Classification of Natural and Semi-Natural Communities of the Henry L. Ferguson Museum Land Trust Parcels

Appendix A of Fishers Island Biodiversity: Rare Species and Natural Communities of the Henry L. Ferguson Museum Land Trust

New York
Natural Heritage
Program

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Cover photos: *Left column top to bottom:* marine rocky intertidal (Parcel 25 Stony Beach); shrub swamp (Parcels 4 and 36b); maritime beech forest (Parcel 2); coastal oak-hickory forest (Parcels 4 and 36b). Right column top to bottom: marine intertidal gravel beach and maritime rocky beach (Parcel 25 Stony Beach); shallow emergent marsh (Parcel 20); red maple-blackgum swamp (Parcel 7), successional maritime forest (Parcel 19).

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Classification of Natural and Semi-Natural Communities of the Henry L. Ferguson Museum Land Trust Parcels

Introduction and Classification Structure

This classification is based on Ecological Communities of New York State (Edinger et al. 2014). Communities are grouped by Systems and Subsystems defined in the state classification. For each community included in this classification we provide the following:

1. A table with Observation Points* that were sampled by the NYNHP Chief Ecologist Greg Edinger on Land Trust parcels in 2021 and 2022. Vegetation structure and composition data collected at these points were used to generate scores for a floristic quality assessment (FQA) that are included in the tables (Ring 2016), along with survey dates and unique NYNHP field codes used in our databases and forms. The highest Weighted FQI Score in each table is highlighted in green. These locations likely have the best floristic condition for that community found during our ecology surveys. FQA methods are included in the main report (Schlesinger et al. 2023).
2. Summary community descriptions were generated by averaging the height and percent cover of all species recorded at each Observation Point for each community type listed in the tables. Plant lists are presented in a top-down approach as follows (if present in the community): tree canopy, tree subcanopy, tree saplings (2-5 m), tall tree seedlings (0.5-2 m), short tree seedlings (<0.5 m), tall shrubs (2-5 m), short shrubs (0.5-2 m), dwarf shrubs (<0.5 m), tall vines (>2 m), short vines (<2 m), herbaceous plants, non-vascular plants. Unvegetated type and cover included if present. All species are listed in descending percent cover within each layer. Dominant or indicator species are highlighted in yellow. Botanical nomenclature follows Werier et al. (2023).
3. One or two representative photographs for each community taken during our ecology surveys are included if available.

Novel and Semi-Natural Communities

Communities in this classification that are not described in the state classification were given tentative novel names as placeholders for consideration as new community types. These include the following: "red maple-blackgum slope forest"; "water willow shrub swamp"; "sweet pepperbush shrub swamp"; etc.

Semi-natural communities refer to the grassland types that are a combination of tall, warm-season grasses and characteristic successional old field species. These include the following: "semi-natural grassland (*Panicum virgatum*)" and "semi-natural grassland (*Andropogon gerardi*)".

We also added parenthetical tags to existing community names, so we could provide more informative and useful community descriptions for each parcel. Examples include the following: maritime rocky beach (vegetated); successional shrubland (*Rhus copallinum*); successional old field (*Schizachyrium scoparium*), shallow emergent marsh (*Calamagrostis canadensis*), etc.

The communities in this classification were found and mapped at additional locations on Land Trust parcels and recorded without vegetation cover data as "reference" points (e.g., 02.04 ref). Refer to the full ecological community map for locations of all natural and cultural community types.

*Observation Point number begins with parcel number (or abbreviation if not numbered), then listed in numerical order as surveyed in field (e.g., 36b.01, 36b.02, etc.).

Marine System

Marine Subtidal

1. Marine eelgrass meadow

There are two occurrences of marine eelgrass meadow on Fishers Island: one on the south shore (EOID 15049) and one on the north shore (EOID 15050). While this community does not fall on any Land Trust parcels, it does occur just offshore of several parcels that have a marine shoreline. Occurrence data below are derived from multiple sources cited in the reference section of the NYNHP Element Occurrence Record (EOR). The unique Element Occurrence Identification (EOID) number is provided in those instances.

