
Rudbeckia laciniata	0.4	0.6	0.2	0.40
Smilax herbacea	0.1	0.1	0.0	0.07
Smilax tamnoides	0.0	0.0	0.2	0.07
Solidago gigantea	0.2	0.0	0.0	0.07
Stachys tenuifolia	0.0	0.0	0.2	0.07
Teucrium canadense	0.3	0.0	0.3	0.20
Ulmus americana	0.0	0.0	0.1	0.03
Urtica dioica ssp. gracilis	0.3	0.1	0.3	0.23
Viola sp.	0.4	0.0	0.0	0.13
Zanthoxylum americanum	0.3	0.0	0.2	0.17

Plot: 7036

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Abies balsamea	0.1	0.1	0.0	0.07
Acer rubrum	0.2	0.1	0.2	0.18
Acer saccharum	0.0	0.1	0.0	0.04
Actaea sp.	0.2	0.0	0.0	0.07
Amelanchier sp.	0.4	0.2	0.3	0.32
Anemone quinquefolia	0.7	0.2	0.3	0.40
Apocynum androsaemifolium	0.0	0.1	0.0	0.04
Asclepias syriaca	0.0	0.0	0.1	0.03
Carex sp.	0.3	0.0	0.0	0.11
Clintonia borealis	0.1	0.0	0.0	0.04
Comptonia peregrina	0.0	0.0	0.2	0.07
Cornus canadensis	0.2	0.3	0.0	0.19
Cornus racemosa	0.1	0.2	0.0	0.11
Corylus americana	0.1	0.2	0.2	0.18
Corylus cornuta	0.3	0.2	0.0	0.19
Diervilla lonicera	0.1	0.1	0.0	0.07
Eurybia macrophylla	0.1	0.2	0.1	0.14
Fragaria virginiana	0.0	0.6	0.6	0.39
Galium triflorum	0.1	0.1	0.4	0.21
Gaultheria procumbens	0.0	0.1	0.0	0.04
Hepatica nobilis var. obtusa	0.2	0.0	0.0	0.07
Hieracium sp.	0.1	0.3	0.7	0.38
Lonicera sp.	0.1	0.0	0.0	0.04
Lycopodium dendroideum	0.2	0.0	0.0	0.07
Maianthemum canadense	0.9	0.7	0.5	0.69
Myrica gale	0.0	0.1	0.0	0.04
Pedicularis canadensis	0.1	0.0	0.0	0.04
Poaceae sp.	1.1	1.0	1.0	1.04
Polygonatum biflorum	0.1	0.1	0.0	0.07
Prunus serotina	0.2	0.1	0.1	0.14
Prunus virginiana	0.1	0.1	0.0	0.07
Pteridium aquilinum	0.1	0.9	0.8	0.60
Pyrola sp.	0.2	0.2	0.1	0.18
Rubus sp.	0.0	0.4	0.3	0.25
Smilax tamnoides	0.1	0.0	0.0	0.04
Spiraea alba	0.0	0.0	0.1	0.03
Taraxacum officinale	0.0	0.1	0.1	0.07
Thalictrum dioicum	0.2	0.1	0.0	0.11
Trientalis borealis	1.0	0.4	0.0	0.48
Trillium cernuum	0.1	0.0	0.0	0.04
Vaccinium angustifolium	0.1	0.2	0.1	0.14
Vaccinium myrtilloides	0.1	0.0	0.0	0.04
Viburnum lentago	0.1	0.0	0.0	0.04
Viburnum rafinesquianum	0.0	0.1	0.0	0.04
Viola sp.	0.0	0.0	0.1	0.03

Plot: 7037

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Achillea millefolium	0.0	0.1	0.0	0.03
Agrimonia sp.	0.0	0.0	0.1	0.03
Amelanchier sp.	0.1	0.2	0.5	0.27
Amphicarpaea bracteata	0.0	0.0	0.1	0.03
Anemone canadensis	0.2	0.9	0.7	0.60
Anemone quinquefolia	0.1	0.4	0.2	0.23
Apocynum androsaemifolium	0.1	0.0	0.0	0.03
Aralia nudicaulis	0.1	0.0	0.0	0.03
Brachyelytrum erectum	0.0	0.1	0.0	0.03
Carex lacustris	0.3	0.0	0.0	0.10
Carex pensylvanica	0.5	1.0	0.9	0.80
Clintonia borealis	0.1	0.0	0.0	0.03
Cornus canadensis	0.4	0.0	0.0	0.13
Cornus racemosa	0.4	0.3	0.7	0.47
Corylus americana	0.6	0.5	0.2	0.43
Corylus cornuta	0.3	0.4	0.4	0.37
Crataegus sp.	0.0	0.1	0.2	0.10
Daucus carota	0.0	0.1	0.0	0.03
Diervilla lonicera	0.0	0.2	0.0	0.07
Epilobium coloratum	0.1	0.0	0.0	0.03
Eurybia macrophylla	0.4	0.9	0.9	0.73
Fragaria virginiana	0.0	0.0	0.1	0.03
Fraxinus nigra	0.0	0.0	0.4	0.13
Galium boreale	0.0	0.3	0.9	0.40
Gaultheria procumbens	0.1	0.0	0.1	0.07
Helianthus hirsutus	0.0	0.2	0.1	0.10
Ilex verticillata	0.0	0.0	0.2	0.07
Lathyrus venosus	0.4	0.5	0.7	0.53
Lonicera canadensis	0.0	0.0	0.1	0.03
Lycopus uniflorus	0.3	0.0	0.0	0.10
Lysimachia quadrifolia	0.1	0.0	0.2	0.10
Maianthemum canadense	0.8	0.9	1.0	0.90
Orthilia secunda	0.2	0.3	0.2	0.23
Osmorhiza sp.	0.0	0.0	0.1	0.03
Parthenocissus sp.	0.0	0.0	0.1	0.03
Poaceae sp.	0.7	1.0	0.9	0.87
Polygala paucifolia	0.3	0.0	0.0	0.10
Polygonatum biflorum	0.5	0.8	0.6	0.63
Populus tremuloides	0.1	0.3	0.2	0.20
Potentilla simplex	0.0	0.0	0.1	0.03
Prenanthes alba	0.0	0.1	0.0	0.03
Prunus serotina	0.0	0.0	0.3	0.10
Prunus virginiana	0.2	0.1	0.2	0.17
Pteridium aquilinum	0.4	0.2	0.4	0.33
Pyrola sp.	0.0	0.0	0.1	0.03
Quercus alba	0.2	0.1	0.2	0.17
Quercus rubra	0.0	0.0	0.1	0.03
Rosa blanda	0.1	0.2	0.0	0.10
Rubus allegheniensis	0.3	0.0	0.0	0.10
Rubus pubescens	0.0	0.1	0.0	0.03
Rumex crispus	0.1	0.0	0.0	0.03
Sanguinaria canadensis	0.0	0.0	0.1	0.03
Sanicula marilandica	0.0	0.1	0.1	0.07
Smilax tamnoides	0.0	0.1	0.2	0.10
Spiraea alba	0.1	0.0	0.0	0.03
Symphyotrichum ontarione	0.0	0.0	0.1	0.03
Taraxacum officinale	0.0	0.0	0.1	0.03

Plot: 7037

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Thalictrum dioicum	0.0	0.5	0.6	0.37
Triadenum fraseri	0.1	0.0	0.0	0.03
Vaccinium angustifolium	0.5	0.5	0.3	0.43
Viburnum rafinesquianum	0.0	0.3	0.7	0.33

