Sparta Mountain WMA

Rare Species Surveys

Summer - Fall 2013

Wild Ridge Plants

Growers and Stewards of Native Plants

Prepared by Wild Ridge Plants, LLC

December 2013

Sparta Mountain WMA Rare Species Survey
Summer-Fall 2013
Project Narrative

Submitted by Wild Ridge Plants, LLC, on December 1, 2013

Project Overview

Preliminary rare plant species survey work was conducted at Sparta Mountain Wildlife Management Area from July through October 2013. Surveys were conducted on behalf of NJ Audubon as an element of forestry planning at the site. The project was coordinated by Jared Rosenbaum and Rachel Mackow of Wild Ridge Plants LLC, with GIS work and draft review by Michael Van Clef PhD, of Ecological Solutions LLC. Field surveys were conducted by consulting botanists Janet Ebert and Jack Holt, who also contributed to the report text and submitted draft tables.

Together, the botanist team amassed over 100 hours of field survey time. In addition, considerable time was spent identifying specimens and organizing data. Jared Rosenbaum and Rachel Mackow assisted the consulting botanists in the field on several occasions, with an additional 16 hours total time amassed.

Searches for rare species utilized existing trails and roads to the maximum extent possible. Survey work was focused on areas identified by New Jersey Audubon staff member Don Donnelly as sites for potential forestry activities. Additionally, effort was made to visit as broad a diversity of habitat types within the WMA as possible, to develop generalized understandings about the site and potential rare species occurrences in it.

This report indicates the rare plant species found, their locations, and summary notes on their habitat and abundance. See *Appendix A: Occurrences by Location and Habitat* for details. Maps for all occurrences are included as *Appendix B: Maps.*

Generalizations about rare species abundance, habitat types, and concentration within the site are necessarily preliminary due to the limited

survey window and the large area of the site (over 3,000 acres) relative to the time allocated for species searching. For a more comprehensive overview of rare species occurrences, additional searching must be performed, especially during the spring to early summer months.

Summary of Findings

Twenty-six plant species listed on the most current New Jersey Natural Heritage list of rare plants were observed during surveys, with 47 total occurrences (See Figure 1). Four of those species are listed as endangered (S1), comprising 15% of the total rare species observed. One species was observed for the first time in New Jersey. Two species were discovered both inside and outside the WMA boundary, and are included in this report (See Appendix A and Maps). Table 1 includes a complete list of all rare species observed during the survey period.

This number does not include *Pinus resinosa*, which was planted and is naturalizing at Edison. Raw field sheet data for all occurrences, with a wealth of details not summarized in this narrative, can be found as *Appendix C: Field Survey Sheets.*

Figure 1. *Species Observed, by NJ Natural Heritage Program Rank*

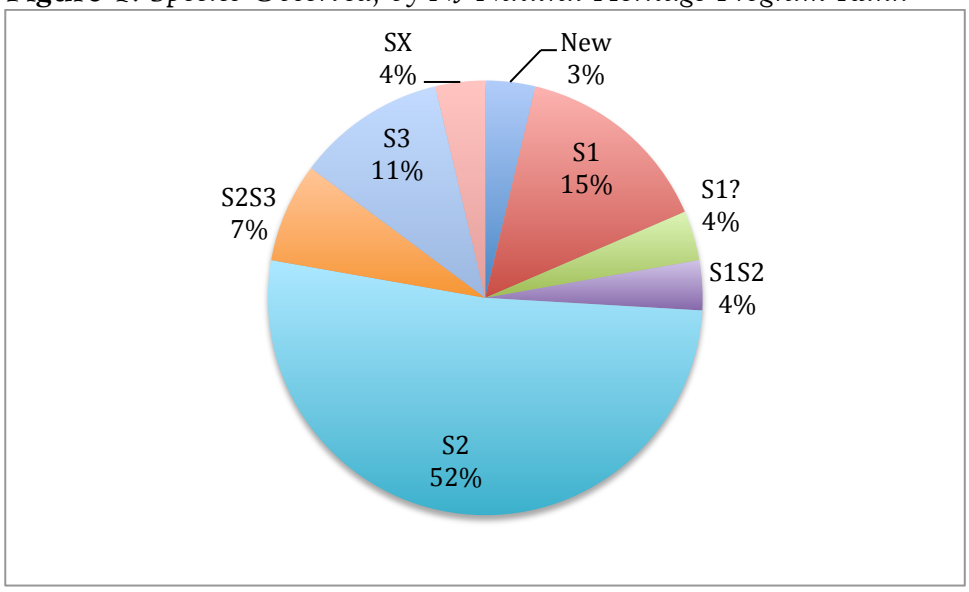


Table 1. *Rare Plant Species Observed*

Growth Habit	Scientific Name	S Rank*	Number of Observations
Forbs	*Anemone cylindrica*	S1	1
Graminoids	*Bromus ciliatus var. ciliatus*	S2S3	1
Graminoids	*Calamagrostis stricta*	NEW	1
Aquatics	*Ceratophyllum echinatum*	S1S2	2
Forbs	*Chenopodium simplex*	S2	1
Forbs	*Desmodium cuspidatum*	S2	1
Graminoids	*Dichanthelium oligosanthes v. scribnerianum*	S2	1
Forbs	*Doellingeria infirma*	S2	2
Graminoids	*Elymus trachycaulis*	S1	6
Forbs	*Epilobium leptophyllum*	S2	2
Graminoids	*Eragrostis frankii*	S2	1
Forbs	*Galium trifidum var. trifidum*	S2	2
Graminoids	*Glyceria grandis*	S1	1
Trees	*Juglans cinerea*	S3	1
Shrubs	*Juniperus communis var. depressa*	S2	1
Forbs	*Lactuca hirsuta var. sanguinea*	S2	5
Forbs	*Lechea intermedia*	S2	2
Forbs	*Lilium philadelphicum var. philadelphicum*	S2	2
Ferns	*Lycopodium hickeyi*	S2S3	3
Forbs	*Lysimachia thyrsiflora*	S3	1
Aquatics	*Myriophyllum heterophyllum*	S2	1
Forbs	*Platanthera psycodes*	S2	3
Aquatics	*Potamogeton obtusifolius*	S1	1
Shrubs	*Salix lucida*	S1?	1
Forbs	*Spiranthes ochroleuca*	S3	1
Forbs	*Symphyotrichum urophyllum*	S2	1
Forbs	*Thaspium barbinode*	SX	1

*Rank current as of September 2013
Key to State Element Ranks:
S1 - Critically imperiled in New Jersey because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres).
S2 - Imperiled in New Jersey because of rarity (6 to 20 occurrences).
S3 - Rare in state with 21 to 100 occurrences (plant species and ecological communities in this category have only 21 to 50 occurrences).
? - Either it has not been determined if the record is indicative of significant habitat or the identification of the species or community may be confusing or disputed.
SX - Elements that have been determined or are presumed to be extirpated from New Jersey. All historical occurrences have been searched and a reasonable search of potential habitat has been completed. Extirpated taxa are not a current conservation priority.

The powerline ROWs, despite covering a relatively small area of the WMA, harbor a disproportionate number of state-listed species. Management of utility cuts for these and other rarities should be a high priority.

Surveyors found the glade-like habitats in many areas along the ROWs to have exceptional plant diversity, unusual species composition, and many species that, while not listed by the state, are infrequent and unusual. Such habitat has high values regardless of the presence of absence of rare species.

Wetlands and open-water habitats, including some under powerlines, also have a high number of state-listed species. Note that the wetlands at the WMA were not well explored and the ponds and lakes even less so. More rarities may be present within them.

In general the harvest blocks (the exception being the low moist portions of #2 closest to the ROW) have not been taken over by alien invasive plant species. The rarities found in them are exclusively early successional species.

While much of the upland forest cover at Sparta is relatively homogenous oak/heath forest, a less common forest habitat found at Sparta is rich moist/mesic mature woodland, usually with tuliptree and sugar maple forming a significant portion of the canopy. Understories are rich and diverse with numerous herbaceous species. These areas are more prone to alien invasion, especially by Japanese stiltgrass, garlic mustard, long-bristled smartweed, multiflora rose, and Japanese barberry, due to higher nutrient and moisture availability levels. The disturbance associated with forestry work may

have a more pronounced negative effect in these areas, and surveyors advise approaching these areas very conservatively.

With 726 vascular plant species observed in mid to late summer, Sparta Mountain WMA is extremely rich in both habitats and species, and future surveying will likely yield more species, including rare ones, and habitat types.

Attached is *Appendix E: Vascular Plant Species List*, with all plant species found during surveying listed. A total of 36 plant inventory lists were made during field surveys, including one each for the harvest blocks, the proposed harvest block, and two for the deer exclosure (harvested and unharvested). The "Count" column displays how many of these lists a given species was found on. Comments were made for all state rarities encountered and for any species observed less than four times. In compiling this resource, the consulting botanists went above and beyond the level of dedication and time expenditure expected of them in this project.

In addition to the rare species, the following emerging invasive species were observed: Water chestnut (*Trapa natans*) at the northwest end of Ryker Lake, Japanese aralia (*Aralia alata*) along a ROW, and porcelainberry (*Ampelopsis brevipedunculata*) along the railroad at the east edge of the WMA. GPS points were taken and will be submitted to the New Jersey Invasive Species Strike Team's public database. It is recommended that these species be prioritized for removal.

Discussion of Rare Species Occurrences

A very high percentage of the rare species found were located in open and semi-open habitats. Distinction must be made between open habitats and disturbed habitats; a number of the open habitats hosted extensive communities of diverse, long-lived and relatively stable species composition. Rare species of open habitats, therefore, fell into two general categories: species found in disturbed habitats on the site, such as *Eragrostis frankii*, and *Chenopodium simplex*; and species associated with less-disturbed open habitats, ranging from *Galium trifidum* to *Platanthera psycodes*.

High quality open habitats are a declining land type with distinctive and often rare flora (and fauna) elements. No study has analyzed the percentage of state-

listed plant species in New Jersey which require these types of habitats. However, a recent study in Pennsylvania can be instructive in understanding the importance of these habitats.

In Pennsylvania, plants of open habitats (GMS - grassland, meadow, savannah) were found to constitute a disproportionately high percentage of state-listed species relative to the land area in a GMS cover type:

> GMS species are disproportionately represented among vascular plant species of special conservation concern: 112 (38%) of the state-endangered species, 35 (41%) of the state threatened species, and 38 (35%) of the species that have already been extirpated from Pennsylvania are characteristic of grasslands, meadows, and savannas. These percentages are about double the 19.5% of the state's land currently estimated to be in GMS cover and are vastly disproportionate to the 1% to 3% of the land within Pennsylvania's borders estimated from historical sources to have been in GMS vegetation around the time of European settlement.
>
> (*Keystone Grasslands: Restoration and Reclamation of Native Grasslands, Meadows, and Savannas in Pennsylvania State Parks and State Game Lands*. Latham, R and Thorne, J, 2007)

Sparta Mountain WMA appears to contain a significant proportion of rare species of open habitats. It compels study and appropriate land management. While managing for rare flora of open habitats is desirable, it does not necessarily follow that all forestry practices will benefit existing occurrences or generate new occurrences of rare species. The historical circumstances under which many of the anthropogenic open habitats at Sparta were created may not be equivalent to the current conditions. Also, it cannot be stated with any certainty that rare species in fully open habitats are not relictual species from whatever cover type was present before ROWs and roadcuts were made.

The majority of rare species found may be intolerant of the high levels of disturbance often associated with forestry work, as indicated by their high New Jersey Co-efficient of Conservatism (CC) values. Eighty-five percent of the rare species found were conservative species, with NJ CC Values of 8 or

higher on a scale of 0 - 10, where the highest values indicate the greatest fidelity to intact native habitats and the least resilience to habitat disturbance [Plant Stewardship Index, Bowman's Hill Wildflower Preserve, www.bhwp.org/psi]. Only two species had CC values under 5, indicating a pattern of disturbance tolerance for those species, and two species had intermediate tolerance to disturbance, with CC values of 5 and 6, respectively [See *Appendix D: Rare Species CC Values*].

Thus, while many of the rare species found were in open, somewhat disturbed habitats, these numbers carry the implication that many of the rare species at Sparta need to be safeguarded from adverse management, as they may not persist in heavily disturbed areas. Soil disturbance, trampling, and subsequent site colonization by more aggressive generalist plant species are all possible negative outcomes of forestry management.

However, a lack of appropriate management may abet the disappearance of these species. Increasingly aggressive use of herbicides on ROWs, as well as varying management and disturbance of roadside habitats, places rare species of open habitats under increasing pressure. The potential to manage for the benefit of these species using forestry practices exists, and may provide an answer to the increasing pressures these species face.

Forestry management will need to be sensitive to the disturbance thresholds of rare species, and individualized monitoring and management protocols may be necessary for each species affected. Monitoring is critical to both safeguarding rare species, and to communicating the success of any practices that do achieve positive results.

The glade-type habitats found along ROWS were of exceptional botanical diversity. Creation of additional glade habitat using forestry methods could be of great value. However, colonization of cut areas by glade species is not a foregone conclusion. Efforts to expand glade habitats would require specific goals, careful site assessment, baseline characterization, and follow-up monitoring.

Approximately one third of the species found were associated with wetland habitats ranging from seepages to ponds and lakes. Some of the rare species may be sensitive to changes in hydrology, whether water flow or ambient

temperature conditions, resulting from forestry activities, even if those activities are not immediately proximate to rare species occurrences.

While no rare species found during survey work were associated only with shaded, mature forest conditions, such species may be found if further survey work is conducted. Such species could be highly sensitive to canopy clearing and soil disturbance. The botanical surveys described in this report were not comprehensive, given time limitations and the large size of the WMA. As areas at Sparta are identified as harvest blocks, specific searches for rare species within those areas are advised.

Attached Appendices:

Appendix A. Sparta WMA Element Occurrences by Location and Habitat
Appendix B. Maps
Appendix C. Field Survey Sheets
Appendix D. Rare Species CC Values
Appendix E. Vascular Plant Species List

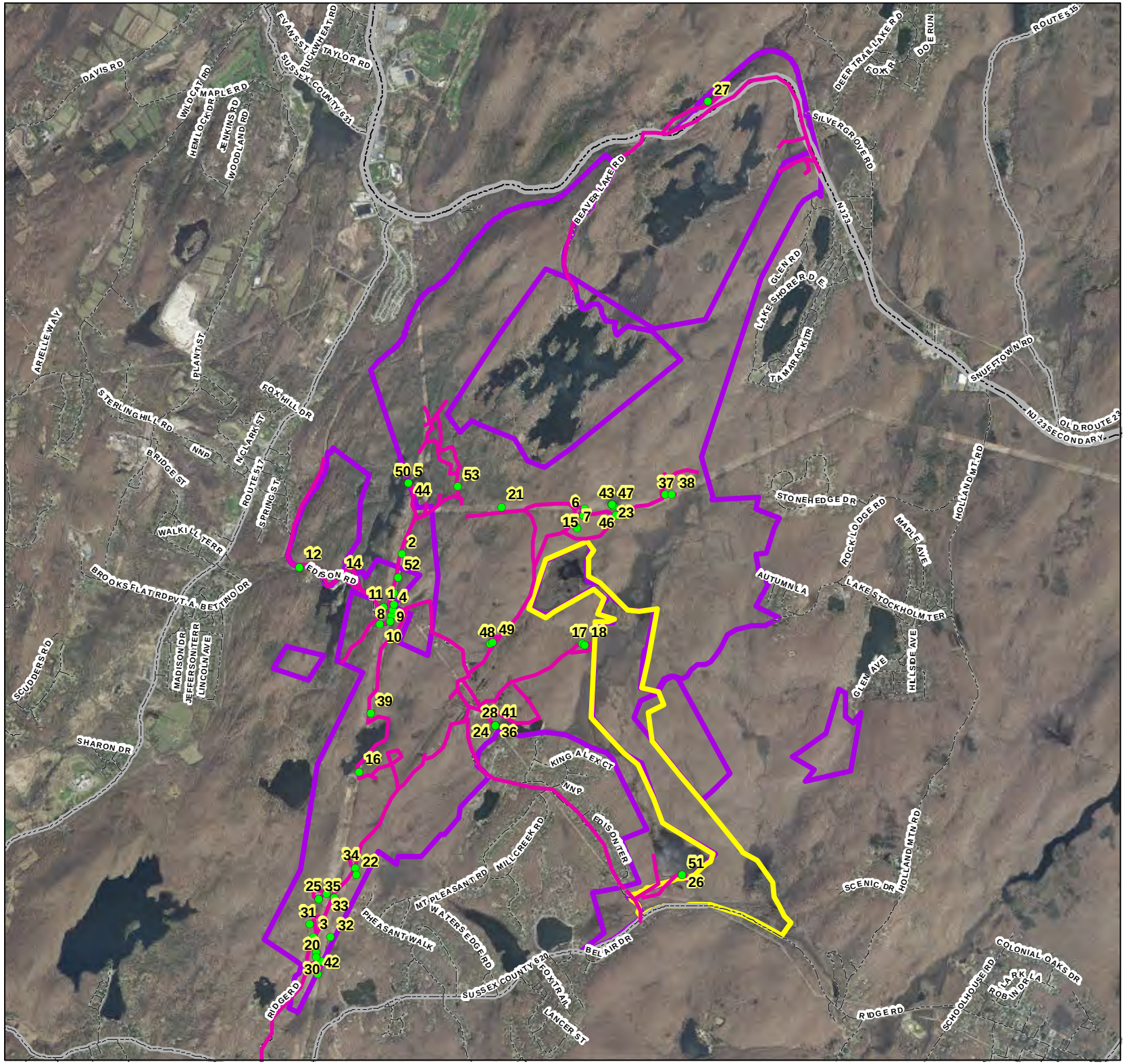
Addendix A. Sparta WMA Element Occurrences by Location and Habitat
Sparta Mountain WMA Rare Species Surveys, Summer - Fall 2013
Wild Ridge Plants, LLC