Marine eelgrass meadow Fishers Island South (EOID 15049): This occurrence describes high quality eelgrass meadows on the south shore of Fishers Island, in a good quality landscape. The eastern-most meadow is 0.4 miles wide (26.47 ac) and mostly confined to Barley Field Cove, which is host to a large population of hard clams (30.5 ac). The largest eelgrass patch in this occurrence is between Elizabeth Field Airport and Wilderness Point (120.5 ac). All eelgrass meadows have medium to high eelgrass density and populations are estimated to have very good viability. This eelgrass meadow is highly diverse and in excellent condition. Eelgrass (*Zostera marina*) cover is high in the largest eelgrass patch, which is located between the airfield and Wilderness Point. Isabella Beach eelgrass cover is medium, and Barley Field Cove eelgrass cover is "high". A large, hard clam (*Mercenaria mercenaria*) bed occupies much of Barley Field Cove. *Codium fragile,* kelp, and *Chondrus* were observed west of Wilderness Point, adjacent to the eelgrass polygon.

Marine eelgrass meadow Fishers Island North (EOID 15050): This occurrence describes a large (263.7 ac) seven-mile span of eelgrass meadows on the north shore of Fishers Island, including offshore areas: Flat Hammock, Seal Rocks, and Wicopesset Island. The 12 patches of eelgrass range in size from 2 acres to 146 acres, with an average size of 6.8 acres. Eelgrass (*Zostera marina*) in the largest eelgrass patch (146 ac) is robust, occurring at medium to high density. Approximately 525 acres of shellfish beds are mapped within and adjacent to this occurrence, but this population still expresses excellent viability.

This large eelgrass meadow is highly diverse and in excellent condition. Eelgrass (*Zostera marina*) cover is medium (20-60%) to high (>60%) throughout most of this occurrence. Eelgrass cover is <20% in Chocomount Cove, Dumpling Island/Flat Hammock, and north of Fishers Island County Club. Wicopesset Island, the eastern edge of this occurrence, is a small patch of medium-density eelgrass mixed with red algae, kelp, *Ulva,* and *Codium*. On the eastern edge of this occurrence in Hay Harbor, medium density eelgrass is rooted in sand, with interspersed boulders and hard clams (*Mercenaria mercenaria*) and oysters. Eelgrass meadows near South Dumpling Island occur at a depth of 15 ft (5 m), and grows more than 7 ft tall. Along the north shore of Fishers Island, from Hawks Nest Point (West Harbor) to East Harbor, hard clam beds co-occur with eelgrass meadows. Spider crabs and small fish have been observed in Chocomount Cove eelgrass beds and many of the coves and harbors along the north shore of Fishers Island support suitable sea star habitat.

Marine Intertidal

2. *Marine intertidal gravel/sand beach*

Table 1. Marine intertidal gravel/sand beach Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
CC2.03 (sand)	1	100.00	0.00	8.00	8.00	8.00	8.00	8/30/2021	F21EDI33NYUS
CC2.04 (dup) (sand)	4	50.00	0.00	3.00	1.33	6.00	2.67	9/16/2021	F21EDI41NYUS
25.10 (cobble)*	0	0	0	0	0	0	0	9/29/2021	F21EDI45NYUS
26.01c* (sand/gravel)	0	0	0	0	0	0	0	10/1/2021	F21EDI47NYUS
29.01 (cobble)*	0	0	0	0	0	0	0	9/15/2021	F21EDI40NYUS
43.01 (sand)*	0	0	0	0	0	0	0	9/13/2021	F21EDI38NYUS

*unvegetated. Highest Weighted FQI Score highlighted in green.

The herbaceous layer, located at the upper edge of the beach when present, has 7.6% cover. The most abundant herbs are *Atriplex patula* (4.0%), *Solidago sempervirens* (2.0%), *Raphanus raphanistrum* ssp. *raphanistrum* (1.0%), and *Honckenya peploides* ssp. *robusta* (<1%). The unvegetated surface has 99.6% cover comprised of sand <2 mm (71.4%), small rocks <10 cm (25.8%), wrack (7.4%), large rocks >10 cm (2.4%), and shells (<1%).

Figure 1. Marine intertidal sand beach at point 43.01 facing west on Fishers Island.

Figure 2. Marine intertidal gravel beach at point 25.10 facing east on Fishers Island Stony Beach.

3. Marine rocky intertidal

Table 2. Marine rocky intertidal community Observation Points (see also 2021 Fishers Island Marine Rocky Intertidal Survey).