Plot: 7038

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Adiantum pedatum	0.0	0.1	0.1	0.07
Anemone quinquefolia	0.1	0.0	0.0	0.03
Apocynum androsaemifolium	0.1	0.0	0.0	0.03
Asarum canadense	0.1	0.0	0.0	0.03
Aster lateriflorus	0.0	0.0	0.1	0.03
Athyrium filix-femina ssp. angustum	0.0	0.1	0.3	0.13
Carex lacustris	0.0	0.4	0.6	0.33
Carex sp.	1.0	0.9	0.9	0.93
Carpinus caroliniana	0.1	0.1	0.1	0.10
Cicuta maculata	0.1	0.1	0.0	0.07
Circaea lutetiana ssp. canadensis	0.0	0.2	0.1	0.10
Coptis trifolia	0.3	0.0	0.0	0.10
Corylus cornuta	0.1	0.2	0.0	0.10
Desmodium glutinosum	0.4	0.1	0.1	0.20
Doellingeria umbellata	0.1	0.0	0.2	0.10
Dryopteris carthusiana	0.2	0.1	0.0	0.10
Equisetum pratense	0.5	0.2	0.3	0.33
Eurybia macrophylla	0.2	0.1	0.1	0.13
Fragaria virginiana	0.0	0.0	0.1	0.03
Galium triflorum	0.0	0.3	0.4	0.23
Geranium maculatum	0.0	0.3	0.2	0.17
Geum canadense	0.0	0.1	0.0	0.03
Hepatica nobilis var. acuta	0.5	0.2	0.3	0.33
Ilex verticillata	0.2	0.1	0.0	0.10
Impatiens capensis	0.1	0.0	0.0	0.03
Laportea canadensis	0.0	0.2	0.0	0.07
Lathyrus ochroleucus	0.4	0.0	0.0	0.13
Maianthemum canadense	0.4	0.3	0.1	0.27
Mentha arvensis	0.1	0.1	0.2	0.13
Mitella diphylla	0.0	0.4	0.3	0.23
Onoclea sensibilis	0.0	0.1	0.1	0.07
Oryzopsis asperifolia	0.5	0.1	0.0	0.20
Osmorhiza claytonii	0.0	0.1	0.0	0.03
Osmunda cinnamomea	0.0	0.1	0.0	0.03
Oxalis montana	0.0	0.0	0.2	0.07
Parthenocissus sp.	0.0	0.1	0.2	0.10
Phegopteris connectilis	0.0	0.1	0.0	0.03
Poaceae sp.	0.6	0.6	0.5	0.57
Polygonum lapathifolium	0.0	0.1	0.3	0.13
Prenanthes alba	0.1	0.0	0.0	0.03
Prunella vulgaris	0.0	0.0	0.1	0.03
Pteridium aquilinum	0.3	0.0	0.0	0.10
Rubus idaeus ssp. strigosus	0.0	0.0	0.3	0.10
Rubus pubescens	0.3	0.2	0.2	0.23
Scutellaria lateriflora	0.2	0.2	0.0	0.13
Sium suave	0.1	0.0	0.0	0.03
Smilax tamnoides	0.0	0.1	0.2	0.10
Solanum dulcamara	0.0	0.1	0.0	0.03
Taraxacum officinale	0.0	0.0	0.1	0.03
Toxicodendron rydbergii	0.1	0.0	0.0	0.03
Ulmus americana	0.2	0.0	0.0	0.07
Urtica dioica ssp. gracilis	0.0	0.4	0.4	0.27
Uvularia sessilifolia	0.2	0.4	0.1	0.23
Viola pubescens	0.0	0.0	0.1	0.03
Viola sp.	0.3	0.3	0.4	0.33
Zanthoxylum americanum	0.0	0.0	0.2	0.07

Plot: 7038

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency

Plot: 7042

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Abies balsamea	0.1	0.5	0.6	0.40
Acer rubrum	0.2	0.0	0.0	0.07
Acer spicatum	0.0	0.0	0.1	0.03
Alnus incana ssp. rugosa	0.0	0.1	0.2	0.10
Amphicarpaea bracteata	0.0	0.3	0.2	0.17
Anemone quinquefolia	0.4	0.1	0.4	0.30
Aralia nudicaulis	0.2	0.2	0.4	0.27
Arisaema triphyllum	0.3	0.0	0.1	0.13
Athyrium filix-femina ssp. angustum	0.4	0.4	0.0	0.27
Betula alleghaniensis	0.0	0.1	0.0	0.03
Caltha palustris	0.0	0.3	0.1	0.13
Carex sp.	0.9	0.9	0.6	0.80
Circaea alpina	0.2	0.0	0.1	0.10
Clintonia borealis	0.1	0.5	0.5	0.37
Coptis trifolia	0.7	0.4	0.6	0.57
Cornus canadensis	0.3	0.1	0.6	0.33
Cornus rugosa	0.0	0.0	0.1	0.03
Corylus cornuta	0.3	0.1	0.0	0.13
Dryopteris cristata	0.1	0.0	0.0	0.03
Equisetum arvense	0.1	0.0	0.0	0.03
Eurybia macrophylla	0.1	0.1	0.2	0.13
Fragaria virginiana	0.2	0.7	0.4	0.43
Fraxinus nigra	0.0	0.1	0.4	0.17
Galium triflorum	0.0	0.3	0.0	0.10
Geum macrophyllum	0.0	0.2	0.1	0.10
Glechoma hederacea	0.7	0.0	0.4	0.37
Gymnocarpium dryopteris	0.6	0.3	0.5	0.47
Ilex verticillata	0.1	0.0	0.0	0.03
Iris versicolor	0.0	0.1	0.0	0.03
Maianthemum canadense	1.0	0.9	0.5	0.80
Mentha arvensis	0.2	0.2	0.2	0.20
Mitella diphylla	0.4	0.6	0.5	0.50
Onoclea sensibilis	0.1	0.6	0.4	0.37
Orchidaceae sp.	0.0	0.1	0.1	0.07
Orthilia secunda	0.0	0.2	0.3	0.17
Osmunda cinnamomea	0.3	0.3	0.4	0.33
Osmunda regalis	0.3	0.5	0.0	0.27
Parthenocissus sp.	0.0	0.2	0.3	0.17
Phegopteris connectilis	0.3	0.1	0.0	0.13
Poaceae sp.	0.2	0.0	0.2	0.13
Polygonatum pubescens	0.1	0.0	0.1	0.07
Prenanthes alba	0.1	0.0	0.0	0.03
Prunella vulgaris	0.1	0.5	0.2	0.27
Rhamnus cathartica	0.0	0.0	0.1	0.03
Rubus pubescens	0.3	0.7	0.4	0.47
Sanicula marilandica	0.1	0.0	0.0	0.03
Smilax tamnoides	0.1	0.1	0.0	0.07
Solidago sp.	0.0	0.3	0.0	0.10
Streptopus lanceolatus var. roseus	0.2	0.2	0.4	0.27
Symplocarpus foetidus	0.5	0.4	0.6	0.50
Thalictrum dasycarpum	0.0	0.0	0.1	0.03
Thelypteris palustris	0.0	0.1	0.1	0.07
Toxicodendron rydbergii	0.2	0.6	0.4	0.40
Trientalis borealis	0.6	0.1	0.6	0.43
Uvularia sessilifolia	0.8	0.4	0.3	0.50
Viola sp.	0.9	0.9	0.7	0.83