Waypoint	Map ID	Species	# of Individuals/stems	Habitat	Location	Notes
31	1	Anemone cylindrica	1	Open well-drained slope with herbaceous and successional woody vegetation	ROW S. of Edison Road, west side	
33	2	Bromus ciliatus	5 to 10	Wet swale with open herbaceous vegetation	ROW	
67	3	Calamagrostis stricta	25	Well-drained edge with scattered woody vegetation	Ridge Road at Harvest Block 1	New for NJ - adventive?
34	4	Ceratophyllum echinatum	n/a	Still water of pond	Access road off Edison Road	Outside WMA boundary
78	5	Ceratophyllum echinatum	n/a	Still water of lake	New lake	
13	6	Chenopodium simplex	10 to 15 total*	Open well-drained slope with early successional vegetation and stump sprouts	Harvest Block 5	
55	7	Chenopodium simplex	10 to 15 total*	Open well-drained slope with early successional vegetation and stump sprouts	Harvest Block 5	Outside WMA boundary
26	8	Desmodium cuspidatum	1	Well-drained to mesic slope with herbaceous vegetation	Roadside, Edison Road	
27	9	Desmodium cuspidatum	1	Well-drained to mesic slope with herbaceous vegetation	Roadside, Edison Road	
29	10	Desmodium cuspidatum	2	Well-drained to mesic slope with herbaceous vegetation	Roadside, Edison Road	
30	11	Desmodium cuspidatum	~30	Well-drained to mesic slope with herbaceous vegetation	Roadside, Edison Road	
90	12	Dichanthelium oligosanthes v. scribnerianum	1	Dry mesic partially open outcrop with herbaceous vegetation	Roadside, Edison Road	
82	13	Doellingeria infirma	1	Open well-drained edge with mixed height vegetation	ROW edge N. of Edison Road	
87	14	Doellingeria infirma	6 to 10	Open, dry-mesic rock ledge	Roadside, Edison Road	
12	15	Elymus trachycaulis	100 to 300 total*	Open well-drained variable slopes with herbaceous vegetation	ROW near Harvest Block 5	
21	16	Elymus trachycaulis	100 to 300 total*	Open well-drained variable slopes with herbaceous vegetation	ROW N of Collins Pond	
24	17	Elymus trachycaulis	100 to 300 total*	Open well-drained variable slopes with herbaceous vegetation	ROW N of Collins Pond	
25	18	Elymus trachycaulis	100 to 300 total*	Open well-drained variable slopes with herbaceous vegetation	ROW N of Collins Pond	
32	19	Elymus trachycaulis	100 to 300 total*	Open well-drained variable slopes with herbaceous vegetation	ROW N. of Edison Road	
41	20	Elymus trachycaulis	100 to 300 total*	Open well-drained variable slopes with herbaceous vegetation	ROW E. of Ridge Road	
62	21	Elymus trachycaulis	100 to 300 total*	Open well-drained variable slopes with herbaceous vegetation	ROW W. of Harvest Block 5	
69	22	Elymus trachycaulis	100 to 300 total*	Open well-drained variable slopes with herbaceous vegetation	Ridge Road at edge of Harvest Block 3	
53	23	Epilobium leptophyllum	25 to 30	Open seepage area in scrub-shrub vegetation, rocky swale	ROW	
64	24	Epilobium leptophyllum	~5	Open wetland with herbaceous vegetation, scrub-shrub nearby	ROW	
70	25	Eragrostis frankii	up to 100	Open compacted soil (poor drainage) with annual grasses	Edge of Ridge Road	Approximate Location
71	26	Galium trifidum var. trifidum	5 or 6	Open rich shoreline with emergent wetland herbaceous vegetation	Edge of Ryker Lake	
74	27	Galium trifidum var. trifidum	1	Partially shaded edge of open wetland with diverse herbaceous vegetation	Crescent Marsh	
64	28	Glyceria grandis	4 to 8??	Open wetland with diverse herbaceous vegetation	ROW near Edison Monument	
45	29	Juniperus communis var. depressa	1	Open well-drained edge with low vegetation	Edge of ROW	
39	30	Lactuca hirsuta v. sanguinea	40 to 50 total*	Open (to partial shade) well-drained soil with sparse vegetation	ROW, moving into harvest blocks	

Addendix A. Sparta WMA Element Occurrences by Location and Habitat
Sparta Mountain WMA Rare Species Surveys, Summer - Fall 2013
Wild Ridge Plants, LLC

Waypoint	Map ID	Species	# of Individuals/stems	Habitat	Location	Notes
42	31	Lactuca hirsuta v. sanguinea	40 to 50 total*	Open (to partial shade) well-drained soil with sparse vegetation	ROW, moving into harvest blocks	
44	32	Lactuca hirsuta v. sanguinea	40 to 50 total*	Open (to partial shade) well-drained soil with sparse vegetation	ROW, moving into harvest blocks	
47	33	Lactuca hirsuta v. sanguinea	40 to 50 total*	Open (to partial shade) well-drained soil with sparse vegetation	ROW, moving into harvest blocks	
68	34	Lactuca hirsuta v. sanguinea	40 to 50 total*	Open (to partial shade) well-drained soil with sparse vegetation	ROW, moving into harvest blocks	
70	35	Lactuca hirsuta v. sanguinea	40 to 50 total*	Open (to partial shade) well-drained soil with sparse vegetation	ROW, moving into harvest blocks	
64	36	Lechea intermedia	10 to 30	Open well-drained slope with herbaceous and low woody vegetation	ROW	
91	37	Lechea intermedia	Over 200 total*	Open well-drained with disturbed herbaceous vegetation	ROW near Edison Monument	
92	38	Lechea intermedia	Over 200 total*	Open well-drained with disturbed herbaceous vegetation	ROW near Edison Monument	
23	39	Lilium philadelphicum var. philadelphicum	2	Open well-drained grassland with herbaceous and low woody vegetation	ROW N of Collins Pond	
38	40	Lilium philadelphicum var. philadelphicum	1	Rocky slope drainage to wet swale in dense herbaceous vegetation	ROW	
64	41	Lycopodium hickeyi	1 patch	Open rich mesic slope to wetlands with low vegetation	ROW	
66	42	Lycopodium hickeyi	1 patch	Open well-drained crest on rocky knoll with low vegetation	ROW	
53	43	Lysimachia thyrsiflora	50 to 60 ramets	Open seepy swale with stream near scrub-shrubr	ROW	
78	44	Myriophyllum heterophyllum	Not recorded	Open lacustrine with aquatic vegetation	Lake near ROW	Tentative ID
49	45	Platanthera psycodes	5	Shaded wet area along stream in young maple-birch wet-mesic forest	Woods adjacent to ROW, below	
52	46	Platanthera psycodes	~4 total*	Open seepage with adjacent shrubs and tall forbs	ROW	
53	47	Platanthera psycodes	~4 total*	Open seepage with adjacent shrubs and tall forbs	ROW	
56	48	Platanthera psycodes	~10 to 15 total*	Closed canopy red maple swamp	Near old RR and access road	Tentative ID
57	49	Platanthera psycodes	~10 to 15 total*	Closed canopy red maple swamp	Near old RR and access road	Tentative ID
78	50	Potamogeton obtusifolius	Not recorded	Open lacustrine with aquatic vegetation	Near edge of new lake	
71	51	Salix lucida	1	Open lake edge with diverse herbaceous vegetation	Edge of Ryker Lake	
86	52	Spiranthes ochroleuca	9 stems	Open well-drained rocky with grasses	ROW	
88	53	Symphyotrichum urophyllum	1	Thin, dry, rocky oak-heath woods with ericaceous shrub cover	Near summit	
Waypoint not recorded	N/A	Juglans cinerea	2	Mesic disturbed woods	Near Edison Monument	No point taken
Waypoint not recorded	N/A	Thaspium barbinode	25 to 50?	Rich, moist birch-oak woods	S side of Crescent Marsh	See sheet for approx. coord.

*Total number of individuals across multiple occurrences on list



Sparta Mountain

Rare Plant Survey

Full Project Area

2012 Aerial Photography

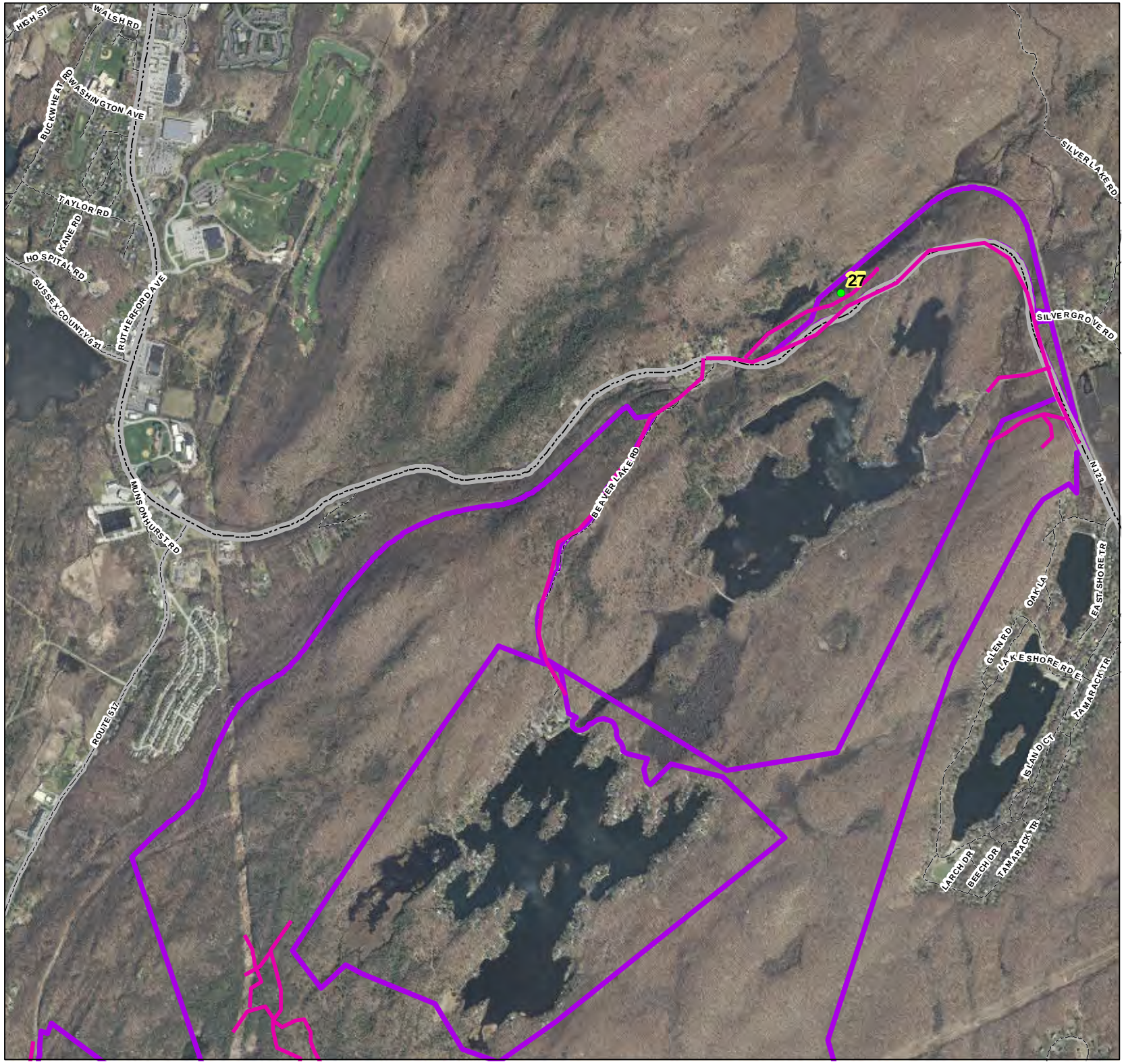
N

Map prepared by Michael Van Clef, Ph.D.
Ecological Solutions LLC

Legend

- Rare Plant Locations
- Searched Path
- NJA Sparta Mountain Preserve
- Sparta WMA

0 1,500 3,000 4,500 Feet



Sparta Mountain

Rare Plant Survey

Northern Section

2012 Aerial Photography

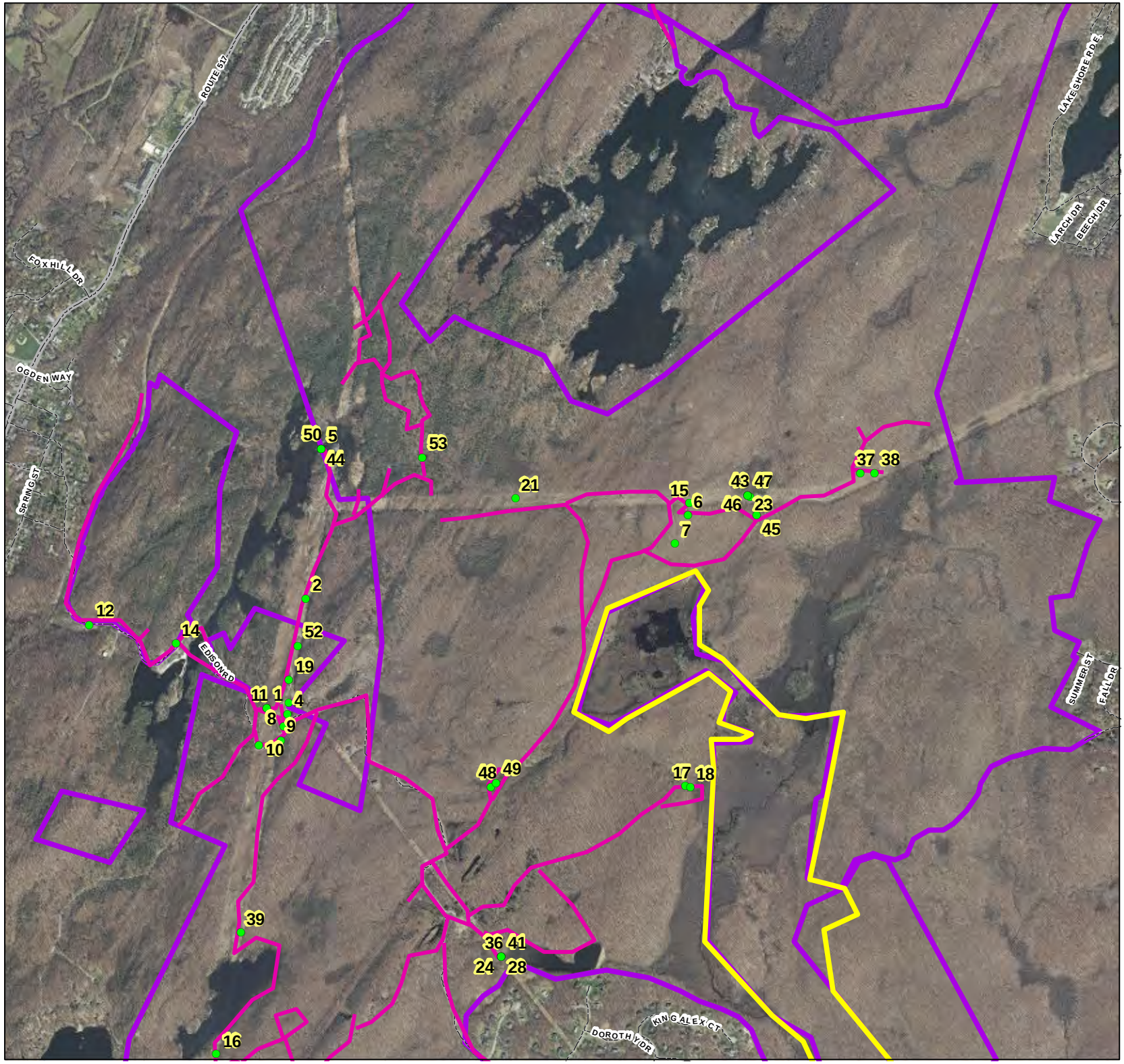
N

Map prepared by Michael Van Clef, Ph.D.
Ecological Solutions LLC

Legend

- Rare Plant Locations
- Searched Path
- NJA Sparta Mountain Preserve
- Sparta WMA