16b.02	Marine rocky intertidal	8/31/2021	F21EDI34NYUS	19	250433	4574119	43.15267	-73.393
25.01	Marine rocky intertidal	9/29/2021	F21EDI45NYUS	18	749157	4572597	40.78697	-73.6922
26.01a	Marine rocky intertidal	10/1/2021	F21EDI47NYUS	19	250717	4574048	41.26103	-71.9972
37.03b ref	Marine rocky intertidal	8/31/2021	F21EDI34NYUS	19	252203	4573578	43.13441	-73.3537
CC2.01	Marine rocky intertidal	8/30/2021	F21EDI33NYUS	19	251071	4574188	43.15567	-73.3931
CC2.01 (dup)	Marine rocky intertidal	9/16/2021	F21EDI41NYUS	19	251071	4574188	40.79059	-73.694

Marine rocky intertidal (EOID 3294): The marine rocky intertidal community occurs discontinuously along the southern and northern shoreline of Fishers Island wrapping around the west and east points of the island and continuing onto the west and north shore nearly encircling the island. The community starts at Stony Beach on the west shore of Fishers Island and runs about 1.5 mi. southwest toward Race Rock Lighthouse. From the west point of Fishers Island, the patches of marine rocky intertidal community extend east along the south shore of the island with breaks for about 7.3 mi. to East Point. The community continues west from East Point for almost 6.0 mi. to West Harbor. There are many points of access to this occurrence.

The community consists of a gently sloping rocky shore with dense macroalgae on a substrate of pebbles, cobbles, and large boulders. Ascophyllum nodosum and *Fucus vesiculosus* are the dominant algae, but several other species are present, including the exotic invasive *Codium fragile*. Fauna include mussels, barnacles, periwinkles, and sea stars. A few tide pools are present. The immediate landscape

is variable, with very proximate development in some areas. The island has moderate to dense anthropogenic development, and the distance of roads and other development (e.g., airport runway, golf courses, houses and other buildings) to the occurrence ranges from about 10 meters to several hundred meters.

2021-09-14 through 2021-09-16: Seven zones of marine rocky intertidal community sampled as follows:

1. Marine rocky intertidal (*Ascophyllum*) 38A-62.0m: The non-vascular layer has 91% cover comprised of *Ascophyllum nodosum* (65.0%) and *Calothrix* sp. (26.0%). The epiphytic layer has <1% cover of red filamentous algae on *Ascophyllum nodosum*. The unvegetated surface has 80% cover comprised of small rocks <10 cm (50.0%), large rocks >10 cm (30.0%), and shells (<1%). Mobile fauna has <1% cover of *Littorina littorea*. Attached fauna has 10% cover of barnacles.

2. Marine rocky intertidal (*Blidingia*) 38B-05.3m: The non-vascular layer has 72% cover. The most abundant marine algae includes *Blidingia minima* (71.0%), *Grinnellia americana* (5.0%), *Codium fragile* (1.0%), *Champia parvula* (<1%), and *Ceramium rubrum* (<1%). The unvegetated surface has 100% cover comprised of small rocks <10 cm (79.0%), large rocks >10 cm (16.0%), sand <2 mm (5.0%), and shells (<1%). Mobile fauna includes *Hemigrapsus sanguineaus* and fish.

3. Marine rocky intertidal (*Calothrix*) 37A-00.0m, 37A-03.0m, 37B-00.0m, 37B-03.7m, 38A-25.0m, 05-0.00m (I0), 05-10.2m (I2): The herbaceous layer has very sparse small patches of *Sporobolus alterniflorus*. The non-vascular layer has 63.9% cover. This zone is dominated by blue-green algae (*Calothrix* sp.) with 59.3% cover. Other marine algae in this zone include green filamentous algae (1.4%) and Chondrus crispus (1.3%). The following species of algae have <1% cover each: *Blidingia minima, Ahnfeltia plicata, Grinnellia americana, Fucus vesiculosus,* and red filamentous algae. The unvegetated surface has 100% cover and large rocks >10 cm (68.4%), small rocks <10 cm (23.4%), very large rocks >1 m (8.1%), water (7.1%), wrack (1.1%), shells (<1%), sand <2 mm (<1%), and trash (<1%). The mobile fauna include shrimp, *Hemigrapsus sanguineaus*, and *Littorina littorea*. Attached fauna includes barnacles (3.6%).