Plot: 7042

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency

Plot: 7043

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Agrimonia striata	0.1	0.0	0.0	0.03
Allium tricoccum	0.1	0.0	0.0	0.03
Amphicarpaea bracteata	0.3	0.2	0.1	0.20
Asarum canadense	0.2	0.0	0.0	0.07
Aster cordifolius var. sagittifolius	0.3	0.0	0.0	0.10
Aster lateriflorus	0.3	0.2	0.1	0.20
Athyrium filix-femina ssp. angustum	0.1	0.0	0.0	0.03
Bidens discoidea	0.0	0.1	0.0	0.03
Carex sp.	0.2	0.8	0.1	0.37
Carpinus caroliniana	0.0	0.0	0.1	0.03
Caulophyllum thalictroides	0.1	0.0	0.0	0.03
Circaea lutetiana ssp. canadensis	0.4	0.1	0.4	0.30
Cornus racemosa	0.0	0.0	0.2	0.07
Corylus cornuta	0.0	0.0	0.1	0.03
Eurybia macrophylla	0.3	0.0	0.0	0.10
Fragaria virginiana	0.1	0.1	0.0	0.07
Fraxinus nigra	1.0	0.2	0.5	0.57
Galium concinnum	0.3	0.2	0.0	0.17
Galium triflorum	0.0	0.1	0.1	0.07
Geranium maculatum	0.0	0.6	0.3	0.30
Geum canadense	0.0	0.1	0.2	0.10
Geum sp.	0.2	0.4	0.0	0.20
Hepatica nobilis var. acuta	0.7	0.0	0.0	0.23
Impatiens capensis	0.0	0.1	0.0	0.03
Laportea canadensis	0.1	0.7	0.3	0.37
Maianthemum canadense	0.1	0.2	0.0	0.10
Maianthemum racemosum ssp. racemosum	0.2	0.0	0.0	0.07
Matteuccia struthiopteris	0.0	0.0	0.3	0.10
Mitella diphylla	0.0	0.2	0.2	0.13
Onoclea sensibilis	0.0	0.1	0.0	0.03
Oxalis montana	0.0	0.2	0.0	0.07
Parthenocissus sp.	0.3	0.3	0.4	0.33
Phlox divaricata	0.1	0.1	0.0	0.07
Pilea sp.	0.0	0.3	0.4	0.23
Poaceae sp.	0.1	0.4	0.1	0.20
Polygonatum pubescens	0.1	0.0	0.0	0.03
Polygonum punctatum	0.0	0.1	0.0	0.03
Polygonum sagittatum	0.0	0.2	0.0	0.07
Populus tremuloides	0.2	0.0	0.0	0.07
Prunella vulgaris	0.0	0.1	0.0	0.03
Quercus macrocarpa	0.2	0.0	0.0	0.07
Ranunculus hispidus var. nitidus	0.0	0.1	0.0	0.03
Rhamnus cathartica	0.1	0.3	0.1	0.17
Ribes hudsonianum	0.0	0.1	0.0	0.03
Ribes lacustre	0.0	0.1	0.5	0.20
Rubus pubescens	0.2	0.0	0.0	0.07
Solidago flexicaulis	0.3	0.0	0.0	0.10
Solidago sp.	0.0	0.2	0.0	0.07
Stellaria media	0.0	0.0	0.1	0.03
Thalictrum dioicum	0.2	0.1	0.2	0.17
Tilia americana	0.1	0.1	0.1	0.10
Toxicodendron rydbergii	0.0	0.1	0.0	0.03
Trillium grandiflorum	0.0	0.0	0.1	0.03
Ulmus americana	0.2	0.0	0.5	0.23
Ulmus rubra	0.0	0.1	0.0	0.03

Plot: 7043

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Uvularia grandiflora	0.6	0.0	0.0	0.20
Viola sp.	0.8	0.5	0.1	0.47
Zanthoxylum americanum	0.4	0.2	0.0	0.20

Plot: 7048

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Abies balsamea	0.4	0.0	0.3	0.23
Amelanchier sp.	0.0	0.2	0.4	0.20
Anemone quinquefolia	0.8	0.9	0.5	0.73
Aralia nudicaulis	0.4	0.4	0.3	0.37
Carex pensylvanica	0.2	0.4	0.4	0.33
Carex sp.	0.3	0.1	0.1	0.17
Clintonia borealis	0.3	0.0	0.2	0.17
Coptis trifolia	0.0	0.0	0.1	0.03
Cornus canadensis	0.1	0.2	0.2	0.17
Corylus americana	0.1	0.1	0.0	0.07
Corylus cornuta	0.1	0.1	0.5	0.23
Diervilla lonicera	0.2	0.4	0.2	0.27
Equisetum arvense	0.0	0.0	0.1	0.03
Eurybia macrophylla	0.5	0.9	0.8	0.73
Fragaria virginiana	0.0	0.1	0.0	0.03
Fraxinus nigra	0.0	0.0	0.1	0.03
Galium triflorum	0.2	0.3	0.0	0.17
Gaultheria procumbens	0.0	0.0	0.2	0.07
Hepatica nobilis var. obtusa	0.7	0.8	0.1	0.53
Lathyrus ochroleucus	0.2	0.3	0.0	0.17
Lonicera canadensis	0.2	0.1	0.0	0.10
Lonicera hirsuta	0.3	0.0	0.0	0.10
Lonicera sp.	0.0	0.0	0.1	0.03
Lycopodium dendroideum	0.6	0.1	0.7	0.47
Maianthemum canadense	0.8	1.0	0.5	0.77
Mitchella repens	0.6	0.3	0.7	0.53
Oryzopsis asperifolia	0.4	0.6	0.3	0.43
Poaceae sp.	0.0	0.1	0.1	0.07
Polygala paucifolia	0.3	0.1	0.0	0.13
Polygonatum pubescens	0.1	0.0	0.0	0.03
Populus grandidentata	0.0	0.1	0.0	0.03
Prunus virginiana	0.0	0.1	0.0	0.03
Pteridium aquilinum	0.3	0.4	0.4	0.37
Quercus rubra	0.0	0.0	0.2	0.07
Rubus flagellaris	0.1	0.0	0.0	0.03
Rubus pensilvanicus	0.1	0.1	0.0	0.07
Rubus pubescens	0.0	0.0	0.3	0.10
Smilax tamnoides	0.1	0.1	0.0	0.07
Streptopus lanceolatus var. roseus	0.3	0.2	0.1	0.20
Taraxacum officinale	0.1	0.0	0.0	0.03
Thalictrum dasycarpum	0.0	0.1	0.0	0.03
Thalictrum dioicum	0.1	0.4	0.0	0.17
Trientalis borealis	0.5	0.4	0.2	0.37
Trillium grandiflorum	0.1	0.0	0.0	0.03
Uvularia sessilifolia	0.0	0.2	0.1	0.10
Vaccinium angustifolium	0.0	0.2	0.1	0.10
Viburnum rafinesquianum	0.1	0.3	0.0	0.13
Viola pubescens	0.1	0.0	0.0	0.03
Viola sp.	0.2	0.1	0.0	0.10
Waldsteinia fragarioides	0.0	0.3	0.0	0.10

Plot: 7049

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.0	0.1	0.3	0.13
Amelanchier sp.	0.1	0.2	0.3	0.20
Amphicarpaea bracteata	0.5	0.0	0.0	0.17
Anemone quinquefolia	0.4	0.0	0.1	0.17
Apocynum androsaemifolium	0.0	0.2	0.4	0.20
Aralia nudicaulis	0.8	0.2	0.0	0.33
Athyrium filix-femina ssp. angustum	0.1	0.0	0.0	0.03
Carex sp.	0.1	0.9	1.0	0.67
Clintonia borealis	0.4	0.0	0.0	0.13
Corylus americana	0.0	0.5	0.9	0.47
Corylus cornuta	0.4	0.0	0.0	0.13
Diervilla lonicera	0.1	0.1	0.1	0.10
Eurybia macrophylla	1.0	0.2	0.1	0.43
Fraxinus americana	0.4	0.0	0.0	0.13
Galium triflorum	0.1	0.0	0.0	0.03
Gaultheria procumbens	0.0	0.0	0.1	0.03
Helianthus hirsutus	0.0	0.4	0.1	0.17
Hepatica nobilis var. obtusa	0.7	0.1	0.0	0.27
Lathyrus ochroleucus	0.3	0.0	0.0	0.10
Lonicera canadensis	0.3	0.0	0.0	0.10
Lonicera hirsuta	0.2	0.0	0.0	0.07
Maianthemum canadense	0.4	0.2	1.0	0.53
Mitella diphylla	0.1	0.0	0.0	0.03
Oryzopsis asperifolia	0.2	0.1	0.3	0.20
Osmorhiza claytonii	0.2	0.1	0.1	0.13
Ostrya virginiana	0.6	0.3	0.0	0.30
Pedicularis canadensis	0.0	0.0	0.1	0.03
Polygonatum pubescens	0.3	0.0	0.0	0.10
Prunus virginiana	0.0	0.0	0.4	0.13
Pteridium aquilinum	0.1	0.4	0.6	0.37
Quercus rubra	0.1	0.0	0.1	0.07
Rubus pensilvanicus	0.0	0.4	0.5	0.30
Rubus pubescens	0.1	0.0	0.0	0.03
Sanicula marilandica	0.3	0.0	0.0	0.10
Smilax tamnoides	0.1	0.0	0.1	0.07
Solidago sp.	0.0	0.0	0.1	0.03
Streptopus lanceolatus var. roseus	0.2	0.0	0.0	0.07
Thalictrum dioicum	0.6	0.0	0.1	0.23
Tilia americana	0.1	0.0	0.0	0.03
Trientalis borealis	0.9	0.0	0.2	0.37
Uvularia grandiflora	0.6	0.0	0.0	0.20
Uvularia sessilifolia	0.6	0.0	0.1	0.23
Vaccinium angustifolium	0.1	0.2	0.6	0.30
Viburnum rafinesquianum	0.0	0.1	0.0	0.03
Vicia americana	0.1	0.0	0.0	0.03