0 1,000 2,000 Feet



Sparta Mountain

Rare Plant Survey

Central Section

2012 Aerial Photography

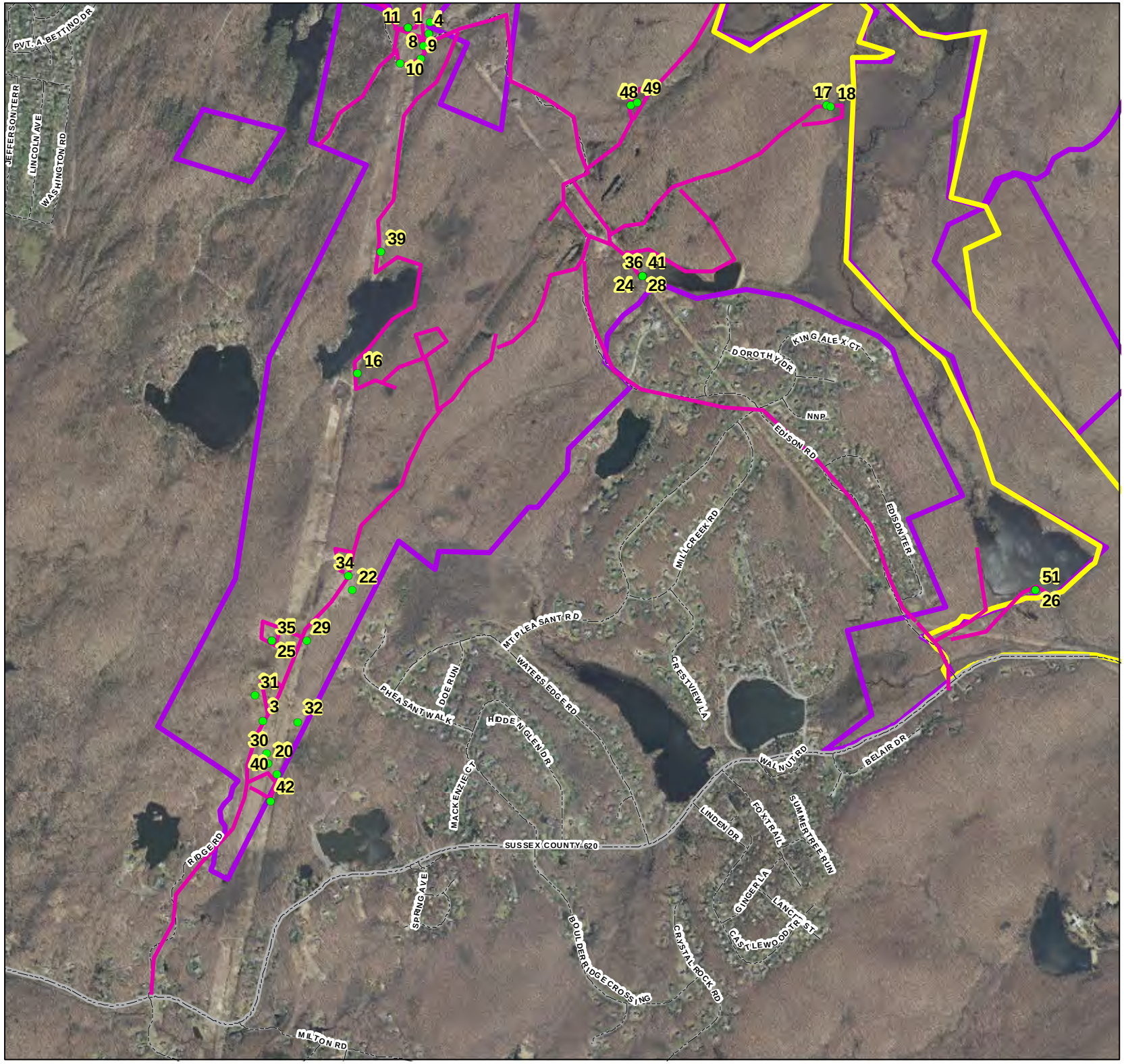
N

Map prepared by Michael Van Clef, Ph.D.
Ecological Solutions LLC

Legend

- Rare Plant Locations
- Searched Path
- NJA Sparta Mountain Preserve
- Sparta WMA

0 1,000 2,000 Feet



Sparta Mountain

Rare Plant Survey

Southern Section

2012 Aerial Photography

N

Map prepared by Michael Van Clef, Ph.D.
Ecological Solutions LLC

Legend

- Rare Plant Locations
- Searched Path
- NJA Sparta Mountain Preserve
- Sparta WMA

0 1,000 2,000 Feet

Appendix C. Field Survey Sheets

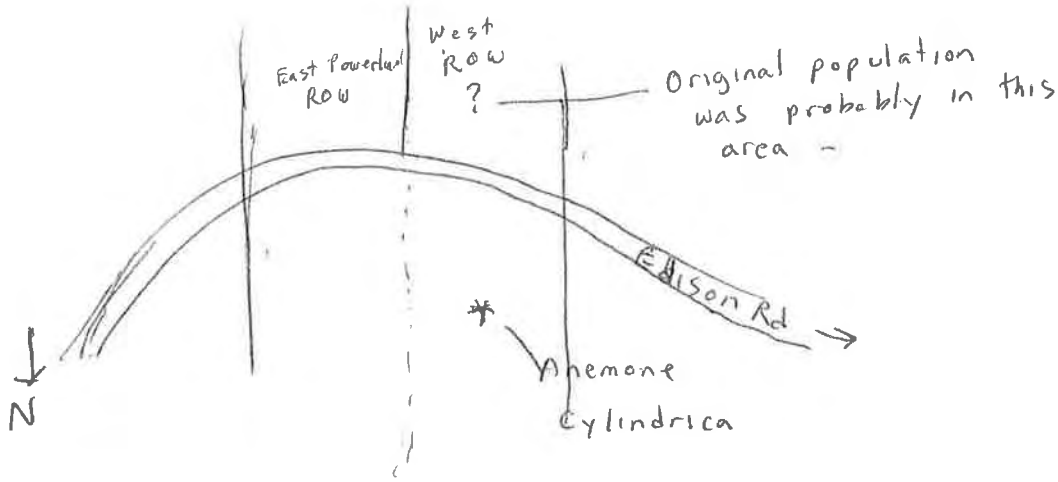
as prepared by Botanists Janet Ebert and Jack Holt

Sparta Mountain WMA Rare Species Surveys
Summer - Fall 2013
Wild Ridge Plants, LLC

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	July 28, 2013
GPS Point #:	31
X Coordinate:	N 41 04.263
Y Coordinate:	W 74 34.787
Scientific Name:	Anemone cylindrica A. Gray S1E
Number of Individuals:	1
Estimated Percentage of Flowering/Fruiting Individuals:	- In fruit
Life Stages Present:	Mature-flowered
Condition of Plants Found:	Normal vigor?
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	≈ 5m x 5m open area in powerline ROW, ≈ 5m from SW corner of tower 48/2. This is the western ROW that has not been maintained for some time and is being overgrown by shrubs & saplings, with scattered openings that are still ~~herb-dominated~~ dominated by woody vines & some herbs
Co-occurring Plant Species (Dominant and notable):	Monarda fistulosa, Hieracium sp., Parthenocissus, Toxicodendron radicans Down slope at W edge of ROW - Doellingeria infirma
Substrate:	Gneiss
% Slope:	15-30°
Aspect:	SW
Hydrology:	Upper slope, well drained
Threats (Invasive Species, Deer Browse):	Succession, woody vegetation

→ MORE



This may be the last plant in the E O. The ROW where it was found in ?? was completely overgrown up the slope from the road. Hopefully there is a seed bank, but the survival of this population is dependent on management (or non-management) of the ROW.

The east ROW is managed with herbicide and is more open but may be too exposed or dry. There was a lot of Anemone virginica along Edison Rd, but very few along the east ROW

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	July 28, 2013
GPS Point #:	33
X Coordinate:	N 41. 04.504
Y Coordinate:	W 74 34.675
Scientific Name:	Bromus ciliatus L. var ciliatus S253
Number of Individuals:	5-10 ? Didn't get good stats - Collected without realizing that it was a listed species - ID'ed later
Estimated Percentage of Flowering/Fruiting Individuals:	Only saw flowering culms
Life Stages Present:	All drying up for year
Condition of Plants Found:	Normal ?
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Swale in open powerline ROW ≈15+m. from east edge Taller shrubs - saplings on ROW had been sprayed recently
Co-occurring Plant Species (Dominant and notable):	Solidago spp, Monarda fistulosa, Doellingeria umbellata, Gentianopsis crinita near by Symphyotrichum spp, also Spiranthes ~~cernuo leuca~~ Cernua
Substrate:	Gneiss
% Slope:	Gentle, < 10° ?
Aspect:	W - NW
Hydrology:	Center of swale - seep had saturated soil
Threats (Invasive Species, Deer Browse):	Over-Maintenance of ROW or lack of maintenance

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	September 1, 2013 (collected Aug. 10, 2013)
GPS Point #:	67
X Coordinate:	41° 02.738
Y Coordinate:	74° 35.184
Scientific Name:	Calamagrostis stricta (Timm) Koeler ?
Number of Individuals:	~25 ramets
Estimated Percentage of Flowering/Fruiting Individuals:	All seen
Life Stages Present:	Senescent flowering culms - fruits dispersing
Condition of Plants Found:	
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Along Ridge Rd at Harvest Block 1 ~ open hedgerow edge with a few scattered small trees, and stump growth
Co-occurring Plant Species (Dominant and notable):	Quercus montana, Carya glabra, Prunus serotina - all small Rubus allegheniensis, Vaccinium pallidum Schizachyrium scoparium, Solidago bicolor, Eurybia macrophylla, Carex sp.
Substrate:	Sandy loam ?? near road, may be compacted
% Slope:	<10 On ridge with slight slope to west
Aspect:	West to SW
Hydrology:	Well drained
Threats (Invasive Species, Deer Browse):	— Management activities

We collected this Aug 10, not knowing what it was, and went back ~~Aug 10~~ Sept. 1 for better stats, once we realized that it probably had not been reported before in NJ since it was not on the rare plant list.

Calamagrostis stricta is a northern species that has not been recorded in PA and is an S1 in NY. It is supposed to be a wetland species, but the site at Sparta mountain is dry. I would like to look at the site again when the Calamagrostis is in flower, but I am reasonably confident of the ID. Maybe the EO should be considered adventive since it is growing in a disturbed, not typical habitat. This is NOT listed in the Ernst Seed catalog but it might be offered somewhere in the "native plant" nursery-seed trade.

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	July 28 Sept 3 ~~Sept 2~~ 2013
GPS Point #:	34 78 ~~75~~
X Coordinate:	
Y Coordinate:	
Scientific Name:	Ceratophyllum echinatum A. Gray S1 →
Number of Individuals:	?
Estimated Percentage of Flowering/Fruiting Individuals:	—
Life Stages Present:	Didn't see any fruits on small specimen
Condition of Plants Found:	In still water
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	#34. - Small pond at outlet of wetland (Noton WMA) - partly dammed pond: 15x5m Filled with C. echinatum Partial shade by access road to Power line from Edison Rd #78 - "New lake" Open ~~#75 - Small deep-open water at base of rock, edge of large wetland~~
Co-occurring Plant Species (Dominant and notable):	#34. Lemna minor, Sparganium sp, Persicaria sp, Nuphar advena Leersia oryzoides #78 Potamogeton obtusifolius, Myriophyllum heterophyllum
Substrate:	Mud - submerged aquatic
% Slope:	—
Aspect:	—
Hydrology:	Lacustrine
Threats (Invasive Species, Deer Browse):	?

This species needs more study. It may be frequent in lakes, ponds, wetlands in still or slow-moving water.

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	July 26, 2013, August 11, 2013
GPS Point #:	13 55
X Coordinate:	N41 04.688 N41 04.626
Y Coordinate:	W 74° 33.565 W74 33.602
Scientific Name:	Chenopodium simplex (Torr.) Raf. 52
Number of Individuals:	10-15 ?? more Saw 1 July 26, then saw 3-4 farther west on Aug 11, didn't make systematic search of all suitable habitat
Estimated Percentage of Flowering/Fruiting Individuals:	Annual - all flowering
Life Stages Present:	Annual
Condition of Plants Found:	≈ Most ≈ 1/2 meter tall. One was almost 2 m tall
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Area cleared last winter - Harvest Block 5 - mostly early successional herbs, and stump sprouts, some bare ground, piles of cut trees
Co-occurring Plant Species (Dominant and notable):	Erechtites hieracifolia - common, Solanum nigrum (now ptychanthum) Dichanthelium spp., Chenopodium album - occasional
Substrate:	Gneiss, woodland soils
% Slope:	Moderate 15-30° ?
Aspect:	South
Hydrology:	Upper slope, well drained
Threats (Invasive Species, Deer Browse):	— This is an early successional species that will disappear when woody vegetation regenerates

→ OVER

WP 72 Sept. 2 NOT in WMA

Dense patch of Chenopodium simplex along RR below Rt 23 overpass - over 50 plants on disturbed soil ~~at~~ near base of slope - very weedy habitat with Sonchus asper, Setaria faberii, Artemisia vulgaris

N41 06.444 W74° 33.088

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert and Jack Holt

Date: July 28, 2013

GPS Point #: 26, 27, 29, 30

X Coordinate:

Y Coordinate:

Scientific Name: Desmodium cuspidatum (Muhlenburg ex Willd.) decandolle ex Loudon S2

Number of Individuals: WP 26 - 1 genet, #27 - 1 #29 2 #30 ± 30 plants upper end main population

Estimated Percentage of Flowering/Fruiting Individuals: All seen

Life Stages Present: In bud July 28, flowering August 11

Condition of Plants Found: WP# 26 - partly run over, broken off, rest healthy, robust

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover): All within 5 meters of road, largest concentration on partly shaded roadside - some by small stream, some on more level roadside

Co-occurring Plant Species (Dominant and notable): Desmodium glutinosum, perplexum, Helianthus divaricata Grass spp, Rubus spp., Anemone virginiana, Rhus hirta

Substrate: Silt loam? Disturbed roadside soil

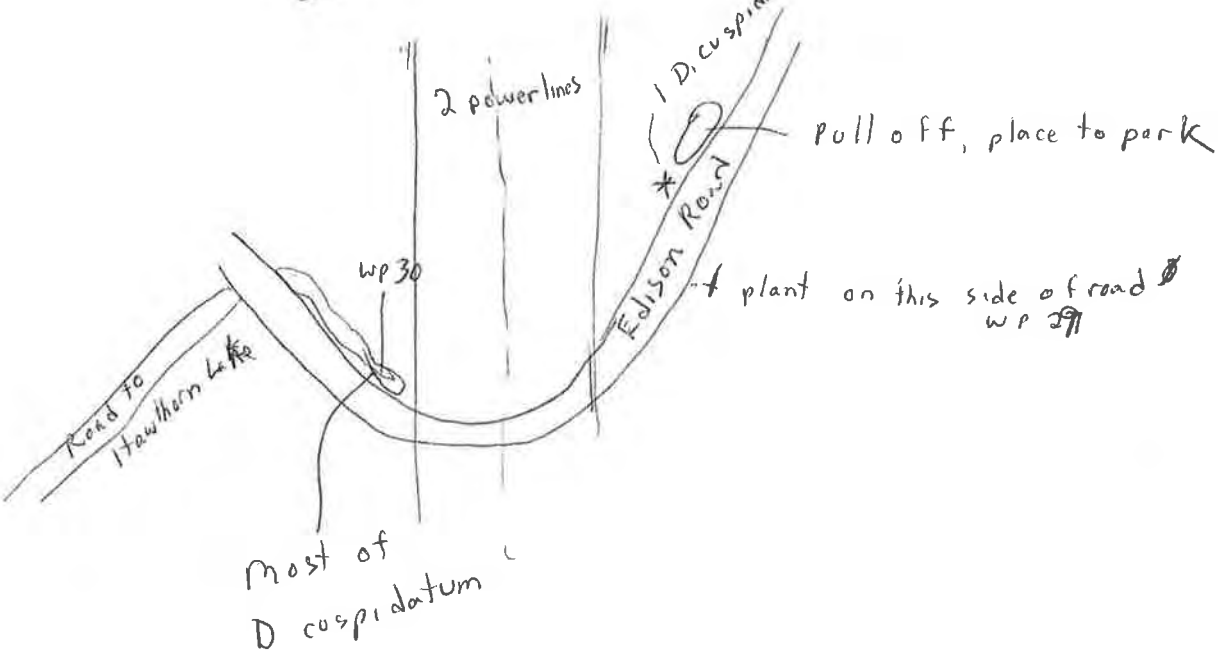
% Slope: Level to > 30° near small stream

Aspect: ~ West

Hydrology: Upper slope, or moderate slope - well drained, mesic

Threats (Invasive Species, Deer Browse): Roadside mowing. Most were beyond mower reach but some probably mowed off eventually

Sketch not to scale



Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	Sept 22, 2013 — Sept. 21, 2013
GPS Point #:	93 — 84
X Coordinate:	
Y Coordinate:	
Scientific Name:	Dichanthelium acuminatum (Swartz) Gould & Clark subsp. acuminatum ?
Number of Individuals:	#93 10-20 — #84 1-2
Estimated Percentage of Flowering/Fruiting Individuals:	All seen
Life Stages Present:	Ripening & dispersing fruits on autumnal culms
Condition of Plants Found:	Healthy - normal
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	#93 Powerline ROW open on mossy rock #84 Power line ROW - ~~near tower~~ - open, gravel-sand, nuked area under tower
Co-occurring Plant Species (Dominant and notable):	Schizachyrium scoparium, moss spp.
Substrate:	Thin sandy soil on rock
% Slope:	< 10°
Aspect:	South, to level
Hydrology:	Xeric ?
Threats (Invasive Species, Deer Browse):	—

Dichanthelium is a taxanomic nightmere. This is not a positive ID, but it is reasonable and is the best fit. Because of all the taxanomic shuffling, I am not sure that this is the same as the listed Panicum acuminatum - var acuminatum — Walter Bonner's Panic Grass - SX. That may be what is now Dichanthelium ovale subsp. villosissimum. The specimen I collected (small & late) seems to have shorter hairs and smaller ~~fruits~~ spikelets that would make it an acuminatum not an ovale.