4. Marine rocky intertidal (*Fucus*) 37A-10.0m, 37A-14.6m, 38A-70.0m, 38B-17.0m, 05-38m (I4), 05-41.3m (I5): The non-vascular layer has 93.1% cover. The most abundant marine algae includes *Fucus vesiculosus* (48.7%), *Fucus spiralis* (23.3%), *Ascophyllum nodosum* (6.7%), *Hildenbrandia* sp. (10.0%), *Blidingia minima* (2.0%), *Grinnellia americana* (1.6%), *Calothrix* sp. (1.4%), and *Corallina officinalis* (1.0%). The following species have <1% cover each: *Vertebrata lanosa, Ahnfeltia plicata, Blidingia minima, Grateloupia turuturu, Chondrus crispus,* and *Ulva lactuca*. The epiphytic layer has 2.9% cover comprised of *Ceramium rubrum* (2.1%) and *Vertebrata lanosa* (<1%) on *Fucus* spp. and *Ascophyllum nodosum*. The unvegetated surface has 94.4% cover comprised of very large rocks >1 m (42.9%), large rocks >10 cm (32.1%), small rocks <10 cm (17.3%), water (9.4%), sand <2 mm (<1%), and shells (<1%). The mobile fauna in this zone includes *Carcinus maenas*, shrimp, fish, and snails including *Littorina littorea*. The attached fauna has 1% cover comprised of barnacles and *Mytilus edulis*.

5. Marine rocky intertidal (*Fucus-Calothrix*) 05-24.5m (I3): The non-vascular layer has 100% cover. The most abundant species are *Calothrix* sp. (50.0%), *Fucus vesiculosus* (28.0%), *Hildenbrandia* sp. (15.0%), *Ascophyllum nodosum* (7.0%), and *Fucus spiralis* (1.0%). The following species have <1% cover each: *Chondrus crispus* and *Ulva lactuca*. The epiphytic layer has 40% cover of *Ceramium rubrum* on *Fucus* spp. and *Ascophyllum nodosum*. The unvegetated surface has 89% cover comprised of large rocks >10 cm (55.0%), water (25.0%), small rocks <10 cm (9.0%), and shells (<1%). Mobile fauna include

Littorina littorea, Menidia menidia, and *Hemigrapsus sanguineaus*. The attached fauna include barnacles (40.0%) and *Mytilus edulis*.

6. Marine rocky intertidal (No Algae) 38A-13.0m: The herbaceous layer has 6% cover comprised of small, scattered patches of *Sporobolus alterniflorus* (5.0%) and *Salsola kali* (1.0%). The unvegetated surface has 98% cover comprised of small rocks <10 cm (56.0%), large rocks >10 cm (32.0%), sand <2 mm (8.0%), wrack (2.0%), and shells (<1%). Mobile fauna includes Hemigrapsus sanguineaus.

7. Marine rocky intertidal (tidal pool) 38A-37.8m: The non-vascular layer has 62% cover. The most abundant species are *Calothrix* sp. (20.0%), *Vertebrata lanosa* (12.5%), *Agardhiella subulata* (12.5%), *Codium fragile* (9.0%), *Fucus vesiculosus* (4.0%), green filamentous alga (2.0%), *Hildenbrandia* sp. (2.0%), and *Fucus spiralis* (<1%). The unvegetated surface has 100% cover comprised of water (100.0%), very large rocks >1 m (70.0%), large rocks >10 cm (20.0%), small rocks <10 cm (5.0%), sand <2 mm (5.0%), and shells (<1%). The mobile fauna include shrimp, *Littorina littorea*, and *Pagurus* sp.

More information on the marine rocky intertidal community can be found in the Fishers Island Marine Rocky Intertidal Survey Addendum (Edinger 2023b).

2003 and prior: The Fishers Island marine rocky intertidal community is a gently sloping rocky shore with macroalgae reaching nearly 100% cover in some areas, on a substrate of pebbles, cobbles, and large boulders. *Ascophyllum nodosum* and *Fucus vesiculosus* are the dominant algae. *Chondrus crispus* and *Mastocarpus stellatus* grow near the mean low water line. Epiphytes are abundant and diverse, especially in the lower littoral zone. Other characteristic species include *Blidingia minima, Enteromorpha prolifera, Ulva lactuca, Codium fragile* (an exotic species), *Hildenbrandia* sp., and *Polysiphonia lanosa.* Invertebrates have low percent cover. *Mytilus edulis* (common mussel) and *Balanus balanoides* (northern rock barnacle) are present but not abundant. *Littorina littorea* (common periwinkle), *Littorina saxatilis* (rough periwinkle), and sea stars are also present. Many spiders were observed in the upper littoral zone, but they were not identified. There are very few tide pools and those present may be ephemeral.