Plot: 7052

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Anemone quinquefolia	0.5	0.1	0.0	0.20
Aralia nudicaulis	0.0	0.1	0.2	0.10
Asclepias exaltata	0.0	0.1	0.0	0.03
Carex pensylvanica	0.6	0.5	0.6	0.57
Carex sp.	0.0	0.1	0.1	0.07
Clintonia borealis	0.0	0.0	0.1	0.03
Comptonia peregrina	0.0	0.1	0.0	0.03
Cornus canadensis	0.0	0.4	0.0	0.13
Corylus americana	0.1	0.2	0.2	0.17
Corylus cornuta	0.3	0.5	0.2	0.33
Dryopteris carthusiana	0.2	0.0	0.0	0.07
Eurybia macrophylla	0.4	0.0	0.0	0.13
Fragaria virginiana	0.0	0.0	0.1	0.03
Galium triflorum	0.4	0.3	0.2	0.30
Hieracium sp.	0.0	0.1	0.2	0.10
Ilex verticillata	0.0	0.0	0.2	0.07
Lonicera canadensis	0.2	0.1	0.1	0.13
Maianthemum canadense	1.0	1.0	1.0	1.00
Melampyrum lineare	0.0	0.2	0.0	0.07
Oryzopsis asperifolia	0.5	0.3	0.3	0.37
Polygala paucifolia	0.0	0.2	0.0	0.07
Pteridium aquilinum	0.3	0.0	0.4	0.23
Pyrola sp.	0.0	0.1	0.2	0.10
Rubus flagellaris	0.0	0.1	0.0	0.03
Sambucus racemosa var. racemosa	0.1	0.0	0.0	0.03
Trientalis borealis	0.9	1.0	0.5	0.80
Vaccinium angustifolium	0.2	0.2	0.5	0.30
Viburnum acerifolium	0.0	0.1	0.0	0.03
Waldsteinia fragarioides	0.9	0.0	0.0	0.30

Plot: 7054

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Adiantum pedatum	0.7	0.3	0.1	0.37
Ageratina altissima	0.4	0.5	0.6	0.50
Amphicarpaea bracteata	0.6	0.4	0.0	0.33
Asarum canadense	0.0	0.1	0.2	0.10
Aster lateriflorus	0.1	0.2	0.1	0.13
Athyrium filix-femina ssp. angustum	0.1	0.3	0.5	0.30
Brachyelytrum erectum	0.1	0.1	0.0	0.07
Carex sp.	0.1	0.7	0.4	0.40
Caulophyllum thalictroides	0.0	0.2	0.0	0.07
Circaea lutetiana ssp. canadensis	0.4	0.3	0.3	0.33
Clematis virginiana	0.0	0.1	0.0	0.03
Cryptotaenia canadensis	0.1	0.0	0.0	0.03
Desmodium glutinosum	0.3	0.3	0.2	0.27
Dioscorea villosa	0.0	0.2	0.2	0.13
Dryopteris carthusiana	0.0	0.0	0.1	0.03
Elymus virginicus	0.0	0.0	0.1	0.03
Equisetum arvense	0.0	0.0	0.1	0.03
Fraxinus nigra	0.0	0.1	0.3	0.13
Galium triflorum	0.2	0.4	0.3	0.30
Geranium maculatum	0.0	0.5	0.4	0.30
Geum canadense	0.0	0.0	0.5	0.17
Hepatica nobilis var. acuta	0.0	0.2	0.0	0.07
Ilex verticillata	0.0	0.0	0.1	0.03
Impatiens capensis	0.0	0.1	0.0	0.03
Laportea canadensis	0.0	0.1	0.4	0.17
Lycopus uniflorus	0.0	0.0	0.3	0.10
Maianthemum canadense	0.1	0.0	0.1	0.07
Matteuccia struthiopteris	0.2	0.2	0.1	0.17
Mentha arvensis	0.0	0.1	0.0	0.03
Mitella diphylla	0.3	0.3	0.4	0.33
Muhlenbergia mexicana	0.0	0.0	0.1	0.03
Onoclea sensibilis	0.0	0.3	0.2	0.17
Osmorhiza sp.	0.0	0.1	0.0	0.03
Osmunda cinnamomea	0.0	0.1	0.0	0.03
Ostrya virginiana	0.2	0.0	0.3	0.17
Oxalis montana	0.1	0.2	0.4	0.23
Parthenocissus sp.	0.0	0.4	0.4	0.27
Pilea sp.	0.0	0.0	0.2	0.07
Poaceae sp.	0.0	0.3	0.2	0.17
Polygonatum pubescens	0.0	0.0	0.1	0.03
Polygonum sagittatum	0.0	0.1	0.0	0.03
Prunella vulgaris	0.0	0.0	0.1	0.03
Rubus idaeus ssp. strigosus	0.0	0.1	0.0	0.03
Rubus pubescens	0.1	0.3	0.5	0.30
Rudbeckia laciniata	0.0	0.2	0.3	0.17
Sanguinaria canadensis	0.1	0.1	0.0	0.07
Sanicula marilandica	0.2	0.4	0.5	0.37
Sium suave	0.0	0.1	0.0	0.03
Smilax tamnoides	0.1	0.0	0.2	0.10
Solidago flexicaulis	0.3	0.1	0.0	0.13
Solidago sp.	0.2	0.1	0.4	0.23
Stachys tenuifolia	0.0	0.1	0.2	0.10
Ulmus americana	0.0	0.2	0.0	0.07
Urtica dioica ssp. gracilis	0.0	0.4	0.0	0.13
Uvularia grandiflora	0.1	0.1	0.0	0.07
Uvularia sessilifolia	0.0	0.1	0.0	0.03

Plot: 7054

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Viburnum rafinesquianum	0.0	0.0	0.1	0.03
Viola sp.	0.2	0.2	0.3	0.23
Woodsia obtusa	0.0	0.1	0.0	0.03