This needs more work. - doesn't seem to be a rare species

I think there is more of this taxon in the SW corner of Harvest Block 5 in a sandy, weedy roadside. - maybe only 1 or 2 plants - nearest way point is #55 - chenopodium simplex

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s):
Janet Ebert and Jack Holt

Date:
September 22, 2013

GPS Point #: 90

X Coordinate:
41° 04.447

Y Coordinate:
74° 35.303

Scientific Name:
Dichanthelium oligosanthes (Schultes) Gould var scribnerianum (Nash) Gould S/S2

Number of Individuals:
1 stem seen
Late in season - might be more, should recheck in June

Estimated Percentage of Flowering/Fruiting Individuals:
1 autumnal culm with a few fruits remaining

Life Stages Present: ↗

Condition of Plants Found:
Not robust

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):
Rock outcrop/ledge at N edge of Edison Road, open but backed by dry oak woods. Top of boulder has mostly herbaceous vegetation 50-60% cover (?)

Co-occurring Plant Species (Dominant and notable):
Schizachyrium scoparium, Solidago bicolor, nemoralis, Lespedeza virginica
Helianthus divaricatus, Rubus sp., Dichanthelium acuminatum,
Antennaria plantiginifolia, Carex muhlenbergia,
Aureolaria pedicularia - only place seen

Substrate:
Thin soil on top of gneiss boulder/outcrop

% Slope:
Almost level

Aspect:
West to southwest

Hydrology:
Dry mesic - shaded part of day

Threats (Invasive Species, Deer Browse):
Road maintenance, widening

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	September 21, 2013
GPS Point #:	82
X Coordinate:	41° 04.274
Y Coordinate:	74° 34.724
Scientific Name:	Dodl ingeria infirma (Michx.) E. Greene S2
Number of Individuals:	1
Estimated Percentage of Flowering/Fruiting Individuals:	Almost finished flowering
Life Stages Present:	- flowering, ripening fruit
Condition of Plants Found:	Normal range, healthy
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Edge of powerline ROW near tower. ROW herbaceous with thin spots higher woody vegetation sprayed recently. Edge of ROW is oak - red maple woods
Co-occurring Plant Species (Dominant and notable):	Gaylussacia baccata, Gaultheria procumbens, Moss spp
Substrate:	Gneiss, thin rocky soil
% Slope:	< 5°
Aspect:	West
Hydrology:	Upper slope, well drained
Threats (Invasive Species, Deer Browse):	Deer browse? ROW maintenance

OVER →

July 28, 2013

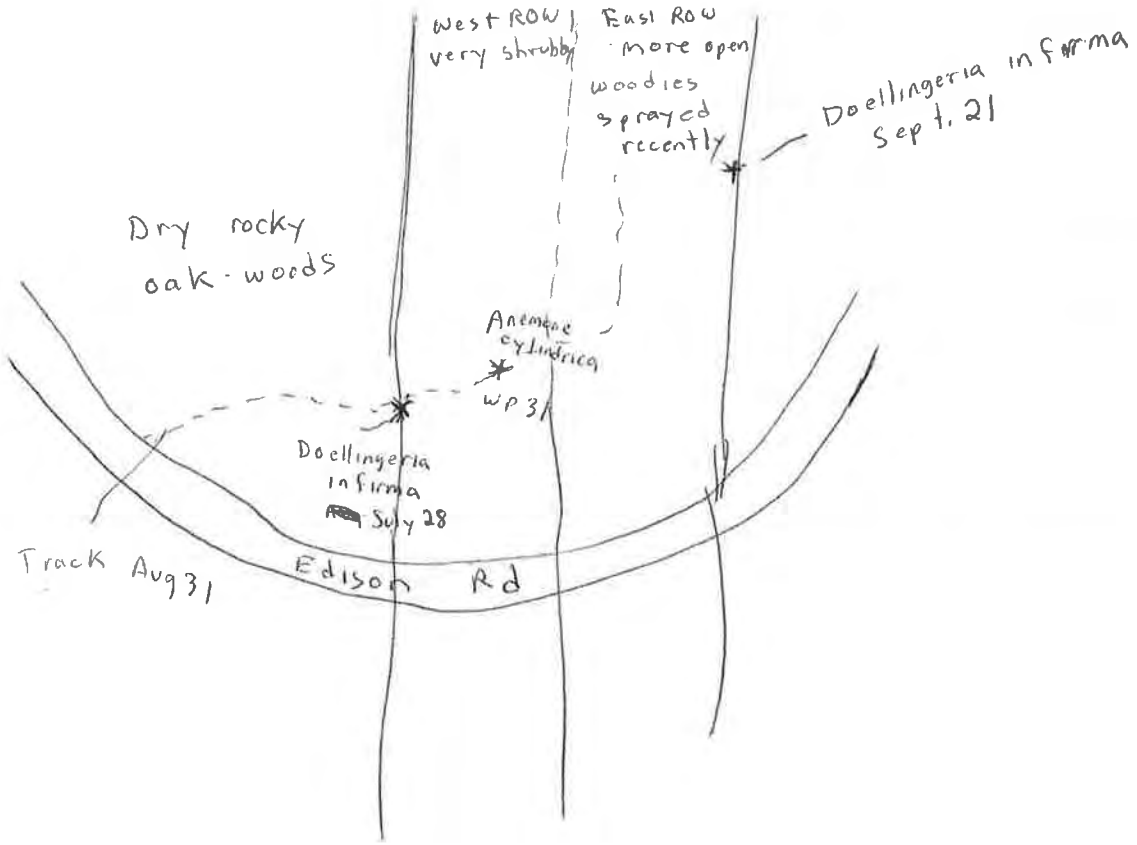
Saw 4 or 5 Doellingeria infirma plants in early flower on W edge of ROWs below Anemone cylindrica

No way point - didn't realize that it was a listed species

Part of same population as 1 plant on opp. side of ROWs

Didn't check all suitable habitat - may be more

Rough sketch - not to scale



Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert and Jack Holt
Date:	September 21, 2013
GPS Point #:	87
X Coordinate:	41° 04.405
Y Coordinate:	74° 35.053
Scientific Name:	Doellingeria infirma (Mich.) E. Greene S2
Number of Individuals:	6 to 10
Estimated Percentage of Flowering/Fruiting Individuals:	All had flowered
Life Stages Present:	Ripening fruit
Condition of Plants Found:	Healthy
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	On rock ledge next to Edison Road opposite Heaters Pond (Isolated parcel of WMA west of main WMA), in partial shade at edge of oak woods with sparse shrub & ground layers.
Co-occurring Plant Species (Dominant and notable):	Quercus montana, Quercus alba - partly shading rock ledge Vaccinium pallidum, Solidago caesia, ulmifolia, Antennaria plantiginifolia, Helianthus divaricatus, Symphyetrichum pilosum - var pringlei, Setaria pumila
Substrate:	Thin soil on large boulder -- rock ledge
% Slope:	Nearly level
Aspect:	South to road, Heaters Pond
Hydrology:	Dry - mesic
Threats (Invasive Species, Deer Browse):	Safe from road maintenance ?

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert & Jack Holt

Date: July 26, 27, 28, Aug 10, 31, Sept 1, 2013

GPS Point #: 12, 21, 24, 25, 32, 41, 62, 69

X Coordinate:

Y Coordinate:

Scientific Name: Elymus trachycaulis (Link) Gould ex Shinners

Number of Individuals: 100 to 300 stems, ramets

Estimated Percentage of Flowering/Fruiting Individuals: All seen

Life Stages Present: Flower culms dried, seeds dispersing

Condition of Plants Found: —

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover): Largest number of plants on the eastern ROW of the double ROW (NS) at the western side of the WMA - on a ≈2 mile stretch from the south boundary to just N of Edison Rd. This ROW has more open ground and grass-forb "meadow", because management includes spot spraying wood vegetation. A few plants were seen

Co-occurring Plant Species (Dominant and notable): on a rock ledge at the edge of Harvest Block 3 that was probably open before the clear cutting. Several populations were seen on or right next to the E-W ROW, which has more woody vegetation.
The grass seems to prefer the established grassy areas but might move into the harvest blocks ???

Substrate: Rocky to sandy loam ??

% Slope: Variable - Upper slope

Aspect: —

Hydrology: Well drained

Threats (Invasive Species, Deer Browse): ?

WP	Date	
12	July 26	- edge harvest block 5 and E-W powerline ROW
		All main NS double powerline ROW, on eastern ROW
21	July 27	- eastern ROW north of Collins Pond
24, 25	July 27	End points of sporadic population farther north than #21
32	July 28	Eastern NS ROW north of Edison Rd
41	Aug 10	NS ROW east of Ridge Road, south of Harvest Block 4 eastern ROW
62	Aug 31	E-W ROW - west of #12
69	Sept 1	Ridge Rd - Harvest Block 3

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Hold
Date:	August 11, 2013
GPS Point #:	53
X Coordinate:	N 41° 04.733
Y Coordinate:	W 74° 33.389
Scientific Name:	Epilobium leptophyllum Raf. S2
Number of Individuals:	25-30
Estimated Percentage of Flowering/Fruiting Individuals:	All in fruit
Life Stages Present:	Ripening fruit, probably a few late flowers
Condition of Plants Found:	Normal for = late summer
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Seepy open area in scrub-shrub in ROW, under powerline swale ⊥ to ROW, scattered boulders, plants scattered in 5 to 10 square meters
Co-occurring Plant Species (Dominant and notable):	Scirpus cyperinus, Thalictrum pubescens, Cicuta maculata, Carex spp. Solidago spp, Salix spp., Lindera benzoin edges Also Platanthera psycodes, Lysimachia thrysifolia
Substrate:	Silt loam?
% Slope:	< 15°
Aspect:	South
Hydrology:	Saturated soil, small stream meanders through swale
Threats (Invasive Species, Deer Browse):	Deer browse, ROW maintenance - hasn't been "maintained" for a while

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert and Jack Holt

Date: July 27, 2013 August 31, 2013

GPS Point #: 64 - at edge of wetland within 5 m. of plants

X Coordinate: 41°03.717

Y Coordinate: 74° 34.105

Scientific Name: Epilobium leptophyllum Raf. SD

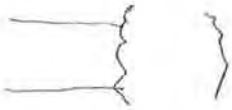
Number of Individuals: < 5

Estimated Percentage of Flowering/Fruiting Individuals: All seen were flowering / fruiting

Life Stages Present: Flowering July 27, ripening and dispersing fruit Aug 31

Condition of Plants Found: Normal

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):
Wetland in powerline ROW - mostly herbaceous in ROW - scrub-shrub to thin maple swamp on sides
Plants are about 2 meters from dry edge of wetland



Co-occurring Plant Species (Dominant and notable):
Carex stricta, spp, Scirpus cyperinus, Persicaria sagittata
Thelypteris palustris, Hydrocotyle americana
Glyceria grandis nearby, Glyceria melicaria, Osmunda cinnamomea
at edge of open wetland

Substrate: Mud

% Slope: 0

Aspect: Woods on both sides of ROW - open to NW

Hydrology: Saturated soil to standing water - water movement to NE toward Edison Pond

Threats (Invasive Species, Deer Browse):
Wall of Phragmites < 50' away - near boundary of WMA

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert and Jack Holt
Date:	September 1, 2013
GPS Point #:	Didnt get. Somewhere between WP 69 and 70 est 41 03.035 W74 34.986 - edge of Ridge Rd opp South end of deer exclosure
X Coordinate:	
Y Coordinate:	
Scientific Name:	Eragrostis frankii C.A. Mey. ex Steud. S2
Number of Individuals:	Collected for later ID - didn't know it was listed species - Didn't get many stats - Prob. up to 100 plants
Estimated Percentage of Flowering/Fruiting Individuals:	All with ripening fruits
Life Stages Present:	Annual
Condition of Plants Found:	Smallish? - growing in dense band at edge of Ridge Road - gravel dirt road
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Moist edge of dirt road in open powerline ROW with other annual C4 grasses - Digitaria ischaemum, Sporobolus vaginiflorus, Eragrostis pectinata
Co-occurring Plant Species (Dominant and notable):	
Substrate:	Compacted soil at edge of road, somewhat sandy in places
% Slope:	0
Aspect:	—
Hydrology:	Top of ridge but locally poor run-off - some big puddles in road nearby
Threats (Invasive Species, Deer Browse):	— This is a disturbance species

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert + Jack Holt
Date:	September 1, 2013
GPS Point #:	71 — Used same point for Salix lucida and Galium trifidum less than 25' apart
X Coordinate:	41° 03.025
Y Coordinate:	74° 32.960
Scientific Name:	Galium trifidum L. var trifidum — S2
Number of Individuals:	5 or 6 ? - sprawling, hard to count
Estimated Percentage of Flowering/Fruiting Individuals:	All in fruit
Life Stages Present:	Ripening fruit
Condition of Plants Found:	Normal for late summer - getting senescent
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Open shore line wet land - Edge of Ryker Lake Very mch emergent marsh community
Co-occurring Plant Species (Dominant and notable):	Persicaria hydropiperoides, Eleocharis sp., Cicuta bulbifera, Carex comosa, stricta, Dulichium arundinaceum, Bidens connata (?) Salix lucida near by
Substrate:	Shoreline muck
% Slope:	—
Aspect:	North
Hydrology:	Saturated to shallow water
Threats (Invasive Species, Deer Browse):	Phragmites and Lythrum salicaria both on Ryker Lake

Also Trapa natans at NW end of Ryker Lake

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	September 2, 2013
GPS Point #:	74 This is within 15-20 m. of plant
X Coordinate:	41° 06.609
Y Coordinate:	74 32.806
Scientific Name:	Galium trifidum L. var trifidum S2
Number of Individuals:	Only found 1 All suitable habitat was not searched
Estimated Percentage of Flowering/Fruiting Individuals:	In fruit
Life Stages Present:	
Condition of Plants Found:	Med. sized, late summer - slowing down
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Partly shaded edge of large open wetland. The edge is ~~diverse~~ variable in hydrology and species rich. Toward the middle the marsh is dominated by Persicaria spp and some Phalaris
Co-occurring Plant Species (Dominant and notable):	Pontederia cordata, Sium suave, Sagittaria australis, Osmunda regalis Carex stricta, spp. Lythrum ~~salicaria~~ Salicaria, Spirea latifolia Acer rubrum - inner edge RR is on north side of wetland
Substrate:	Mud
% Slope:	0
Aspect:	Open to north
Hydrology:	Saturated to standing water
Threats (Invasive Species, Deer Browse):	Lythrum salicaria, Phalaris arundinacea

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert & Jack Holt

Date: Saw July 27, 2013 - no way point, got WP at edge of wetland, Aug 31

GPS Point #: 64

X Coordinate: 41° 03.717

Y Coordinate: 74° 34.105

Scientific Name: Glyceria grandis Watson S1

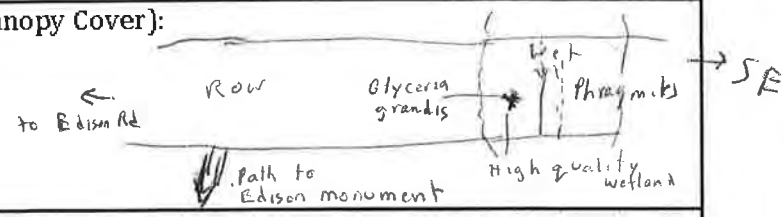
Number of Individuals: This flowers in June and was close to disintegrating by July 27 - collected a bit to ID before realizing that it was listed
4 to 8 ?? - Gone by Aug 31 when we got way point nearby

Estimated Percentage of Flowering/Fruiting Individuals: ? —

Life Stages Present: — ?