Figure 3. Marine rocky intertidal community on Stony Beach in Parcel 25 (25.01).

Estuarine System

Estuarine Intertidal

4. *Coastal salt pond*

Table 3. Coastal salt pond Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
29.04	2	50.00	50.00	3.50	1.27	4.95	1.80	9/15/2021	F21EDI40NYUS

Highest Weighted FQI Score highlighted in green.

The herbaceous layer has 49% cover comprised of *Phragmites australis* (45.0%) and *Sporobolus pumilus* (10.0%). The non-vascular layer has <1% cover of marine algae. The unvegetated surface has 99% cover comprised of water (94.0%), mud bottom (47.5%), wrack (25.0%), wood (CWD) >7.5 cm (6.5%), wood (FWD) <7.5 cm (2.5%), small rocks <10 cm (2.5%), exposed mud (2.5%), large rocks >10 cm (<1%), trash (<1%), and shells (<1%). The mobile fauna has minnow-size fish (total count 100), as the most abundant components.

Coastal Salt Pond (EOID 2925): The salt pond includes Island Pond and Beah Pond on Fishers Island, 0.1 mi east of Barlow Pond. It includes the margins of the island and beach ponds. This is a large coastal salt pond with an undulating margin, some steep banks, and opens toward the ocean. The pond is large with sandy to gravelly margins and not much in water. Some sections are disturbed by an aquaculture establishment. *Scirpus* and *Cyperus* spp. are common.

Figure 4. Coastal salt pond on Island Pond: Left: face W from Parcel 19 (19.03); Right: face E from Parcel 2 (02.01).

5. *Low salt marsh*

Table 4. Low salt marsh Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
25.08a	2	100.00	0.00	7.50	7.04	10.61	9.95	9/29/2021	F21EDI45NYUS

Highest Weighted FQI Score highlighted in green.

The herbaceous layer (1 m) has 52% cover comprised of *Sporobolus alterniflorus* (50.0%) and *Salicornia depressa* (2.0%). The unvegetated surface has 77% cover comprised of water (45.0%), mud (20.0%), and green algae (12.0%). The attached fauna has *Geukensia demissa* (total count 100), as the most abundant species.

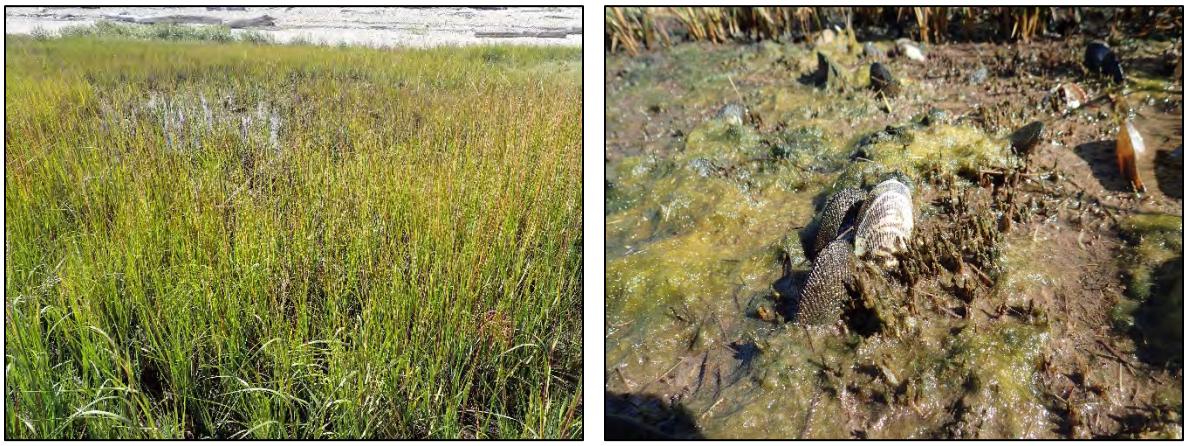

Figure 5. Low salt marsh on Stony Beach in Parcel 25 (25.08a); Left: smooth cord grass (Sporobolus alterniflorus); Right: ribbed mussel (Geukensia demissa).