Plot: 7055

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer saccharum	0.0	0.1	0.2	0.10
Adiantum pedatum	0.0	0.1	0.5	0.20
Agrimonia sp.	0.0	0.1	0.0	0.03
Amphicarpaea bracteata	0.3	0.2	0.1	0.20
Arisaema triphyllum	0.1	0.0	0.0	0.03
Aster cordifolius var. sagittifolius	0.0	0.0	0.1	0.03
Aster lateriflorus	0.0	0.2	0.1	0.10
Athyrium filix-femina ssp. angustum	0.6	0.4	0.2	0.40
Carex lacustris	0.0	0.4	0.0	0.13
Carex sp.	0.4	0.3	0.2	0.30
Carpinus caroliniana	0.0	0.3	0.2	0.17
Carya cordiformis	0.1	0.0	0.0	0.03
Circaea lutetiana ssp. canadensis	0.3	0.1	0.0	0.13
Cornus racemosa	0.1	0.0	0.0	0.03
Dioscorea villosa	0.1	0.0	0.1	0.07
Dryopteris carthusiana	0.0	0.1	0.1	0.07
Dryopteris cristata	0.0	0.1	0.0	0.03
Eupatorium maculatum	0.0	0.1	0.0	0.03
Eurybia macrophylla	0.0	0.1	0.3	0.13
Fragaria virginiana	0.0	0.1	0.0	0.03
Fraxinus nigra	0.0	0.4	0.1	0.17
Galium concinnum	0.3	0.4	0.3	0.33
Galium triflorum	0.1	0.0	0.1	0.07
Geranium maculatum	0.6	0.5	0.5	0.53
Geum canadense	0.1	0.0	0.0	0.03
Geum sp.	0.2	0.3	0.6	0.37
Hepatica nobilis var. acuta	0.1	0.3	0.8	0.40
Impatiens capensis	0.0	0.3	0.1	0.13
Laportea canadensis	0.1	0.1	0.0	0.07
Leersia virginica	0.1	0.0	0.0	0.03
Lonicera sp.	0.1	0.0	0.0	0.03
Lycopus uniflorus	0.0	0.3	0.0	0.10
Onoclea sensibilis	0.0	0.1	0.0	0.03
Ostrya virginiana	0.1	0.0	0.0	0.03
Oxalis sp.	0.1	0.0	0.0	0.03
Parthenocissus sp.	0.0	0.1	0.0	0.03
Phlox pilosa	0.0	0.1	0.0	0.03
Pilea sp.	0.3	0.5	0.0	0.27
Poaceae sp.	0.0	0.2	0.3	0.17
Polygonatum pubescens	0.0	0.0	0.1	0.03
Polygonum sagittatum	0.0	0.4	0.0	0.13
Rubus idaeus ssp. strigosus	0.2	0.0	0.2	0.13
Rubus pubescens	0.2	0.2	0.1	0.17
Solidago flexicaulis	0.0	0.1	0.0	0.03
Solidago sp.	0.2	0.1	0.0	0.10
Stachys tenuifolia	0.0	0.1	0.0	0.03
Stellaria media	0.1	0.1	0.0	0.07
Symphyotrichum puniceum	0.0	0.1	0.0	0.03
Viola sp.	0.3	0.1	0.3	0.23
Zanthoxylum americanum	0.4	0.2	0.0	0.20

Plot: 7064

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Abies balsamea	0.2	0.2	0.0	0.13
Acer rubrum	0.0	0.3	0.0	0.10
Achillea millefolium	0.1	0.0	0.0	0.03
Amelanchier sp.	0.0	0.0	0.1	0.03
Anemone quinquefolia	0.4	0.4	0.8	0.53
Aquilegia canadensis	0.1	0.0	0.0	0.03
Aralia nudicaulis	0.0	0.0	0.1	0.03
Arisaema triphyllum	0.0	0.2	0.2	0.13
Athyrium filix-femina ssp. angustum	0.0	0.2	0.1	0.10
Calystegia spithamaea	0.1	0.0	0.0	0.03
Carex sp.	0.4	0.7	0.8	0.63
Carpinus caroliniana	0.0	0.1	0.0	0.03
Circaea alpina	0.0	0.1	0.0	0.03
Clintonia borealis	0.0	0.0	0.1	0.03
Coptis trifolia	0.0	0.1	0.2	0.10
Cornus alternifolia	0.1	0.2	0.0	0.10
Cornus canadensis	0.0	0.1	0.0	0.03
Corylus americana	0.1	0.4	0.0	0.17
Corylus cornuta	0.4	0.3	0.2	0.30
Diervilla lonicera	0.0	0.2	0.1	0.10
Dryopteris cristata	0.0	0.1	0.0	0.03
Eurybia macrophylla	0.5	0.7	0.6	0.60
Fragaria virginiana	0.2	0.1	0.0	0.10
Fraxinus nigra	0.0	0.0	0.4	0.13
Galium triflorum	0.2	0.5	0.1	0.27
Gaultheria procumbens	0.2	0.0	0.0	0.07
Hepatica nobilis var. obtusa	0.2	0.6	0.3	0.37
Hieracium sp.	0.1	0.1	0.0	0.07
Lathyrus ochroleucus	0.1	0.0	0.0	0.03
Lonicera canadensis	0.1	0.1	0.1	0.10
Lycopodium obscurum	0.3	0.0	0.0	0.10
Maianthemum canadense	0.9	1.0	0.8	0.90
Mitchella repens	0.0	0.1	0.2	0.10
Oryzopsis asperifolia	0.3	0.1	0.4	0.27
Osmorhiza claytonii	0.0	0.1	0.0	0.03
Osmunda claytoniana	0.0	0.1	0.0	0.03
Poaceae sp.	0.1	0.2	0.0	0.10
Polygala paucifolia	0.3	0.0	0.4	0.23
Polygonatum pubescens	0.0	0.2	0.2	0.13
Populus tremuloides	0.1	0.3	0.1	0.17
Prunella vulgaris	0.0	0.1	0.0	0.03
Prunus virginiana	0.0	0.4	0.0	0.13
Pteridium aquilinum	0.2	0.1	0.7	0.33
Quercus rubra	0.0	0.0	0.1	0.03
Rubus allegheniensis	0.1	0.2	0.1	0.13
Rubus flagellaris	0.1	0.0	0.0	0.03
Rubus pensilvanicus	0.0	0.0	0.1	0.03
Rubus pubescens	0.0	0.3	0.0	0.10
Silene vulgaris	0.1	0.0	0.0	0.03
Smilax tamnoides	0.0	0.1	0.0	0.03
Solidago sp.	0.0	0.0	0.1	0.03
Taraxacum officinale	0.1	0.0	0.0	0.03
Thalictrum dasycarpum	0.1	0.0	0.0	0.03
Trientalis borealis	0.3	0.2	0.7	0.40
Trillium grandiflorum	0.0	0.1	0.2	0.10
Uvularia sessilifolia	0.2	0.3	0.1	0.20

Plot: 7064

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Vaccinium angustifolium	0.0	0.0	0.1	0.03
Viburnum acerifolium	0.0	0.0	0.1	0.03
Waldsteinia fragarioides	0.0	0.1	0.7	0.27

Plot: 7076

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer negundo	0.0	0.3	0.0	0.10
Acer saccharum	0.0	0.3	0.2	0.17
Adiantum pedatum	0.0	0.0	0.1	0.03
Ageratina altissima	0.0	0.0	0.2	0.07
Amphicarpaea bracteata	0.0	0.2	0.0	0.07
Arisaema triphyllum	0.0	0.0	0.1	0.03
Athyrium filix-femina ssp. angustum	0.0	0.0	0.3	0.10
Carex sp.	0.1	0.1	0.0	0.07
Circaea lutetiana ssp. canadensis	0.2	0.5	0.4	0.37
Galium triflorum	0.1	0.0	0.0	0.03
Geranium maculatum	0.0	0.0	0.1	0.03
Geum sp.	0.1	0.0	0.0	0.03
Glechoma hederacea	0.0	0.1	0.0	0.03
Hepatica nobilis var. obtusa	0.2	0.1	0.0	0.10
Hydrophyllum virginianum	0.5	0.1	0.1	0.23
Laportea canadensis	0.9	0.5	0.4	0.60
Osmorhiza sp.	0.2	0.4	0.1	0.23
Parthenocissus sp.	0.0	0.1	0.1	0.07
Pilea sp.	0.0	0.2	0.0	0.07
Ribes hudsonianum	0.1	0.0	0.0	0.03
Sambucus racemosa var. racemosa	0.1	0.2	0.1	0.13
Sanguinaria canadensis	0.0	0.1	0.0	0.03
Sanicula marilandica	0.7	0.5	0.6	0.60
Solidago flexicaulis	0.0	0.1	0.0	0.03
Solidago sp.	0.0	0.1	0.0	0.03
Ulmus americana	0.1	0.0	0.0	0.03
Uvularia grandiflora	0.0	0.0	0.1	0.03
Viola sp.	0.3	0.1	0.5	0.30