Condition of Plants Found: senescent

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):
Wetland ~~[illegible]~~ in powerline ROW
Mostly herbaceous, very diverse



Co-occurring Plant Species (Dominant and notable):
Carex stricta, Carex spp. Juncus spp., Cinna arundinacea, Impatiens capensis, Iris versicolor, Scirpus cyperinus, Osmunda cinnamomea, Glyceria striata - edge
Epilobium coloratum, and leptophyllum, Drosera rotundifolia at edge

Substrate: Mud

% Slope: 0

Aspect: Woods on both sides of ROW - open to NW along ROW

Hydrology: Saturated to standing water, water movement to NE toward Edison Pond

Threats (Invasive Species, Deer Browse):
Wall of Phragmites ~ 50' away - near boundary of WMA

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	July 26, 2013 +
GPS Point #:	— Didn't get
X Coordinate:	
Y Coordinate:	
Scientific Name:	Juglans cinerea L. S3
Number of Individuals:	1 on utility cut N of monument, 1 sapling 20-30' tall between parking lot & Edison Rd; 1 seedling
Estimated Percentage of Flowering/Fruiting Individuals:	None large enough to flower
Life Stages Present:	Seedling, sapling
Condition of Plants Found:	
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Edge of parking lot and disturbed woods around Edison Monument Parking Lot Disturbed thicket, woodland edge
Co-occurring Plant Species (Dominant and notable):	This may have come from a planted tree in Edison. Edison has most of Juglans nigra seen in WMA and more aliens
Substrate:	Disturbed soil, old village and mining area
% Slope:	0
Aspect:	—
Hydrology:	Mesic
Threats (Invasive Species, Deer Browse):	Didn't seem diseased

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert - Jack Holt
Date:	August 10, 2013
GPS Point #:	45
X Coordinate:	N 41 02.913
Y Coordinate:	W 74 35.079
Scientific Name:	Juniperus communis L. var depressa Pursh S2
Number of Individuals:	1 (?) genet covering about 2 squre meters
Estimated Percentage of Flowering/Fruiting Individuals:	—
Life Stages Present:	No evidence of sexual reproduction
Condition of Plants Found:	Browsed and/or trimmed - not robust
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	East edge of powerline ROW, edge trimmed
Co-occurring Plant Species (Dominant and notable):	Eurybia macrophylla, Solidago rugosa, Rubus flagellaris, Lysimachia quadrifolia, Danthonia spicata, Potentilla canadensis
Substrate:	Gneiss - dry stoney soil near top of hill
% Slope:	<10°
Aspect:	West
Hydrology:	Dry, well drained
Threats (Invasive Species, Deer Browse):	Deer browse, ROW maintenance

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert & Jack Holt

Date: August 10, Sept 1

GPS Point #: 39, 42, 44, 47, 68, 70 - Considered as 1 population possibly more in this area

X Coordinate:

Y Coordinate:

Scientific Name: Lactuca hirsuta var. sanguinea Muhl. ex Nutt. var sanguinea 52

Number of Individuals: ~40 to 50 total - scattered in small clusters

Estimated Percentage of Flowering/Fruiting Individuals: Biennial - Only flowering/fruiting plants easily visible -

Life Stages Present: August - some plants still flowering, but also had dispersing seeds
By Sept ≈ 1/2 of seeds had dispersed

Condition of Plants Found: Less than 1m tall, some of lower leaves senesced.

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover): On powerline ROW and moving into nearby harvest blocks
Most in full sun, one group in partial (late-day) shade. Needs bare soil, sparse vegetation to germinate - first year is basal rosette.

Co-occurring Plant Species (Dominant and notable): Solidago spp, Rubus spp, Vaccinium pallidum

Substrate: Sandy loam?, thin rocky area

% Slope: Usually gentle slope to ~level

Aspect: South, west

Hydrology: Upper slope to near top of broad ridge, well drained

Threats (Invasive Species, Deer Browse): succession, thicker ground cover, Solidago, etc

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	August 31, Sept. 22 First saw July 26
GPS Point #:	64 - This WP is closer to edge of wetland →
X Coordinate:	
Y Coordinate:	
Scientific Name:	Lechea intermedia Leggett ex Britton S2
Number of Individuals:	10 to 30 ?? →
Estimated Percentage of Flowering/Fruiting Individuals:	All seen in fruit
Life Stages Present:	Seeds dispersing
Condition of Plants Found:	by late sept. tops starting to senesce - normal size
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Open powerline ROW - woods on sides
Co-occurring Plant Species (Dominant and notable):	Vaccinium pallidum, Kalmia latifolia - cutoff, Pteridium aquilinum, Solidago nemoralis, Schizachyrium Scoparium, Lechea pulchella, Melampyrum lineare, Carex spp.
Substrate:	Sandy loam ??
Slope:	≈ 20 - 25°
Aspect:	Southwest
Hydrology:	Upper slope - irregular local topography - well drained
Threats (Invasive Species, Deer Browse):	- Powerline ROW maintenance, or lack of maintenance

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	August 10, 2013
GPS Point #:	38
X Coordinate:	N 41° 02.620
Y Coordinate:	W 74° 35.165
Scientific Name:	Lilium philadelphicum var philadelphicum L. SJ
Number of Individuals:	1
Estimated Percentage of Flowering/Fruiting Individuals:	- In fruit
Life Stages Present:	Mature
Condition of Plants Found:	- Small - normal
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Powerline ROW ≈ 20 meters from East edge Rocky, with fairly dense vegetation cover on gentle slope to wet swale
Co-occurring Plant Species (Dominant and notable):	Rubus hispidus, Solidago rugosa, Thelypteris noveboracensis Lyonia ligustrina nearby
Substrate:	Gneiss
% Slope:	< 10°
Aspect:	South
Hydrology:	Lower slope, drains to low area in ROW
Threats (Invasive Species, Deer Browse):	Deer browse? This was difficult terrain to walk around, and lily ~~was~~ is probably "hiding" in Rubus - Solidago to escape deer. Easy to miss when not flowering, might be more in area.

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert & Jack Holt

Date: July 27, 2013

GPS Point #: 23

X Coordinate: N 41 03.769 [redacted]

Y Coordinate: W 74 34.864

Scientific Name: Lilium philadelphicum L. var philadelphicum S2

Number of Individuals: 2

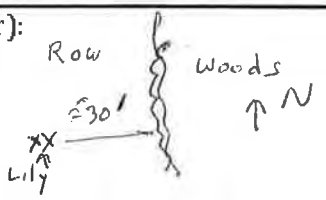
Estimated Percentage of Flowering/Fruiting Individuals: 1 with flower - very late, 1 with fruit

Life Stages Present: Both mature

Condition of Plants Found: Small - normal size

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover): Open - powerline ROW - grassland within 25' of base of tower - dry

1st tower N of Collins Pond - eastern power line



Co-occurring Plant Species (Dominant and notable): Schizachyrium scoparium, Helianthus divaricatus, Comptonia peregrina, Carex spp.

Substrate: Thin (?) soil over gneiss

% Slope: Nearly level

Aspect: —

Hydrology: Well drained

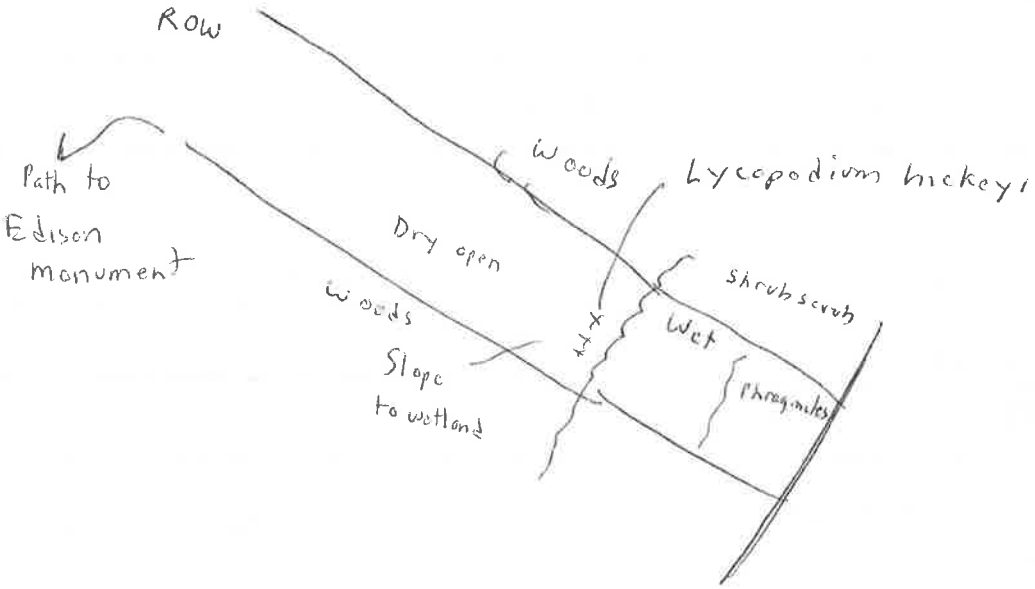
Threats (Invasive Species, Deer Browse): Deer browse

Herbicide used on woody vegetation on this ROW - which probably makes better habitat for Lilium phila.

This habitat is not uncommon on ROW and lily is easy to miss when not flowering - could be more

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert and Jack Holt
Date:	August 31, 2013 , Sept 22, 2013 - revisit
GPS Point #:	64 - nearby - using WP at edge of wetland →
X Coordinate:	41° ~~[illegible]~~ 03.717
Y Coordinate:	34.105 74° ~~[illegible]~~
Scientific Name:	Lycopodium hickeyi
Number of Individuals:	Small patch 2-3 square meters ?
Estimated Percentage of Flowering/Fruiting Individuals:	—
Life Stages Present:	~~Some~~ strobili - spores dispersed
Condition of Plants Found:	Healthy except a few dead erect stems
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	~~Top~~ Powerline ROW, lower slope near wetland - rich slope
Co-occurring Plant Species (Dominant and notable):	Moss spp., Gaylussacia baccata, Dichanthelium spp, Rhododendron periclym, Carex spp., Isotria verticillata
Substrate:	Sandy loam ??
% Slope:	Toe slope 10-20°
Aspect:	SE
Hydrology:	Moderate well drained - mesic, but near wetland
Threats (Invasive Species, Deer Browse):	?


Row
Path to
Edison
monument
Woods
Lycopodium hickeyi
Dry open
Shrub scrub
Woods
Wet
Slope
to wetland
Phragmites

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert and Jack Holt

Date: September 1, 2013 Saw first on Aug 10, went back to get waypoint

GPS Point #: 66

X Coordinate: 41° 02.561

Y Coordinate: 74° 35.184

Scientific Name: Lycopodium hickeyi Wagner, Beitel & Moran S2S3 →

Number of Individuals: Patch ≈ 5 x 5 m - not solid

Estimated Percentage of Flowering/Fruiting Individuals: Some with strobili

Life Stages Present: Vegetative and spores dispersed

Condition of Plants Found: Mostly healthy a few dead erect stems

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover): Toward east edge of powerline ROW on rocky open knoll

Dry oakwoods along edge of ROW

Co-occurring Plant Species (Dominant and notable): Vaccinium pallidum, Moss spp, Pteridium aquilinum

Diphasiastrum tristachyum

~~Lycopodium~~

Not too far from Juniperus communis (WP45) similar habitat

Substrate: Thin soil over rocks

% Slope: Nearly level to 10° ?

Aspect: West

Hydrology: Crest, well drained

Threats (Invasive Species, Deer Browse): Deer might bother in winter ??

latest name for this is

Dendrolycopodium hickeyi (Wagner, Beitel & Moran) A. Haines

NOTE Also had small patch of L. hickeyi at N end of WMA ~~[illegible]~~on, N of Rt 23 along RR by big marsh

est 41 06.613 , 74° 32.840

might not be in "WMA"

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert - Jack Hoff
Date:	August 11, 2013
GPS Point #:	53
X Coordinate:	41° 04.733
Y Coordinate:	74° 33.389
Scientific Name:	~~Epilobium leptophyllum~~ Lysimachia thyrsifolia L S3
Number of Individuals:	50-60 ramets · rhizomatous, ?? genets
Estimated Percentage of Flowering/Fruiting Individuals:	Most stems with ripening fruits
Life Stages Present:	—
Condition of Plants Found:	Normal vigor
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Opening, seepy swale area with small stream trickling through - under powerline, in ROW surrounded by shrub-scrub
Co-occurring Plant Species (Dominant and notable):	Scirpus cyperinus, Thalictrum pubescens, Carex spp Epilobium leptophyllum, Platanthera psycodes Salix sp., Lindera benzoin
Substrate:	Silt loam ?
% Slope:	< 15°
Aspect:	South
Hydrology:	Soil saturated, near very small stream going across ROW
Threats (Invasive Species, Deer Browse):	~~[illegible]~~ Deer browse ROW maintenance - ROW hasn't been "maintained for a while, saplings getting big

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert & Jack Holt

Date: September 2, 2013

GPS Point #: 78 near by

X Coordinate: 41° 04.834

Y Coordinate: 74 34.630

Scientific Name: Myriophyllum heterophyllum Michx. ?? Not a positive ID - no 52 flowers / fruits

Number of Individuals: ?? Snatched a piece, didn't determine extent of population. More suitable habitat, but best surveyed by boat

Estimated Percentage of Flowering/Fruiting Individuals: No flowers are emergent - didn't see any

Life Stages Present: Specimen collected might have flowered later ???

Condition of Plants Found:

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover): This is in the new area of "lake near double power line with steep rocky slopes and apparently narrow shoreline shallow areas

Co-occurring Plant Species (Dominant and notable):

Potamogeton obtusifolius and possibly Ceratophyllum echinatum

So far this new lake edge seems to have a fairly diverse aquatic flora - from a very small sample - needs more work return visit

Substrate: Mud

% Slope: - Fairly steep

Aspect: North

Hydrology: Lacustrine

Threats (Invasive Species, Deer Browse): This can be invasive

This seems closest to M. heterophyllum but fruits are needed for positive ID

In NE PA it has become invasive

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert & Jack Holt, Jared & Rachel Rosenbaum

Date: August 31, 2013

GPS Point #: 56, 57

X Coordinate: 41 04.091 41 04.099

Y Coordinate: 74 34.136 74 34.121

Scientific Name: ?? Platanthera psycodes ? (L.) Lindl. S2

Number of Individuals: Didn't search whole swamp
Est 10 to 15 scattered in small red maple swamp

Estimated Percentage of Flowering/Fruiting Individuals:
No flowers / fruit seen. Don't know species; but habitat conditions seem most reasonable for P. psycodes - should be revisited to confirm

Life Stages Present:
All vegetative, ~~most~~ ~~not~~ some small

Condition of Plants Found:
Normal - healthy but smallish

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):
Wet area between old RR & access road and gentle ridge to west
Wetland somewhat irregular, probably covers < 2 acres. Closed canopy of mostly Acer rubrum. Plants mostly on mossy tussocks above muck or open water

Co-occurring Plant Species (Dominant and notable):
Canopy Acer rubrum, Betula lenta, Nyssa sylvatica
Shrub: Ilex verticillata,
Ground Osmunda cinnamomea, Cinna arundinacia, Bidens sp. (Connata?)
Carex spp.

Substrate: Mud

% Slope: 0

Aspect: —

Hydrology: Saturated soil to standing water - didn't notice outlet stream ??

Threats (Invasive Species, Deer Browse):
—

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	August 11, 2013
GPS Point #:	52 53 See # 49 - Same population - but in shade ~~See GPS Point 50 - Same population~~
X Coordinate:	41 04.129 41 04.733
Y Coordinate:	74 33.389 33.389
Scientific Name:	Platanthera psycodes (L.) Lindl. 52
Number of Individuals:	At least 4 - scattered
Estimated Percentage of Flowering/Fruiting Individuals:	All seen in flower or browsed off on top
Life Stages Present:	Toward end of flowering
Condition of Plants Found:	One browsed
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Seepy opening in swale in powerline ROW, & under powerline Surrounded by drier land with shrubs - mostlly Lindera, and tall forbs - mostly Solidago +. Scattered small boulders and small stream in swale
Co-occurring Plant Species (Dominant and notable):	Scirpus cyperinus, Thalictrum pubescens, Cicuta maculata, Carex intumescens, Carex spp., Salix sp. Also Epilobium leptophyllum, Lysimachia thyrsifolia
Substrate:	Silt loam (?)
% Slope:	<15°
Aspect:	South
Hydrology:	Saturated soil, small stream meandering through swale
Threats (Invasive Species, Deer Browse):	Deer browse, ROW maintenance

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert & Jack Holt

Date: August 11, 2013

GPS Point #: 49 - see #52, 53 - same population but in open

X Coordinate: 41 04.688

Y Coordinate: 74° 33.365

Scientific Name: Platanthera psycodes (L.) Lindl. S2

Number of Individuals: 5 plants

Estimated Percentage of Flowering/Fruiting Individuals: 3 sterile, 1 in fruit, 1 still flowering

Life Stages Present: One of sterile plants a little larger than flowering plants - assumed that all plants were same species (!?)