6. *High salt marsh*

Table 5. High salt marsh Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
20.29	8	87.50	12.50	5.38	5.59	15.20	15.82	9/1/2021	F21EDI35NYUS
25.03	7	71.43	0.00	5.43	8.86	14.36	23.43	9/29/2021	F21EDI45NYUS
16b.03	6	66.67	0.00	4.83	7.19	11.84	17.60	8/31/2021	F21EDI34NYUS
25.05b	7	85.71	0.00	6.43	7.58	17.01	20.05	9/29/2021	F21EDI45NYUS
25.08b	8	100.00	0.00	7.75	8.26	21.92	23.37	9/29/2021	F21EDI45NYUS
26.01b	5	80.00	20.00	5.80	6.88	12.97	15.39	10/1/2021	F21EDI47NYUS
38b.04	5	80.00	20.00	5.40	4.62	12.08	10.34	9/17/2021	F21EDI42NYUS
CC2.02	4	100.00	0.00	7.25	7.06	14.50	14.13	8/30/2021	F21EDI33NYUS
CC2.02 (dup)	4	100.00	0.00	7.25	7.13	14.50	14.25	9/16/2021	F21EDI41NYUS

Highest Weighted FQI Score highlighted in green.

The short shrub layer (1.1 m) has 5.6% cover of Iva frutescens (4.4%) and Baccharis halimifolia (1.1%). The dwarf shrub layer (0.5 m) has 1.7% cover of Iva frutescens.

The herbaceous layer (0.3 m) has 76.6% cover. The most abundant herbs are *Sporobolus pumilus* (33.7%), *Distichlis spicata* (18.2%), *Salicornia depressa* (7.1%), *Sporobolus alterniflorus* (7.0%), *Phragmites australis* (6.2%), *Limonium carolinianum* (3.7%), and *Juncus gerardi* (2.2%). The following herbs have <1% cover each: *Solidago sempervirens, Atriplex prostrata, Panicum virgatum, Plantago maritima* var. *juncoides, Symphyotrichum tenuifolium* var. *tenuifolium, Suaeda maritima* ssp. *maritima,* and *Atriplex patula.* The non-vascular layer has <1% cover of green algae.

The unvegetated surface has 7.8% cover comprised of wrack (4.2%), mud (2.8%), litter and duff (<1%), wood (CWD) >7.5 cm (<1%), small rocks <10 cm (<1%), trash (<1%), wood (FWD) <7.5 cm (<1%), and large rocks >10 cm (<1%).

Figure 6. High salt marsh plot (5 m x 10 m) on Stony Beach in Parcel 25 (25.03).

7. Salt shrub

Table 6. Salt shrub Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
25.04	8	62.50	0.00	3.88	6.12	10.96	17.30	9/29/2021	F21EDI45NYUS
25.05c	16	87.50	6.25	5.31	5.32	21.25	21.26	9/29/2021	F21EDI45NYUS
25.08e	5	100.00	0.00	7.60	7.34	16.99	16.41	9/29/2021	F21EDI45NYUS
25.08f	5	80.00	0.00	8.00	7.37	17.89	16.47	9/29/2021	F21EDI45NYUS
38b.03	4	100.00	0.00	5.50	5.86	11.00	11.71	9/17/2021	F21EDI42NYUS
CC2.03 (dup)	7	57.14	14.29	3.71	6.21	9.83	16.43	9/16/2021	F21EDI41NYUS

Highest Weighted FQI Score highlighted in green.

The tall shrub layer (3.1 m) has 24% cover of *Baccharis halimifolia*. The short shrub layer (1.3 m) has 47.6% cover of *Iva frutescens* (34.0%) and *Baccharis halimifolia* (13.6%). The dwarf shrub layer (0.5 m) has 7% cover of *Iva frutescens* (5.0%) and *Baccharis halimifolia* (2.0%).

The vine layer (1 m) has 5% cover of *Toxicodendron radicans* ssp. *radicans*.

The herbaceous layer has 20.8% cover. The most abundant herbs are *Distichlis spicata* (7.6%), *Solidago sempervirens* (3.0%), *Atriplex* sp. (2.0%), *Lathyrus japonicus* var. *maritimus* (2.0%), *Phragmites australis* (1.0%), *Elymus* sp. (1.0%), *Juncus gerardi* (1.0%), and *Panicum virgatum* (1.0%). The following herbs have <1% cover each: *Artemisia campestris* ssp. *caudata, Raphanus raphanistrum, Salicornia depressa, Limonium carolinianum, Chenopodium* sp., *Plantago maritima* var. *juncoides, Sonchus* sp., and *Symphyotrichum tenuifolium* var. *tenuifolium*.