Plot: 7077

Species	Quadrat Frequency Transect 1	2	3	Mean Quadrat Frequency
Acer rubrum	0.1	0.1	0.2	0.13
Agrimonia sp.	0.0	0.0	0.1	0.03
Alnus incana ssp. rugosa	0.4	0.6	0.1	0.37
Amelanchier sp.	0.0	0.1	0.1	0.07
Amphicarpaea bracteata	0.2	0.0	0.2	0.13
Anemone canadensis	0.5	0.8	0.6	0.63
Aquilegia canadensis	0.0	0.1	0.0	0.03
Aralia nudicaulis	0.6	0.4	0.7	0.57
Asarum canadense	0.0	0.1	0.2	0.10
Aster lateriflorus	0.0	0.2	0.1	0.10
Asteraceae sp.	0.2	0.0	0.1	0.10
Athyrium filix-femina ssp. angustum	0.3	0.3	0.1	0.23
Botrychium virginianum	0.0	0.1	0.1	0.07
Carex sp.	0.8	0.6	0.7	0.70
Circaea lutetiana ssp. canadensis	0.0	0.2	0.0	0.07
Clintonia borealis	0.1	0.0	0.0	0.03
Cornus racemosa	0.3	0.3	0.2	0.27
Corylus americana	0.0	0.0	0.2	0.07
Desmodium glutinosum	0.1	0.4	0.0	0.17
Diervilla lonicera	0.1	0.2	0.5	0.27
Dryopteris carthusiana	0.1	0.3	0.3	0.23
Eurybia macrophylla	0.8	0.9	0.4	0.70
Fragaria virginiana	0.5	0.6	0.3	0.47
Fraxinus nigra	0.3	0.0	0.2	0.17
Galium boreale	0.4	0.3	0.0	0.23
Galium triflorum	0.0	0.0	0.2	0.07
Helianthus hirsutus	0.0	0.0	0.1	0.03
Hepatica nobilis var. obtusa	0.8	0.3	0.6	0.57
Ilex verticillata	0.1	0.2	0.0	0.10
Maianthemum canadense	1.0	0.8	0.6	0.80
Maianthemum racemosum ssp. racemosum	0.1	0.0	0.0	0.03
Mitella diphylla	0.1	0.3	0.0	0.13
Osmorhiza sp.	0.2	0.3	0.0	0.17
Parthenocissus sp.	0.0	0.1	0.0	0.03
Poaceae sp.	0.5	0.6	0.7	0.60
Populus tremuloides	0.3	0.0	0.1	0.13
Potentilla simplex	0.0	0.0	0.1	0.03
Prunus virginiana	0.0	0.0	0.1	0.03
Pteridium aquilinum	0.2	0.1	0.1	0.13
Quercus macrocarpa	0.1	0.0	0.1	0.07
Ribes hirtellum	0.1	0.0	0.2	0.10
Rubus hispidus	0.1	0.0	0.0	0.03
Rubus idaeus ssp. strigosus	0.0	0.2	0.3	0.17
Rubus pubescens	0.5	0.6	0.4	0.50
Sanicula marilandica	0.0	0.1	0.0	0.03
Sanicula sp.	0.1	0.0	0.0	0.03
Streptopus lanceolatus var. roseus	0.0	0.2	0.0	0.07
Thalictrum dioicum	0.5	0.6	0.5	0.53
Toxicodendron rydbergii	0.2	0.3	0.0	0.17
Trientalis borealis	0.0	0.1	0.0	0.03
Trillium cernuum	0.1	0.0	0.0	0.03
Uvularia sessilifolia	0.5	0.3	0.9	0.57
Vaccinium angustifolium	0.0	0.0	0.1	0.03
Viburnum rafinesquianum	0.0	0.0	0.1	0.03
Vicia americana	0.0	0.1	0.0	0.03

Plot: 7077

Species	Quadrat Frequency			Mean Quadrat Frequency
	Transect			
	1	2	3	
Viola sp.	0.1	0.4	0.5	0.33

Percent Cover of Shrub Species

Plot: 7001

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Cornus sericea ssp. sericea			1	1			0.33
Corylus cornuta	6			5	3	6	3.33
Ilex verticillata			1	1	7		1.50
Lonicera canadensis				4		1	0.83
Lonicera sp.			1	2			0.50
Parthenocissus sp.		1			1		0.33
Ribes cynosbati		2		1			0.50
Rubus pubescens	2	3	3	2	20	3	5.50
Toxicodendron rydbergii	1			3			0.67
Vaccinium angustifolium	2		2				0.67

Number of Shrub Circles Not Sampled in Plot 7001: 0

Plot: 7002

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Corylus cornuta	3	7					1.67
Ilex verticillata	12						2.00
Ribes cynosbati					4		0.67
Ribes hirtellum				3			0.50
Rubus pensilvanicus		10					1.67
Rubus pubescens	24		5	10			6.50
Toxicodendron rydbergii			3	20		2	4.17

Number of Shrub Circles Not Sampled in Plot 7002: 0

Plot: 7003

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Cornus racemosa	1		1		1	1	0.67
Corylus americana			1				0.17
Frangula alnus		1					0.17
Ilex verticillata	13	14				46	12.17
Lonicera sp.						1	0.17
Parthenocissus sp.	1	1		1			0.50
Rhamnus alnifolia	5	3		1			1.50
Rhamnus cathartica					1	1	0.33
Ribes lacustre		1			1		0.33
Rubus idaeus ssp. strigosus	1	1				3	0.83
Rubus pubescens				1			0.17
Spiraea alba		1					0.17
Viburnum rafinesquianum				1	1	1	0.50
Zanthoxylum americanum				16	7	1	4.00

Number of Shrub Circles Not Sampled in Plot 7003: 0

Plot: 7005

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.		1	1	4	3		1.50
Corylus americana	6	28	50	37	42	28	31.83
Corylus cornuta			2				0.33
Ilex verticillata				1			0.17
Parthenocissus sp.	1						0.17
Rosa blanda	2	2					0.67
Rubus allegheniensis	2	2		2		10	2.67
Vaccinium angustifolium	5	7		10	31	23	12.67

Number of Shrub Circles Not Sampled in Plot 7005: 0

Plot: 7009

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	1		4		1	1	1.17
Cornus racemosa	1	1	3	2	1	1	1.50
Corylus americana	12	11	5	6			5.67
Corylus cornuta					3		0.50
Diervilla lonicera		1		1	1		0.50
Parthenocissus sp.					1	1	0.33
Rosa blanda		1	1	1		1	0.67
Rubus parviflorus					1		0.17
Symphoricarpos albus						1	0.17
Toxicodendron rydbergii	3	2	1		2	1	1.50
Vaccinium angustifolium	4	2	10	12	4	6	6.33
Vaccinium myrtilloides				1		1	0.33
Viburnum rafinesquianum	6		16		2	5	4.83
Zanthoxylum americanum	1						0.17

Number of Shrub Circles Not Sampled in Plot 7009: 0

Plot: 7011

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Parthenocissus sp.	4	4		4			2.00
Zanthoxylum americanum		7	1				1.33

Number of Shrub Circles Not Sampled in Plot 7011: 0

Plot: 7012

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Alnus viridis ssp. crispa			1				0.17
Amelanchier sp.	1	2		4	1	3	1.83
Corylus americana		1	2				0.50
Corylus cornuta			2		3		0.83
Rubus allegheniensis					1		0.17
Vaccinium angustifolium	12	1	3	3	1	3	3.83
Vaccinium myrtilloides		1					0.17
Viburnum lentago		1			1		0.33
Viburnum rafinesquianum						1	0.17

Number of Shrub Circles Not Sampled in Plot 7012: 0

Plot: 7014

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	1		1			1	0.50
Cornus racemosa	1	2	9		26	2	6.67
Corylus americana	5	7		5		3	3.33
Diervilla lonicera		1	1	1			0.50
Ilex verticillata	4	11					2.50
Lonicera hirsuta	2		2			1	0.83
Parthenocissus sp.	1					3	0.67
Ribes lacustre				4			0.67
Rosa blanda					1		0.17
Rubus allegheniensis		2			10	2	2.33
Smilax tamnoides	1						0.17
Symphoricarpos albus	1			1			0.33
Toxicodendron rydbergii	1	11	3	6		1	3.67
Viburnum rafinesquianum	2	1	2		12		2.83
Vitis riparia				1			0.17
Zanthoxylum americanum	9	8	4	19		10	8.33