Condition of Plants Found: Healthy - smaller than plants in open (see #52, 53)

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover): Wet area along small stream in fairly dense shade of young maple - birch woods with with ≈ 50% shrub cover. The plants are usually on mossy hummocks (rocks?)

Co-occurring Plant Species (Dominant and notable):
"Canopy" Acer rubrum, saccharum, Betula lenta, Liriodendron tulipifera
"Shrubs" Hamamelis-high, Lindera benzoin, Vaccinium corymbosum
Ground Moss spp., Carex bromoides, Thalictrum pubescens, Viola cucullata (?)
Glyceria melicaria

Substrate: Sandy alluvium, rocks

% Slope: 0

Aspect: Stream flows ≈ south - comes from powerline ROW - goes to big Audubon wetland

Hydrology: Saturated to wet mesic substrate

Threats (Invasive Species, Deer Browse): Deer browse

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert & Jack Holt

Date: September 2, 2013

GPS Point #: 78

X Coordinate: 41 04.834

Y Coordinate: 74° 34.030

Scientific Name: Potamogeton obtusifolius Mert. & Koch S1

Number of Individuals: ?? Hard to count. Don't know extent of population — couldn't access all suitable habitat - need kayak

Estimated Percentage of Flowering/Fruiting Individuals: ??

Life Stages Present: Did not collect specimen with fruit, ID based on obtuse leaves long free stipule and nodal glands - Have specimen

Condition of Plants Found: —

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):
Aquatic - near edge of fairly new "lake
The east side of lake is solid Phragmites and therefore probably not suitable habitat. There is more habitat on the west side of the lake, most of which is not in the WMA

Co-occurring Plant Species (Dominant and notable):

Ceratophyllum echinatum

Substrate: Rocky lake bottom

% Slope: ? Lake shore drops off fairly fast here

Aspect: —

Hydrology: "Lake"

Threats (Invasive Species, Deer Browse): —

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	September 1, 2013
GPS Point #:	71 - Used same point for Salix lucida & Galium trifidum Less than 25' apart
X Coordinate:	41° 03.025
Y Coordinate:	74° 32.960
Scientific Name:	Salix lucida Muhl. ~~ssp. lucida~~ S1?
Number of Individuals:	1 shrub - genet
Estimated Percentage of Flowering/Fruiting Individuals:	Past fruiting
Life Stages Present:	Mature
Condition of Plants Found:	Healthy
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Edge of Ryker Lake near parking lot - It looks like the shoreline of Ryker Lake is in the WMA, not the Audubon land. There are some sapling red maples 50+ ft west of Salix, but the nearby shore line is covered with herbaceous species
Co-occurring Plant Species (Dominant and notable):	This is a species-rich, diverse stretch of shore line Sagittaria latifolia, Persicaria punctata, hydropiperoides, Dulichium arundinaceum, Mikania scandens Galium trifidum near by
Substrate:	Shoreline muck
% Slope:	—
Aspect:	North
Hydrology:	Saturated + +
Threats (Invasive Species, Deer Browse):	there is some Phragmites on Ryker Lake

Trapa natans - not near Salix and rich shoreline, but there is a big patch at NW end of Ryker Lake

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:

Surveyor Name(s): Janet Ebert & Jack Holt

Date: September 21, 2013

GPS Point #: 86

X Coordinate: 41° 04.401

Y Coordinate: 74 34.696

Scientific Name: Spiranthes ochroleuca (Rydb.) Rydb. 53

Number of Individuals: Counted 9 flowering stems in ≈ 3 square meter area

Estimated Percentage of Flowering/Fruiting Individuals: All that we could see

Life Stages Present: Near mid- to end of flowering

Condition of Plants Found: Inflorescences from 5-6 cm to 1-2 cm,

Habitat (Plant Community, Structure, Estimated Percent Canopy Cover): Open Power line ROW on upper slope. ROW vegetation variable, tall woody vegetation sprayed recently. Spiranthes in grassy area ~~toward~~ between East edge of ROW and access road

Co-occurring Plant Species (Dominant and notable): Schizachyrium scoparium, Carex spp., Moss spp.

Gentianopsis crinita down slope nearby

Substrate: Gneiss - Probably sandy loam soil, rocks near surface

% Slope: Spiranthes on relatively level area, parts of ROW 20+° slope

Aspect: North to northwest

Hydrology: Upper slope, well-drained

Threats (Invasive Species, Deer Browse): Deer browse (?), ROW maintenance

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert and Jack Hoh
Date:	September 21, 2013
GPS Point #:	88 Not right at way point, farther N along trail, near summit
X Coordinate:	41° 06.000
Y Coordinate:	74 32.441
Scientific Name:	Symphyotrichum urophyllum (Lindl.) G.L. Nesom S2
Number of Individuals:	1 seen Collected small branch to ID later, didn't take any stats, didn't notice any more, but did not search widely
Estimated Percentage of Flowering/Fruiting Individuals:	Late flowers + ripening fruit
Life Stages Present:	
Condition of Plants Found:	Smallish ???
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Thin, dry, rocky oak-heath woods, no tall shrubs, but patchy-dense cover of ericaceous shrubs,
Co-occurring Plant Species (Dominant and notable):	Quercus montana, Vaccinium pallidum, Gaylussacia baccata Carex pensylvanica (?) common. Patches of Viburnum rafinesquianum near top of hill - badly damaged by insects
Substrate:	Gneiss? - Rocky, thin soil
% Slope:	< 10°
Aspect:	NW?
Hydrology:	Well drained, near top of hill ≈ 1300' - one of highest areas in WMA
Threats (Invasive Species, Deer Browse):	Deer browse ?? Plant is right next to lightly used trail

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	September 2, 2013
GPS Point #:	Guesstimate 41° 06.591, 74° 32.803
X Coordinate:	
Y Coordinate:	
Scientific Name:	Thaspium barbinode (Michx) Nutt. SX
Number of Individuals:	25-50? Didn't realize this was listed species - didn't take stats - Needs to be checked again
Estimated Percentage of Flowering/Fruiting Individuals:	—
Life Stages Present:	Seeds ripening, dispersing
Condition of Plants Found:	Normal
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Rich birch-oak woods - some Acer saccharum
Co-occurring Plant Species (Dominant and notable):	Betula lenta, Quercus spp, Hamamelis Carex spp., Galium lanceolatum, Actaea pachypoda, Viola spp
Substrate:	Silt loam
% Slope:	Gentle-moderate, <20°
Aspect:	North
Hydrology:	Moist
Threats (Invasive Species, Deer Browse):	

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	September 2, 2013
GPS Point #:	80
X Coordinate:	41° 04.710
Y Coordinate:	74° 34.470
Scientific Name:	Aralia elata Seem.
Number of Individuals:	1 large 10 to 20 (?) smaller
Estimated Percentage of Flowering/Fruiting Individuals:	The large tree was in flower
Life Stages Present:	Seed producing "adult" plus seedlings, small saplings
Condition of Plants Found:	Healthy
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	Powerline ROW - thickety area on lower slope near cleared staging/maintenance area with tree debris, wood chips, Most of ROW here is saplings, brambles, other weedy vegetation with grassy openings; mostly near rocks.
Co-occurring Plant Species (Dominant and notable):	This species spreads quickly, and should be destroyed soon. This was the only patch we saw on all the ROWs, and this ROW hasn't been "maintained recently.
Substrate:	Silt loam? probably relatively good soil
% Slope:	Gentle bench, lower slope
Aspect:	~West
Hydrology:	
Threats (Invasive Species, Deer Browse):	Roundup,

Sparta Mountain WMA Rare Plant Survey - *Use the back of sheet for additional notes.*

Sheet Number:	
Surveyor Name(s):	Janet Ebert & Jack Holt
Date:	~~August 31, 2013~~ September 22, 2013
GPS Point #:	~~88~~ 89 ~~87~~
X Coordinate:	41 04.905 ~~41 04.091~~ ~~41 04.039~~
Y Coordinate:	74° 35.153 ~~74 34.136~~ ~~74 34.121~~
Scientific Name:	Ampelopsis breviped unculata (Maxim.) Trautv.
Number of Individuals:	One patch 30-40 ft long ? climbing onto line of trees at base of RR embankment
Estimated Percentage of Flowering/Fruiting Individuals:	
Life Stages Present:	Ripening fruits
Condition of Plants Found:	Extremely vigorous
Habitat (Plant Community, Structure, Estimated Percent Canopy Cover):	This is the only patch of Ampelopsis we saw and it might still be controllable, although it looks as if it had been there long enough to establish a good root system
Co-occurring Plant Species (Dominant and notable):	It is along the RR at the east edge of the WMA and the Highlands "escarpment". Below the RR there are houses occasionally.
Substrate:	—
% Slope:	—
Aspect:	—
Hydrology:	—
Threats (Invasive Species, Deer Browse):	

RR built up
steeply
Ampelopsis
wooded
steep slope
valley

Appendix D. Rare Species CC Values
Sparta Mountain WMA Rare Species Surveys, Summer - Fall 2013
Wild Ridge Plants, LLC

Genus	Epithet	Common Name	NJ CC	Comments
Bromus	ciliatus	Fringed Chess	10	NJ: Fens, wetlands, wet woods.
Ceratophyllum	echinatum	Prickly hornwort	10	None
Elymus	trachycaulis	Slender Wheatgrass	10	Mesic prairie
Epilobium	leptophyllum	Willow-herb	10	Marshes and boggy pastures.
Galium	trifidum ssp trifidum	Cleavers/ Small Bedstraw	10	Moist woods, thickets and swales.
Juglans	cinerea	Butternut	10	Lowland woods and rich, wooded hillsides.NJ: Floodplains.
Lechea	intermedia var. intermedia	Pinweed; large-fruited pinweed	10	Dry, sandy fields and dry ridges. NJ: North.
Myriophyllum	heterophyllum	Varied-leaved Water Milfoil	10	None
Platanthera	psycodes	Purple fringed-orchid	10	Bogs, swamps, damp meadows and open woods.
Potamogeton	obtusifolius	Blunt-leaved Pondweed	10	None
Salix	lucida ssp. lucida	Shining willow	10	Swamps, low ground and wet shores.
Thaspium	barbinode	Hairy-joint meadow-parsnip	10	Open woods, wooded slopes and roadside banks.
Anemone	cylindrica	Thimbleweed	9	NJ: Limestone.
Chenopodium	simplex	Maple-leaved goosefoot	9	Rocky woods, edges and waste places.
Doellingeria	infirma	Flat-topped white aster/ Cornel-leaf aster	9	Rocky woods, thickets and barrens.
Lactuca	hirsuta var. sanguinea	Downy lettuce/ Red-stem Hairy Lettuce	9	Dry, open woods, thickets and rocky ledges.
Lilium	philadelphicum	Lily, wood	9	Dry, open woods and barrens.
Desmodium	cuspidatum var cuspidatum	Tick-clover	8	Rich, rocky woods and banks.
Glyceria	grandis	American mannagrass	8	Shallow water or wet meadows.
Juniperus	communis var depressa	Common juniper/ Dwarf Juniper	8	Dry slopes or pastures.NJ:open woods
Lycopodium	hickeyi	Hickey's ground-pine	8	Moist woods or marshes.
Lysimachia	thrysiflora	Tufted Loosestrife	8	None
Symphyotrichum	urophyllum	Aster	6	Grassy roadside slopes, fields and woods edges.
Spiranthes	ochroleuca	Yellow nodding ladies'-tresses	5	Shady woods and roadsides.
Dichanthelium	oligosanthes var.scribnerianum	Scribner's Panic-grass	4	None
Eragrostis	frankii	Lovegrass/Frank's Love-grass	2	Moist river banks.NJ: Roadside ditches.

From the Plant Stewardship Index Calculator, Bowman's Hill Wildflower Preserve, http://www.bhwp.org/psi

Appendix E. Sparta Mountain WMA Vascular Plant Species List

Compiled by Botanists Janet Ebert and Jack Holt

Sparta Mountain WMA Rare Species Surveys, Summer - Fall 2013 Wild Ridge Plants, LLC

Scientific name	Status		Count	Comment
Aquatics				
Alisma subcordatum			7	
Brasenia schreberi			3	Open water
Callitriche heterophylla			2	Open seeps, ditches, rivulets, probably more common
Ceratophyllum demersum			2	Ponds, flowing water, probably more frequent
Ceratophyllum echinatum	S1	E	2	Open water, probably more common
Elodea nuttallii			1	Ryker Lake, probably abundant
Lemna minor			6	
Myriophyllum heterophyllum	S2		1	'New' Ponds north of Edison Road, perhaps elsewhere
Nuphar lutea			8	
Nymphaea odorata			3	Open water
Peltandra virginica			3	Open marshes and pond edges, local
Pontederia cordata			1	'Crescent' Marsh S of RR in far N
Potamogeton diversifolius			1	Wet swampy edge of Edison Pond, local
Potamogeton epihydrus			1	Shores of Ryker Lake
Potamogeton foliosus			1	Water-filled holes just N of Edison Road along 'chained-off' road
Potamogeton obtusifolius	S1	E	1	'New' Ponds north of Edison Road, perhaps elsewhere
Potamogeton pulcher			2	Open water, probably more common
Spirodela polyrhiza			1	New Ponds N of Edison Road across double Utility Cut, local
Trapa natans	A*		1	Ryker Lake, abundant and increasing
Utricularia macrorhiza (vulgaris)			4	
Wolffia brasiliensis			1	New Ponds N of Edison Road across double Utility Cut, locally abundant
Ferns				
Adiantum pedatum			6	
Asplenium platyneuron			12	
Athyrium filix-femina v. angustum			19	
Botrypus virginianus			8	
Cystopteris bulbifera			1	On boulders at base of slope far NW of block along RR local
Dennstaedtia punctilobula			31	
Deparia acrostichoides			1	Banks of open spring seep in Hemlock Woods E of N-S Double Utility Cut
Diphasiastrum digitatum			2	Dry edges, open woods, very local
Diphasiastrum tristachyum			5	
Dryopteris carthusiana			10	
Dryopteris cristata			3	Shrub-scrub swamps, local
Dryopteris intermedia			5	
Dryopteris marginalis			30	
Dryopteris x hybrid			1	In Maleberry scrub-shrub marsh, Double Utility Cut, few
Equisetum arvense			15	
Equisetum fluviatile			1	'Crescent' Marsh S of RR in far N, mostly along base of cliff
Huperzia lucidula			2	Moist rocky woods and wooded banks, very local
Lycopodium clavatum			1	Dry sandy ground of Utility Cut at Edison, local
Lycopodium hickeyi	S2S3		3	Dry barren mossy utility cuts, very local
Lycopodium obscurum			6	
Onoclea sensibilis			22	
Osmunda cinnamomea			19	
Osmunda claytoniana			19	
Osmunda regalis			14	
Phegopteris hexagonoptera			2	Rich wooded slopes, local
Polypodium virginianum			13	
Polystichum acrostichoides			17	
Pteridium aquilinum			26	
Sceptridium dissectum			4	
Thelypteris noveboracensis			21	

Scientific name	Status			Count	Comment
Ferns					
Thelypteris palustris				16	
Woodsia obtusa				2	Rock outcrops along roads and in utility cuts
Forbs					
Acalypha gracilens				1	Dry disturbed soil and edge of Utility Cut
Acalypha rhomboidea				10	
Achillea millefolium	A			24	
Actaea pachypoda				9	
Agalinis tenuifolia				3	Dry open woods and edges, local
Ageratina altissima v. altissima				27	
Agrimonia gryposepala				1	Thickety woods near Edison, probably more common
Agrimonia pubescens				1	Rich woods, probably more common
Agrimonia rostellata				1	Wooded edge of Double Utility Cut, perhaps more common
Agrimonia striata				5	
Alliaria petiolata	A*			14	
Allium vineale	A			4	
Ambrosia artemisiifolia				26	
Anaphalis margaritacea				2	Dry open utility cuts and harvest blocks, few
Anemone americana				4	
Anemone cylindrica		*S1*	E	1	Thickety double N-S Powerline N of Edison Road, one plant seen
Anemone quinquefolia				4	
Anemone virginiana				14	
Antennaria parlinii ssp. parlinii				4	
Antennaria plantaginifolia				7	
Apocynum androsaemifolium				13	
Apocynum cannabinum				18	
Apocynum x medium				1	Open slope under E-W Utility Cut E of Boulder Meadow
Aquilegia canadensis				7	
Aralia nudicaulis				31	
Aralia racemosa				2	Rich woods and wooded banks, very local
Arctium minus	A			2	Disturbed soil
Arenaria serpyllifolia	A			3	Dry disturbed soil
Arisaema triphyllum				11	
Arisaema triphyllum ssp. pusillum				1	Swampy woods E side 'chained-off' road 1/2 way to E-W Utility Cut
Artemisia annua	A			1	Along active RR N of Edison Road
Artemisia vulgaris	A*			25	
Asarum canadense				1	Rich wooded slope N of Edison Rd E of RR, common
Asclepias exaltata				11	
Asclepias incarnata v. incarnata				1	Shores of Ryker Lake
Asclepias incarnata v. pulchra				1	Marsh in utility cut just E of Edison, very local
Asclepias syriaca				24	
Asclepias tuberosa				1	Dry grassy glades above old quarries near Ridge Road
Atriplex patula	A			1	Disturbed roadside of Beaver Lake Road
Aureolaria pedicularia				1	Thickety woods E of RR far NW of block NW of Heaters Pond
Aureolaria virginica				7	
Barbarea vulgaris	A			5	
Bartonia virginica				4	
Bidens cernua				2	Open seeps, ditches, rivulets, probably more common
Bidens connata				4	
Bidens discoidea				1	Wet open edges and stumps along Edison Pond
Bidens frondosa				12	
Bidens species				8	
Boechera canadensis (VA)				3	Open woods, thickets, probably more common
Boechera laevigata (VA)				7	
Boehmeria cylindrica				7	