Number of Shrub Circles Not Sampled in Plot 7014: 0

Plot: 7015

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Alnus incana ssp. rugosa						45	7.50
Amelanchier sp.	1	1	2	2	1		1.17
Corylus cornuta	1	2	1	3	3		1.67
Ilex verticillata		2			2		0.67
Lonicera canadensis	1						0.17
Ribes hirtellum					1		0.17
Rosa blanda	1				1		0.33
Rubus idaeus ssp. strigosus		5				1	1.00
Rubus pubescens	1			1	1		0.50
Salix sp.						10	1.67
Symphoricarpos albus		10	3				2.17
Toxicodendron rydbergii		1					0.17
Vaccinium angustifolium				4			0.67
Viburnum rafinesquianum				2			0.33

Number of Shrub Circles Not Sampled in Plot 7015: 0

Plot: 7017

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	5	3	6		5	3	3.67
Corylus americana	30	10	3	46	1	8	16.33
Corylus cornuta	7	10	1				3.00
Ilex verticillata			1				0.17
Rosa blanda		1		2		1	0.67
Rubus flagellaris	8						1.33
Rubus pensilvanicus	4	2		1	2	1	1.67
Rubus pubescens				1			0.17
Vaccinium angustifolium		5	2	40	30	15	15.33
Viburnum rafinesquianum	2						0.33

Number of Shrub Circles Not Sampled in Plot 7017: 0

Plot: 7018

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	2	2	6	4	4	5	3.83
Cornus racemosa				1		1	0.33
Corylus americana		35					5.83
Corylus cornuta	19		4	30	17	50	20.00
Lonicera canadensis					1		0.17
Lonicera hirsuta			2				0.33
Rosa blanda				1			0.17
Rubus pensilvanicus	37	4	8	5	6		10.00
Rubus pubescens	2	4					1.00
Symphoricarpos albus	2	22	2			1	4.50
Toxicodendron rydbergii	3			2			0.83
Vaccinium angustifolium				2		1	0.50
Viburnum rafinesquianum	2	19	1	4	10	4	6.67

Number of Shrub Circles Not Sampled in Plot 7018: 0

Plot: 7019

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.		1		1			0.33
Diervilla lonicera						1	0.17
Parthenocissus sp.	1			1			0.33
Rhamnus alnifolia						1	0.17
Ribes lacustre				1			0.17
Smilax tamnoides	1		1	1			0.50
Toxicodendron rydbergii						1	0.17

Number of Shrub Circles Not Sampled in Plot 7019: 0

Plot: 7020

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Alnus incana ssp. rugosa		80			5		14.17
Amelanchier sp.				1			0.17
Cornus sericea ssp. sericea	1						0.17
Corylus cornuta	9		2	2	2	2	2.83
Ilex verticillata	9	25			6		6.67
Lonicera canadensis			12	1		1	2.33
Ribes triste				1			0.17
Rubus idaeus ssp. strigosus	1	15			1		2.83
Rubus pubescens	33	8	6	4	2	5	9.67

Number of Shrub Circles Not Sampled in Plot 7020: 0

Plot: 7021

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	1	1					0.33
Chamaedaphne calyculata					22	3	4.17
Corylus cornuta	3	26	20				8.17
Kalmia polifolia					1		0.17
Ledum groenlandicum					50	40	15.00
Nemopanthus mucronatus						1	0.17
Parthenocissus sp.			1				0.17
Rosa blanda	1						0.17
Rubus pensilvanicus			1				0.17
Toxicodendron rydbergii			1				0.17
Vaccinium angustifolium		15	35	16		40	17.67

Number of Shrub Circles Not Sampled in Plot 7021: 0

Plot: 7025

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	2	1	1	1	1	2	1.33
Cornus racemosa						3	0.50
Cornus rugosa				1			0.17
Corylus americana	24	20		81	25	30	30.00
Corylus cornuta			32				5.33
Rosa blanda	1						0.17
Rosa eglanteria		1					0.17
Rubus idaeus ssp. strigosus		1					0.17
Rubus pubescens			1	1			0.33
Toxicodendron rydbergii				1			0.17
Vaccinium angustifolium		1	2		3	3	1.50

Number of Shrub Circles Not Sampled in Plot 7025: 0

Plot: 7026

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Cornus racemosa			1	1	1	1	0.67
Cornus sericea ssp. sericea	1						0.17
Corylus americana	10	12		11	10	2	7.50
Corylus cornuta	2		4	2		1	1.50
Ilex verticillata	1		6			4	1.83
Parthenocissus sp.	1						0.17
Rhamnus alnifolia		1					0.17
Ribes cynosbati						1	0.17
Ribes lacustre	1	1					0.33
Rubus pubescens	3	2	15	6	1	7	5.67
Sambucus racemosa var. racemosa		3					0.50
Smilax tamnoides	1				1		0.33
Toxicodendron rydbergii	1	1	4			1	1.17
Viburnum lentago					2	1	0.50
Viburnum rafinesquianum	2			1	2		0.83
Zanthoxylum americanum						1	0.17

Number of Shrub Circles Not Sampled in Plot 7026: 0

Plot: 7027

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Alnus incana ssp. rugosa			60		20		13.33
Cornus racemosa					2		0.33
Ilex verticillata					1		0.17
Parthenocissus sp.		1		2	1		0.67
Rhamnus cathartica		12					2.00
Rosa blanda	1						0.17
Rubus idaeus ssp. strigosus			1				0.17
Rubus pubescens	4	2		1	1		1.33
Zanthoxylum americanum		1					0.17

Number of Shrub Circles Not Sampled in Plot 7027: 0

Plot: 7028

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	1		1	3	1	2	1.33
Celastrus scandens		13					2.17
Chamaedaphne calyculata			5				0.83
Corylus americana	2		4	2	4		2.00
Corylus cornuta		15		1	2		3.00
Ilex verticillata					0.5		0.08
Lonicera hirsuta	0.5						0.08
Parthenocissus sp.			0.5				0.08
Rosa blanda	0.5				0.5	0.5	0.25
Rubus allegheniensis			0.5	12	0.5		2.17
Rubus pensilvanicus	3						0.50
Rubus pubescens	1						0.17
Toxicodendron rydbergii			0.5				0.08
Vaccinium angustifolium			12	4	1	12	4.83
Vaccinium myrtilloides	7				1		1.33

Number of Shrub Circles Not Sampled in Plot 7028: 0

Plot: 7031

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.						1	0.17
Corylus americana			5	23			4.67
Corylus cornuta			6		2	2	1.67
Ilex verticillata	1		45	2	3	10	10.17
Parthenocissus sp.			1				0.17
Rhamnus alnifolia		2		1			0.50
Ribes cynosbati	2						0.33
Ribes hirtellum			7	1			1.33
Rosa blanda						2	0.33
Rubus idaeus ssp. strigosus	3	9				1	2.17
Rubus pubescens	2	1	8			5	2.67
Salix sp.						1	0.17
Toxicodendron rydbergii			1		5		1.00
Viburnum lentago					20	3	3.83
Viburnum rafinesquianum					1		0.17

Number of Shrub Circles Not Sampled in Plot 7031: 0

Plot: 7033

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	2						0.33
Cornus racemosa					1		0.17
Cornus sericea ssp. sericea			30			2	5.33
Corylus cornuta	7					4	1.83
Parthenocissus sp.	2	3		1	2		1.33
Ribes cynosbati		3					0.50
Ribes glandulosum					2		0.33
Rubus idaeus ssp. strigosus				2	6		1.33
Rubus pubescens		2			3		0.83
Toxicodendron rydbergii	1	1					0.33

Number of Shrub Circles Not Sampled in Plot 7033: 0

Plot: 7034

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Cornus sericea ssp. sericea			1	6			1.17
Corylus americana			8				1.33
Corylus cornuta	6			5	3	6	3.33
Ilex verticillata			1	1	7		1.50
Lonicera canadensis				4		1	0.83
Lonicera sp.			1	2			0.50
Parthenocissus sp.		1			1		0.33
Ribes cynosbati		2		1			0.50
Rubus pensilvanicus						3	0.50
Rubus pubescens	4	3	8	7	20		7.00
Smilax tamnoides	1		7	4			2.00
Staphylea trifolia						50	8.33
Toxicodendron rydbergii	1			3			0.67
Vaccinium angustifolium	2		2				0.67

Number of Shrub Circles Not Sampled in Plot 7034: 0

Plot: 7035

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Smilax tamnoides	55	1		1		2	9.83
Zanthoxylum americanum	10						1.67

Number of Shrub Circles Not Sampled in Plot 7035: 0

Plot: 7036

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.		3				7	1.67
Cornus racemosa		1		30	2	2	5.83
Corylus americana		58	29	15	15	30	24.50
Corylus cornuta	35			20			9.17
Rubus sp.			60	2	3	5	11.67
Viburnum lentago		1					0.17
Viburnum rafinesquianum	1	1	1				0.50

Number of Shrub Circles Not Sampled in Plot 7036: 0

Plot: 7037

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	20	4	1	9	1	0.5	5.92
Cornus racemosa		0.5	1		8	2	1.92
Corylus americana	2	36	2	0.5	26	12	13.08
Corylus cornuta			6				1.00
Ilex verticillata	48						8.00
Rosa blanda				0.5	1		0.25
Rubus allegheniensis	1	1					0.33
Smilax tamnoides	0.5			0.5	0.5	0.5	0.33
Vaccinium angustifolium	1	1	4	1	1		1.33
Vaccinium myrtilloides	0.5						0.08
Viburnum rafinesquianum	0.5	3	4	0.5	5	3	2.67

Number of Shrub Circles Not Sampled in Plot 7037: 0

Plot: 7038

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Alnus incana ssp. rugosa	2						0.33
Parthenocissus sp.			2				0.33
Ribes cynosbati	1				1		0.33
Rubus idaeus ssp. strigosus				10		1	1.83
Rubus occidentalis						1	0.17
Rubus pubescens					3	2	0.83
Zanthoxylum americanum	1					1	0.33

Number of Shrub Circles Not Sampled in Plot 7038: 0

Plot: 7042

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Alnus incana ssp. rugosa				8	18	8	5.67
Amelanchier sp.						1	0.17
Cornus sericea ssp. sericea	3	1					0.67
Corylus cornuta				1	2		0.50
Ilex verticillata	1			2		2	0.83
Rubus pubescens	1	3	1	4	2	4	2.50
Smilax tamnoides	1			1			0.33
Toxicodendron rydbergii	2	1	3	4	1	4	2.50

Number of Shrub Circles Not Sampled in Plot 7042: 0

Plot: 7043

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Cornus racemosa				4		2	1.00
Corylus cornuta	11		2				2.17
Parthenocissus sp.	1		2	1	2	3	1.50
Rhamnus alnifolia		2					0.33
Rhamnus cathartica			1				0.17
Ribes hirtellum				2		1	0.50
Ribes lacustre	2		2		1	6	1.83
Rubus occidentalis				1			0.17
Rubus pubescens		2			1		0.50
Toxicodendron rydbergii					1		0.17
Vitis riparia			1				0.17
Zanthoxylum americanum	3		1				0.67

Number of Shrub Circles Not Sampled in Plot 7043: 0

Plot: 7048

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Alnus incana ssp. rugosa					2		0.33
Amelanchier sp.		1	2	1	2	2	1.33
Cornus alternifolia				1			0.17
Cornus sericea ssp. sericea	2						0.33
Corylus americana	8		10			10	4.67
Corylus cornuta	11		12	1			4.00
Diervilla lonicera	10		4		1	1	2.67
Ilex verticillata		1				10	1.83
Lonicera canadensis	7		1	20		7	5.83
Lonicera sp.				2			0.33
Rhamnus alnifolia			1				0.17
Rubus occidentalis	20		1		4		4.17
Rubus pubescens					1	1	0.33
Smilax tamnoides				1		1	0.33
Toxicodendron rydbergii		1					0.17
Vaccinium angustifolium			22				3.67
Vaccinium myrtilloides	20						3.33
Viburnum rafinesquianum		1	1		7	5	2.33

Number of Shrub Circles Not Sampled in Plot 7048: 0

Plot: 7049

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	2	1		5		1	1.50
Cornus racemosa					1		0.17
Corylus americana				29	12	49	15.00
Corylus cornuta	53	35	30				19.67
Lonicera canadensis		30					5.00
Rubus pensilvanicus				1	26	3	5.00
Vaccinium angustifolium	3		5	4			2.00

Number of Shrub Circles Not Sampled in Plot 7049: 0

Plot: 7052

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.	10		1		2		2.17
Comptonia peregrina				3		1	0.67
Corylus americana		55		16	3	32	17.67
Corylus cornuta	60	8	44	5	9	4	21.67
Lonicera canadensis					5		0.83
Sambucus racemosa var. racemosa		1					0.17
Smilax tamnoides	1						0.17
Vaccinium angustifolium			1	1	1	2	0.83
Vaccinium myrtilloides			3				0.50
Viburnum rafinesquianum				1			0.17

Number of Shrub Circles Not Sampled in Plot 7052: 0

Plot: 7054

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Cornus sericea ssp. sericea		2					0.33
Parthenocissus sp.		5		11	12	12	6.67
Rubus idaeus ssp. strigosus						1	0.17
Rubus occidentalis					3		0.50
Rubus pubescens		5		10		15	5.00
Smilax tamnoides		4		1			0.83

Number of Shrub Circles Not Sampled in Plot 7054: 0

Plot: 7055

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Corylus cornuta					4		0.67
Lonicera sp.			4				0.67
Parthenocissus sp.			0.5				0.08
Ribes lacustre			1	1	0.5		0.42
Rubus idaeus ssp. strigosus	0.5		7	3	2		2.08
Spiraea alba			3				0.50
Vitis riparia	0.5	0.5					0.17
Zanthoxylum americanum		9		12		0.5	3.58

Number of Shrub Circles Not Sampled in Plot 7055: 0

Plot: 7064

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.			3	2		3	1.33
Cornus alternifolia		3		1		0.5	0.75
Corylus americana	6	52	12	9			13.17
Corylus cornuta	24		1	13	5		7.17
Diervilla lonicera		0.5	2		0.5		0.50
Lonicera canadensis	3					3	1.00
Ribes cynosbati		0.5					0.08
Rosa blanda			1				0.17
Rubus allegheniensis	1		0.5				0.25
Rubus occidentalis				19	0.5		3.25
Sambucus racemosa var. racemosa					2		0.33
Smilax tamnoides					1	0.5	0.25
Vaccinium angustifolium						0.5	0.08

Number of Shrub Circles Not Sampled in Plot 7064: 0

Plot: 7076

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Parthenocissus sp.				0.5			0.08
Ribes hudsonianum			0.5				0.08
Ribes lacustre				0.5	0.5	0.5	0.25
Rubus pubescens	0.5				0.5		0.17
Sambucus racemosa var. racemosa		2		1		0.5	0.58
Smilax tamnoides			0.5				0.08
Viburnum rafinesquianum	0.5						0.08
Vitis riparia					0.5		0.08

Number of Shrub Circles Not Sampled in Plot 7076: 0

Plot: 7077

Species	Percent cover in shrub circles 1	2	3	4	5	6	mean percent cover
Amelanchier sp.		1	3		1		1.00
Cornus racemosa	10	15	3				5.60
Corylus americana	2			1	1		0.80
Corylus cornuta	14	7	30				10.20
Ilex verticillata		2					0.40
Ribes hirtellum		1			2		0.60
Rubus allegheniensis	1						0.20
Rubus idaeus ssp. strigosus				3	2		1.00
Rubus pubescens	5	5	7	1	6		4.80
Toxicodendron rydbergii	4		4		3		2.20
Viburnum lentago				2	1		0.60
Viburnum rafinesquianum	7	3			4		2.80

Number of Shrub Circles Not Sampled in Plot 7077: 1

The Department of the Interior protects and manages the nation’s natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

National Park Service
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