Scientific name	Status		Count	Comment
Forbs				
Caltha palustris v. palustris			2	Wooded spring seeps and rivulets, very local
Campanula aparinoides			1	Shores of Ryker Lake
Cardamine hirsuta	A		1	Along active RR N of Edison Road
Cardamine pensylvanica			6	
Caulophyllum thalictroides			1	Rich young woods just S of Rt. 23, few
Centaurea nigrescens (dubia)	A		5	
Centaurea stobe (maculosa)	A*		17	
Cerastium fontanum	A		9	
Chelone glabra			16	
Chenopodium album	A		3	Disturbed soil
Chenopodium simplex		S2	1	Several plants in Harvest Block #5, also off property along
Chimaphila maculata			25	
Chrysanthemum leucanthemum	A		12	
Chrysosplenium americanum			7	
Cichorium intybus	A		10	
Cicuta bulbifera			4	
Cicuta maculata			6	
Circaea canadensis ssp canadensis			14	
Cirsium arvense	A*		7	
Cirsium discolor			2	Dry grassy shrubby utility cuts, few
Cirsium vulgare	A		7	
Clinopodium vulgare			10	
Collinsonia canadensis			15	
Comandra umbellata			2	Dry open ledges, edges, rock outcrops, very local
Commelina communis	A		4	
Conopholis americana			1	Rich wooded slope N of Edison Rd just E of RR
Conyza canadensis			15	
Corallorhiza maculata			1	One Plant along Beaver Lake Road
Corallorhiza odontorhiza			1	Moist wooded gravel road edge, one plant
Corydalis sempervirens			10	
Crocanthemum canadense (VA)			1	Dry sandy disturbed soil of trail along E-W Utility Cut, few
Cryptotaenia canadensis			4	
Cunila origanoides			1	Dry bank N side Edison Road just E of RR
Cypripedium acaule			3	Dry oak-heath woods, few
Cypripedium calceolus v. pubescens			1	Rich woods along W wide Beaver Lake Road, one colony
Daucus carota	A		24	
Desmodium canadense			6	
Desmodium cuspidatum		S2	1	Edison Road near and at double N-S Powerline, locally frequent
Desmodium glutinosum			17	
Desmodium marilandicum			2	Dry grassy shrubby utility cuts, local
Desmodium nudiflorum			17	
Desmodium paniculatum			21	
Desmodium perplexum			10	
Desmodium rotundifolium			5	
Dianthus armeria	A		17	
Dipsacus sylvestris	A		1	Dry disturbed soil of W line of N-S Double Utility Cut, local
Doellingeria infirma		S2	2	Dry open woods, edges, rock outcrops, very local
Doellingeria umbellata			19	
Drosera rotundifolia			1	Peaty edge of marsh in utility cut just E of Edison, very local
Echium vulgare	A		1	Roadsides, Heaters Pond
Epifagus virginiana			3	Woods under beech, scarce
Epigaea repens			2	Dry open wooded banks and slopes, very local
Epilobium coloratum			15	
Epilobium leptophyllum		S2	2	Boggy meadows, wetland edges, very local
Epipactis helleborine	A		1	Open wooded roadside S Side Edison Rd just E of Double Utility Cut

Scientific name	Status	Count	Comment
Forbs			
Erechtites hieracifolia		24	
Erigeron annuus		15	
Erigeron philadelphicus		10	
Erigeron strigosus		8	
Eupatorium perfoliatum		12	
Eupatorium serotinum	A	1	Disturbed dry soil, Double Utility Cut N of Edison Road
Eupatorium sessilifolium		1	Dry open roadbank along Ridge road, local
Euphorbia cyparissias	A	3	Roadsides, disturbed utility cuts
Euphorbia maculata		3	Disturbed dry soil
Euphorbia nutans		2	Roadsides
Eurybia divaricata		34	
Eurybia macrophylla		23	
Euthamia graminifolia		29	
Eutrochium fistulosum		3	Ditches, marshy edges
Eutrochium maculatum		5	
Eutrochium purpureum		8	
Fallopia japonica	A*	2	Roadsides, railroad banks
Fragaria virginiana		18	
Galinsoga quadriradiata	A	2	Roadsides
Galium aparine		1	Weedy edges of utility cut at Edison
Galium asprellum		1	Wet scrub-shrub marsh edge E of Harvest Block #5
Galium circaezans		16	
Galium lanceolatum		13	
Galium mollugo	A*	4	
Galium tinctorium		8	
Galium trifidum	S2	2	Marshy edges of Ryker Lake, Crescent Marsh
Galium triflorum		18	
Gentianopsis crinita		1	Boggy open ground Double Utility Cut, locally frequent
Geranium maculatum		21	
Geranium robertianum	A	1	Rich wooded slope N of Edison Rd E of RR
Geum canadense		7	
Geum laciniatum		3	Moist ditches, swales, local
Glechoma hederacea	A*	3	Weedy woods and thickety edges, very local
Gnaphalium uliginosum	A	2	Dry disturbed soil of open trails, few
Goodyera pubescens		6	
Gratiola neglecta		1	Wet wooded spring swale E of Double Utility Cut N of Edison Rd
Hackelia virginiana		1	Thickety woods E of RR far NW of block NW of Heaters Pond
Hedeoma pulegioides		10	
Helianthus decapetalus		2	Moist low woods and edges, local
Helianthus divaricatus		17	
Helianthus strumosus		4	
Hemerocallis fulva	A*	6	
Heuchera americana		2	Dry open wooded slopes and banks, very local
Hieracium caespitosum	A	14	
Hieracium flagellare	A	1	Dry disturbed soil of N-S Double Utility Cut, probably more
Hieracium gronovii		1	Dry disturbed soil of N-S Double Utility Cut, probably more
Hieracium paniculatum		25	
Hieracium piloselloides	A	9	
Hieracium scabrum		3	Dry grassy open utility cuts and edges, local
Hieracium venosum		7	
Hydrocotyle americana		7	
Hypericum gentianoides		1	Railroad ballast along RR N of 'Crescent' Marsh
Hypericum mutilum		3	Moist soil of open ditches, swales, pond edges
Hypericum perforatum	A	18	
Hypericum punctatum		8	

Scientific name	Status	Count	Comment
Forbs			
Hypoxis hirsuta		7	
Impatiens capensis		21	
Impatiens pallida		1	Rich wooded slope N of Edison Rd E of RR
Ionactis linariifolius		6	
Iris versicolor		16	
Isotria verticillata		1	Peaty edge of marsh in utility cut just E of Edison, very local
Krigia biflora		6	
Kummerowia striata	A	1	Dry sandy disturbed soil of trail along E-W Utility Cut
Lactuca biennis		6	
Lactuca canadensis		19	
Lactuca hirsuta var. sanguinea	S2	5	Grassy-shrubby open utility cut near Harvest Blocks #1-4
Laportea canadensis		1	Rich moist wooded slope S of 'Crescent' Marsh
Lapsana communis	A	1	Thickety roadside S side Rt. #23, local
Lechea intermedia	S2	2	Dry barren utility cuts, probably more frequent
Lechea pulchella		10	
Lepidium campestre	A	6	
Lepidium virginicum		8	
Lespedeza capitata		7	
Lespedeza hirta		6	
Lespedeza intermedia		16	
Lespedeza procumbens		4	
Lespedeza repens		1	Dry glades, edges, open trailsides E of Double Utility Cut
Lespedeza violacea (fusca ssp.		1	Dry sandy soil in N-S Double Utility cut, few, w/other Lespedezas
Lespedeza virginica		4	
Lilium canadense		4	
Lilium philadelphicum	S2	2	Dry grassy shrubby utility cuts, few
Linaria vulgaris	A	11	
Lobelia cardinalis		9	
Lobelia inflata		20	
Ludwigia palustris		16	
Lycopus americanus		1	Moist ditches S side Edison Road opp parking lot
Lycopus uniflorus		7	
Lycopus virginicus		11	
Lysimachia ciliata		15	
Lysimachia quadrifolia		29	
Lysimachia terrestris		6	
Lysimachia thyrsiflora	S3	1	'Boulder' Meadow under Utility Line just E of Harvest Block #5
Lythrum salicaria	A*	14	
Maianthemum canadense		27	
Maianthemum racemosum		28	
Medeola virginiana		16	
Medicago lupulina	A	10	
Melampyrum lineare v. americanum		12	
Melilotus alba	A	17	
Micranthes virginiensis		6	
Mimulus ringens		6	
Mitchella repens		18	
Mitella diphylla		1	Wet wooded spring swale E of Double Utility Cut N of Edison Rd
Mollugo verticillata	A	3	Sandy disturbed soil, roadsides
Monarda fistulosa		13	
Monotropa hypopithys		1	Low moist woods E of Harvest Block #5 N of UC, few
Monotropa uniflora		18	
Myosotis laxa		3	Open seeps and open wetland edges
Nuttallanthus canadensis (VA)		1	Sandy bank just E of parking lot at Edison
Oclemena acuminata		5	

Scientific name	Status		Count	Comment
Forbs				
Oenothera biennis			9	
Osmorhiza sp.			1	Rich wooded slope N of Edison Rd just E of RR
Oxalis dillenii			24	
Packera aurea			1	Open slope under E-W Utility Cut E of Boulder Meadow
Packera obovata			1	Rocky woods atop ridge W of Summit Lake, local
Paronychia canadensis			7	
Paronychia fastigiata (incl. v. paleacea)			3	Dry sandy soil, utility cuts, very local
Pedicularis canadensis			3	Dry open thickety edges and woods, locally abundant
Penstemon digitalis			3	Moist open disturbed soil
Penthorum sedoides			2	Woodland seeps, rivulet banks
Persicaria amphibia			2	Low open marshes, swamp edges, open water edges
Persicaria arifolia			11	
Persicaria hydropiper	A		1	'Crescent' Marsh S of RR in far N, disturbed soil
Persicaria hydropiperoides			11	
Persicaria longiseta	A*		18	
Persicaria maculosa	A		9	
Persicaria pensylvanica			1	Moist ditches S side Edison Road opp parking lot
Persicaria punctata			11	
Persicaria sagittata			17	
Persicaria virginica			3	Moist weedy to rich woods, local
Phryma leptostachya			1	Rich woods S side E-W Utility Cut W of Harvest Block #5, local
Phytolacca americana			15	
Pilea pumila			8	
Plantago lanceolata	A		9	
Plantago rugelii			22	
Platanthera clavellata			4	
Platanthera lacera			2	Moist grassy shrubby low ground of utility cuts
Platanthera psycodes		S2	3	Swampy woods, 'Boulder' meadow under E-W Utility Cut
Podophyllum peltatum			1	Rich woods along W wide Beaver Lake Road, local
Polygala verticillata			6	
Polygonatum biflorum			23	
Polygonatum pubescens			13	
Polygonum aviculare	A		4	
Potentilla canadensis			33	
Potentilla norvegica	A		9	
Potentilla recta	A		7	
Potentilla simplex			1	Moist grassy ground, Double Utility Cut N of Edison Rd
Prenanthes altissima			15	
Prenanthes trifoliolata			19	
Prunella vulgaris			21	
Pseudognaphalium obtusifolium			14	
Pycnanthemum incanum			9	
Pycnanthemum virginianum			1	Moist low ground in N-S Double Utility Cut, few
Pyrola americana			1	Rich wooded slope N of Edison Rd just E of RR
Pyrola elliptica			9	
Ranunculus abortivus			8	
Ranunculus acris	A		4	
Ranunculus caricetorum			1	Wet swampy edge of Edison Pond, local
Ranunculus recurvatus			3	Moist woods, shaded rivulets
Ranunculus sceleratus			1	East End Crescent Marsh between Rt #23 and RR
Rudbeckia hirta	A		4	
Rudbeckia triloba	A		1	Local along 'chained-off' road N of Edison Road
Rumex acetosella	A		14	
Rumex crispus	A		5	
Rumex obtusifolius	A		2	Moist disturbed soil

Scientific name	Status	Count	Comment
Forbs			
Rumex orbiculatus		2	Low open marshes and swamp edges, local
Sagittaria latifolia		2	Low open marshes and swamp edges, local
Sanguinaria canadensis		1	Rich wooded slope N of Edison Rd just E of RR
Sanicula canadensis		3	Rich woods, local
Sanicula marilandica		6	
Saponaria officinalis	A	3	Roadsides, moist weedy ground
Scutellaria lateriflora		17	
Sedum acre	A	1	Open rock slabs above old quarries near Ridge Road
Sedum sarmentosum	A	1	Open rock slabs above old quarries near Ridge Road
Senecio vulgaris	A	2	Roadsides
Sericocarpus asteroides		1	Dry sandy soil in N-S Double Utility cut, few
Silene antirrhina		6	
Silene latifolia	A	8	
Silene stellata		5	
Silene vulgaris	A	11	
Sisyrinchium angustifolium		4	
Sium suave		7	
Solanum carolinense	A	3	Dry open disturbed soil
Solanum pychanthum	A	9	
Solidago arguta v. arguta		19	
Solidago bicolor		27	
Solidago caesia		29	
Solidago canadensis		12	
Solidago flexicaulis		4	
Solidago gigantea		8	
Solidago juncea		7	
Solidago nemoralis		15	
Solidago odora		3	Dry open soil north of new ponds under Double Utility Cut
Solidago patula		4	
Solidago rugosa		35	
Solidago ulmifolia		13	
Sonchus asper	A	3	Roadsides, dry soil
Sonchus oleraceus	A	2	Roadsides
Sparganium americanum		12	
Spiranthes cernua		2	Boggy or sandy low ground, locally abundant
Spiranthes ochroleuca	S3	1	Open grassy ground E side Double Utility Cut N of Edison Rd
Stellaria longifolia		1	Moist thickety edge S side E-W Utility Cut W of Harvest Block #5
Stellaria media	A	2	Moist disturbed soil
Symphyotrichum cordifolium		18	
Symphyotrichum lanceolatum		18	
Symphyotrichum lateriflorum		18	
Symphyotrichum novae-angliae		1	Access road roadbank, open ground, Double Utility Cut N of Edison Rd
Symphyotrichum patens v. patens		2	Dry grassy shrubby utility cuts, local
Symphyotrichum pilosum v pilosum		3	Grassy shrubby edges, utility cuts, probably more common
Symphyotrichum pilosum v pringlei		5	
Symphyotrichum puniceum		6	
Symphyotrichum racemosum		2	Dry grassy shrubby utility cuts, probably more common
Symphyotrichum spp.		15	
Symphyotrichum undulatum		6	
Symphyotrichum urophyllum	S2	1	Rocky glades atop ridge W of Summit Lake, local
Symplocarpus foetidus		10	
Taraxacum officinale	A	12	
Thalictrum dioicum		8	
Thalictrum pubescens		11	
Thalictrum thalictroides		4	

Scientific name	Status	Count	Comment
Forbs			
Thaspium barbinode	SX	1	Rich wooded slope S of 'Crescent' Marsh, local
Tragopogon dubius	A	1	Disturbed open ground in Double Utility Cut N of Edison Rd
Triadenum virginianum		6	
Trichostema dichotomum		1	Railroad ballast along RR N of 'Crescent' Marsh
Trientalis borealis		15	
Trifolium arvense	A	1	Access road roadbank, open ground, Double Utility Cut N of Edison Rd
Trifolium aureum	A	7	
Trifolium pratense	A	18	
Trifolium repens	A	18	
Trillium erectum v. erectum		2	Moist low woods and springy slopes, few
Triodanis perfoliata		6	
Triosteum aurantiacum v. aurantiacum		1	Dry grassy glades above old quarries near Ridge Road
Turritis glabra (VA)		9	
Tussilago farfara	A	9	
Typha angustifolia		1	East End Crescent Marsh between Rt #23 and RR
Typha latifolia		6	
Uvularia perfoliata		21	
Uvularia sessilifolia		25	
Veratrum latifolium		6	
Veratrum viride		7	
Verbascum blattaria	A	1	Disturbed soil under E-W Utility Cut E of Boulder Meadow
Verbascum thapsus	A	26	
Verbena bracteata	A	1	Dry woods edge of gravel road near Harvest Block #5, few
Verbena hastata		1	Moist low ground in N-S Double Utility Cut, local
Verbena stricta	A	1	Local in E-W utility cut
Verbena urticifolia		14	
Veronica officinalis	A	17	
Veronica peregrina		1	Roadside near Harvest Block #5, few
Veronica scutellata		1	Shores of Ryker Lake
Vicia tetrasperma	A	1	Roadsides S side Edison Rd
Vinca minor	A	1	Low woods near Ryker Lake, persistent
Viola blanda		11	
Viola conspersa (labradorica)		15	
Viola cucullata		4	
Viola eriocarpa (pub. v. scabriuscula)		1	Rich moist weedy woods along Ridge Road, local
Viola fimbriatula		14	
Viola macloskeyi ssp. pallens		10	
Viola palmata v. triloba		5	
Viola primulifolia		1	Mossy pockets atop rocks in N-S Double Utility Cut, few
Viola pubescens		7	
Viola sagittata v. sagittata		6	
Viola sororia		14	
Zizia aurea		2	Moist low woods and slopes, very local
Graminoid			
Carex argyrantha		13	
Graminoids			
Agrostis gigantea	A	19	
Agrostis hyemalis		5	
Agrostis perennans		32	
Agrostis stolonifera	A*	1	Weedy roadside just N of Edison Road along 'chained-off' road
Andropogon gerardii		3	Grassy ridgetops, utility cuts, Harvest Block #2
Andropogon virginicus		11	
Anthoxanthum odoratum	A	12	

Scientific name	Status	Count	Comment
Graminoids			
Arrhenatherum elatius v. elatius	A	1	Access road roadbank, open ground, Double Utility Cut N of Edison Rd
Arthraxon hispidus	A*	1	Low sandy ground near Edison, as yet local
Brachyelytrum erectum		17	
Bromus ciliatus	S2S3	1	Boggy open seep E side of Double Utility Cut, local
Bromus commutatus	A	4	
Bromus inermis	A*	11	
Bromus pubescens		9	
Bromus tectorum	A	1	Harvest Block #4, local
Bulbostylis capillaris		3	Dry sandy soil of utility cuts, access roads
Calamagrostis canadensis		4	
Calamagrostis cinnoides		1	Low open moist ground, Double Utility Cut, local
Calamagrostis stricta	SQ	1	Dry edge Ridge Road at Harvest Block #3, few
Carex annectens		1	Dry grassy rocky Utility Cut W of Harvest Block #5, probably more
Carex brevior		2	Dry shrubby grassy utility cuts, probably more common
Carex bromoides		9	
Carex canescens v. disjuncta		1	Low partly shaded boggy opening, on sphagnum tumps
Carex cephalophora		11	
Carex communis		6	
Carex comosa		3	Open marshes and pond edges, local
Carex crinita		4	
Carex debilis v. rudgei		13	
Carex digitalis		10	
Carex folliculata		1	'Boulder' Meadow under Utility Line just E of Harvest Block #5
Carex glaucodea		3	Dry grassy utility cuts, few
Carex gracillima		9	
Carex gynandra		6	
Carex hirsutella		1	Roadsides, Heaters Pond
Carex intumescens		15	
Carex lacustris		1	Wet open marsh W side Beaver Lake Road, locally abundant
Carex laxiculmis		6	
Carex laxiflora		1	Rich wooded slope S of 'Crescent' Marsh, tentative ID
Carex longii		1	Moist sandy ground of utility cut at Edison, local
Carex lupulina		8	
Carex lurida		11	
Carex muehlenbergii		1	Dry bank N side Edison Road just E of RR
Carex normalis		1	Open trailsides near Edison Pond, probably more common
Carex pellita		2	Moist meadowy roadbanks and ditches, local
Carex pensylvanica		26	
Carex platyphylla		1	Rich wooded slope N of Edison Rd just E of RR
Carex prasina		2	Wooded spring seeps, local
Carex radiata		5	
Carex retroflexa		2	Rich moist woods
Carex rosea		6	
Carex scabrata		3	Wooded gravelly spring seeps
Carex scoparia		9	
Carex sparganioides		1	Roadsides S side Edison Rd
Carex spp.		10	
Carex stricta		20	
Carex stricta v. strictior		1	Low open moist ground N of new Ponds, Double Utility Cut
Carex swanii		20	
Carex tribuloides		6	
Carex vesicaria		2	Boggy 'glacial' ponds and swamps
Carex virescens		15	
Carex vulpinoidea		9	
Cinna arundinacea		18	

Scientific name	Status		Count	Comment
Graminoids				
Cyperus bipartitus			1	Shores of Ryker Lake
Cyperus lupulinus			1	Dry sandy ground of Utility Cut at Edison, local
Cyperus strigosus			7	
Dactylis glomerata	A		14	
Danthonia compressa			4	
Danthonia spicata			30	
Dichanthelium acuminatum v. acuminatum			2	Dry shrubby grassy utility cuts, probably more common
Dichanthelium acuminatum v. fasciculatum			16	
Dichanthelium boscii			3	Open dry woods, edges, and banks, very local
Dichanthelium clandestinum			14	
Dichanthelium commutatum			3	Dry shrubby grassy utility cuts, probably more common
Dichanthelium depauperatum			17	
Dichanthelium dichotomum			26	
Dichanthelium latifolium			26	
Dichanthelium oligosanthes		*S1S2*	1	Dry bank N side Edison Road just E of RR
Digitaria ischaemum	A		9	
Digitaria sanguinalis	A		10	
Dulichium arundinaceum			5	
Echinochloa crus-galli	A		9	
Eleocharis acicularis			1	'Crescent' Marsh S of RR in far N, vegetative
Eleocharis obtusa			4	
Elymus canadensis v. canadensis			1	Roadsides S side Edison Rd
Elymus hystrix			13	
Elymus repens	A*		10	
Elymus trachycaulis		*S1* E	6	Frequent in N-S Double Utility Cut, less in E-W, possibly hybridizing
Elymus virginicus			3	Moist to dry disturbed soil, edges
Eragrostis capillaris			3	Disturbed dry soil
Eragrostis frankii		*S2*	1	Locally abundant roadsides in Harvest Area 3
Eragrostis pectinacea			8	
Eragrostis spectabilis			1	Dry disturbed soil of N-S Double Utility Cut, probably more
Festuca rubra	A		2	Dry grassy shrubby utility cuts, probably more common
Festuca subverticillata			15	
Fimbristylis autumnalis			1	Disturbed sandy woods road edge by Harvest Block #5
Glyceria acutiflora			3	Open marshy ground, ditches, swales
Glyceria canadensis			4	
Glyceria grandis		*S1*	1	Marsh in utility cut just E of Edison, very local
Glyceria melicaria			4	
Glyceria septentrionalis			5	
Glyceria striata			16	
Juncus acuminatus			9	
Juncus bufonius			1	Sandy moist roadside near Heaters Pond
Juncus effusus			16	
Juncus marginatus			1	Sandy moist ground of E-W Utility Cut W of Harvest Block #5, few
Juncus subcaudatus			1	Wet scrub-shrub marsh edge E of Harvest Block #5
Juncus tenuis			23	
Leersia oryzoides			8	
Leersia virginica			15	
Luzula echinata			6	
Luzula multiflora			12	
Microstegium vimineum	A*		25	
Muhlenbergia frondosa			13	
Muhlenbergia mexicana			4	
Muhlenbergia schreberi			11	
Muhlenbergia sobolifera			8	
Muhlenbergia tenuiflora			7	

Scientific name	Status	Count	Comment
Graminoids			
Panicum capillare		5	
Panicum dichotomiflorum		3	Dry disturbed soil, probably more common
Panicum virgatum		5	
Phalaris arundinacea	A*	8	
Phleum pratense	A	12	
Phragmites australis	A*	18	
Piptatherum racemosum		4	
Poa alsodes		2	Moist woods, trailsides, probably more frequent
Poa annua	A	2	Moist disturbed soil
Poa compressa	A	25	
Poa pratensis	A	9	
Schedonorus arundinaceus	A*	10	
Schizachyrium scoparius		16	
Schoenoplectus tabernaemontanae		2	Edges of open water, Ryker Lake, local
Scirpus cyperinus		18	
Scirpus georgianus		10	
Setaria faberi	A	9	
Setaria pumila	A	9	
Setaria viridis	A	4	
Sorghastrum nutans		6	
Sporobolus vaginiflorus		5	
Trichophorum planifolium		1	Rich wooded slope N of Edison Rd along RR
Tridens flavus		6	
Shrubs			
Alnus incana ssp rugosa		1	Moist thickets, wetlands S side Edison Road opp parking lot
Alnus serrulata		8	
Aronia arbutifolia (VA)		5	
Aronia melanocarpa (VA)		4	
Berberis thunbergii	A*	22	
Ceanothus americanus		5	
Cephalanthus occidentalis		11	
Clethra alnifolia		8	
Comptonia peregrina		15	
Cornus amomum		10	
Cornus racemosa		15	
Cornus rugosa		3	Thickets, edges, shrubby utility cuts, local
Corylus cornuta		22	
Decodon verticillatus		1	New Ponds N of Edison Road across double Utility Cut, locally abundant
Deutzia scabra	A	3	Weedy thickets, edges, persistent and escaped
Diervilla lonicera		9	
Elaeagnus umbellata	A*	2	Dry shrubby utility cuts, local
Euonymus alatus	A*	6	
Forsythia sp.	A	1	Rich weedy woods near Edison, local
Gaultheria procumbens		8	
Gaylussacia baccata		23	
Gaylussacia frondosa		1	Moist low woods, E end Ryker Lake
Hamamelis virginiana		28	
Ilex verticillata		15	
Juniperus communis	S2	1	Dry utility cut edge, one large flattened shrub
Kalmia angustifolia		1	Moist thickets, wetlands S side Edison Road opp parking lot
Kalmia latifolia		23	
Kolkwitzia amabalis	A	1	Thickety double N-S Powerline N of Edison Road
Ligustrum obtusifolium	A*	5	
Lindera benzoin		20	

Scientific name	Status	Count	Comment
Shrubs			
Lonicera maackii	A*	1	Thickets, Double Utility Cut N of Edison Rd
Lonicera morrowii	A*	15	
Lyonia ligustrina		8	
Prunus virginiana		11	
Quercus ilicifolia		3	Dry open ridgetops, utility cuts, local
Quercus prinoides		1	Rocky glades atop ridge W of Summit Lake, local
Rhamnus cathartica	A*	1	Thickety roadside S side Rt. #23, local
Rhododendron maximum		2	Moist wooded swamps and swampy edges, very local
Rhododendron periclymenioides		21	
Rhododendron viscosum		10	
Rhodotypos scandens	A*	1	Rich weedy woods near Edison, local
Rhus glabra		2	Harvested deer exclosure, dry shrubby utility cuts, few
Ribes species		2	Moist wooded slopes, local
Rosa carolina		17	
Rosa multiflora	A*	20	
Rosa palustris		7	
Rubus allegheniensis		23	
Rubus flagellaris		23	
Rubus hispidus		10	
Rubus idaeus var. strigosus		16	
Rubus occidentalis		21	
Rubus odoratus		3	Rich wooded roadbanks, local
Rubus phoenicolasius	A*	2	Weedy woods and edges
Salix discolor		6	
Salix eriocephala		1	Powerlines, edges, probably more common
Salix humilis v. humilis		1	Powerlines, possibly more common
Salix lucida	*S1Q*	1	Shores of Ryker Lake closest to entrance
Sambucus canadensis		8	
Sambucus racemosa v. pubens		2	Rocky moist woods and slopes, perhaps more common
Spiraea latifolia		14	
Spiraea tomentosa		10	
Staphylea trifolia		3	Rich wooded slopes
Toxicodendron vernix		3	Swampy open woods, scrub-shrub swamps, very local
Vaccinium angustifolium		1	Hemlock slope N of Harvest Block 3, very local
Vaccinium atrococcum		1	Buttonbush Pond just W of Double Utility Cut, locally abundant
Vaccinium corymbosum		25	
Vaccinium pallidum		32	
Vaccinium stamineum		28	
Viburnum acerifolium		32	
Viburnum cassinoides		9	
Viburnum dentatum		10	
Viburnum lentago		3	Marshy edges
Viburnum prunifolium		9	
Viburnum rafinesquianum		13	
Viburnum recognitum		8	
Trees			
Acer negundo		2	Moist low edges, utility cuts, weedy woods
Acer platanoides	A*	2	Weedy woods, Edison area, far W near RR
Acer rubrum		31	
Acer saccharum		25	
Ailanthus altissima	A*	11	
Amelanchier arborea		31	
Amelanchier sp.		3	Dry utility cuts, edges, possibly A. stolonifera
Aralia elata	A*	1	Low utility cut at intersection of N-S & E-W Lines, local

Scientific name	Status		Count	Comment
Trees				
Betula alleghaniensis			10	
Betula lenta			35	
Betula populifolia			12	
Carpinus caroliniana ssp. virginiana			9	
Carya cordiformis			5	
Carya glabra			28	
Carya ovalis			1	Wooded portion of deer exclosure, perhaps more common
Carya ovata			9	
Carya tomentosa			10	
Castanea dentata			17	
Catalpa speciosa	A		2	Originally ID'd as C. bignonioides
Cornus alternifolia			10	
Cornus florida			3	Rich woods, local
Crataegus macrosperma			1	Thickets, edges, probably more common
Crataegus species			7	
Fagus grandifolia			13	
Fraxinus americana			31	
Fraxinus pennsylvanica			2	Moist low woods
Juglans cinerea		***S3***	2	Thickety woods and edges, Edison area
Juglans nigra			3	Moist low weedy woods, local
Juniperus virginiana			12	
Liriodendron tulipifera			18	
Malus pumila	A		1	Thickety woods near Edison
Malus species	A*		1	Brushy Utility Cut near Harvest Block #5, local
Morus alba	A		1	Wooded roadside near Heaters Pond
Nyssa sylvatica			16	
Ostrya virginiana			4	
Paulownia tomentosa	A*		1	Harvest Block #2, Sapling
Picea sp.	A		3	Woods, saplings and seedlings
Pinus resinosa	A	***S1.1*** E	1	Planted and escaping at Edison
Pinus strobus			4	Mostly saplings and seedlings
Platanus occidentalis			1	Rich woods along Edison Rd just E of RR
Populus grandidentata			21	
Populus tremuloides			8	
Prunus avium	A		1	Moist thickety woods S side Edison Rd
Prunus pensylvanica			3	Wooded edges, utility cuts, perhaps more common
Prunus persica	A		1	Roadside near Heater's Pond
Prunus serotina			29	
Quercus alba			26	
Quercus bicolor			1	Wooded swamp E of Double Utility Cut N of Edison Rd, sapling
Quercus coccinea			5	
Quercus montana			32	
Quercus rubra			30	
Quercus velutina			24	
Rhus hirta			18	
Robinia pseudo-acacia	A*		3	Disturbed woods, edges, very local
Salix bebbiana			1	Moist semi-open edges of 'chained-off' road just N of Edison Rd
Salix nigra			1	'Boulder' Meadow under Utility Line just E of Harvest Block #5
Salix species			7	
Sassafras albidum			30	
Tilia americana			11	
Tsuga canadensis			19	
Ulmus rubra			9	
Vines, herbaceous				

Scientific name	Status	Count	Comment
Vines, herbaceous			
Amphicarpa bracteata		29	
Apios americana		6	
Calystegia sepium		4	
Clematis terniflora	A	1	Disturbed open ground in Double Utility Cut N of Edison Rd
Clematis virginiana		4	
Coronilla varia	A	3	Roadsides, disturbed utility cuts
Cuscuta gronovii		7	
Dioscorea villosa		9	
Fallopia scandens v. cristatum		17	
Humulus japonicus	A*	1	Along active RR N of Edison Road
Menispermum canadense		1	Rich woods along Edison Rd just E of RR
Mikania scandens		8	
Persicaria perfoliata	A*	1	Disturbed soil, Harvest Block #3, destroyed
Smilax herbacea		13	
Solanum dulcamara	A	8	
Strophostyles helvola		1	Along active RR N of Edison Road
Vines, woody			
Ampelopsis brevipedunculata	A*	1	Along active RR N of Edison Road
Celastrus orbiculatus	A*	13	
Lonicera dioica v. dioica		2	Thickety edges near Route #23 and Crescent Marsh, very local
Lonicera japonica	A*	3	Weedy woods and thickety edges, very local
Parthenocissus quinquefolia		27	
Smilax glauca		1	Dry wooded slope near Heaters Pond
Smilax rotundifolia		9	
Toxicodendron radicans		27	
Vitis aestivalis		23	
Vitis labrusca		15	
Vitis vulpina		3	Moist woods, thickets, local

726 SPECIES ALIEN 20 143 ALIEN SPECIES

Status: A=Alien, A* = Invasive alien

Nomenclature follows Rhoads and Block - Plants of Pennsylvania, 2nd edition, 2007, except
VA = Flora of Virginia, Weakley, Ludwig, and Townsend, 2012