The unvegetated surface has 18% cover comprised of litter and duff (15.0%), wood (FWD) <7.5 cm (2.0%), small rocks <10 cm (1.0%), and wood (CWD) >7.5 cm (<1%).

Figure 7. Salt shrub in Parcel 38b (38b.03).

Estuarine Cultural

8. Estuarine reed grass marsh

Estuarine reed grass marsh is known from across Fishers Island, but this type was not surveyed on Land Trust parcels in 2021 or 2022. However, this type is located just off the Parcel 50 north property line. Dense patches of Old World reed grass (*Phragmites australis*) that may be tidally influenced include the following parcels: Parcel 19 on the west shore of Island Pond; the north edge of Parcel 31; and around the pond in Parcel 29.

Figure 8. Estuarine reed grass marsh along the north boundary of Parcel 50 (50.02).

Figure 9. Estuarine reed grass marsh on a small coastal salt pond shore in Parcel 29.

Lacustrine System

Natural Lakes and Ponds

9. Coastal plain pond

Table 7. Coastal plain pond Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
48.03	5	80.00	20.00	3.60	3.77	8.05	8.42	8/30/2021	F21EDI33NYUS

Highest Weighted FQI Score highlighted in green.

The non-vascular layer has 90% cover of *Calliergonella* sp. The emergent aquatic layer has 45% cover. The most abundant emergent aquatic plants are *Ludwigia palustris* (35.0%), *Persicaria hydropiperoides* (5.0%), *Bidens* sp. (3.0%), *Sium suave* (1.0%), *Leersia oryzoides* (1.0%), and *Scirpus cyperinus* (<1%). The submerged aquatic layer has 35% cover of *Ludwigia palustris*. The unvegetated surface has 100% cover of water.

Figure 10. Coastal plain pond in Parcel 48 (48.03).

10. Eutrophic pond

Table 8. Eutrophic pond Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
07.04	1	100.00	0.00	2.00	2.00	2.00	2.00	8/2/2022	F22EDI18NYUS
32.07	6	83.33	16.67	4.50	4.81	11.02	11.78	9/2/2021	F21EDI36NYUS

Highest Weighted FQI Score highlighted in green.

The short shrub layer (1 m) has 5% cover of *Decodon verticillatus*. The short vine layer has 5% cover of *Solanum dulcamara*. The emergent aquatic layer has 6% cover comprised of *Ludwigia palustris* (3.0%), *Hydrocotyle umbellata* (3.0%), *Leersia oryzoides* (<1%), and *Bidens frondosa* (<1%).

Figure 11. Eutrophic pond in Parcel 2: Island Pond Trail in Betty Matthiessen Wildlife Sanctuary (02.05a).

Palustrine System

Open Mineral Soil Wetland

11. Coastal plain pond shore

Table 9. Coastal plain pond shore Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
48.04	7	100.00	0.00	4.71	4.13	12.47	10.92	8/30/2021	F21EDI33NYUS

Highest Weighted FQI Score highlighted in green.

The herbaceous layer has 39% cover. The most abundant herbs are *Ludwigia palustris* (25.0%), *Bidens frondosa* (5.0%), *Lysimachia terrestris* (3.0%), *Sium suave* (2.0%), *Leersia oryzoides* (2.0%), *Thelypteris palustris* var. *pubescens* (1.0%), and *Proserpinaca palustris* (1.0%).

Figure 12. Coastal plain pond shore in Parcel 48 (48.04): Left: face E; Right: face W.

12. Shallow emergent marsh

Table 10. Shallow emergent marsh Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
13.01	20	90.00	10.00	4.70	5.22	21.02	23.33	9/3/2021	F21EDI37NYUS
13.02	13	92.31	7.69	4.85	4.96	17.47	17.89	9/3/2021	F21EDI37NYUS
13.04	18	88.89	11.11	4.50	5.56	19.09	23.61	9/3/2021	F21EDI37NYUS
CR.04	16	75.00	18.75	3.06	2.90	12.25	11.61	8/3/2022	F22EDI19NYUS

Highest Weighted FQI Score highlighted in green.

The tree sapling layer (4 m) has Frangula alnus as the most abundant species. The tall tree seedling layer (2 m) has <1% cover of *Acer rubrum* var. *rubrum* and *Frangula alnus*.

The tall shrub layer (2.8 m) has <1% cover of *Ilex verticillata* and *Salix bebbiana*. The short shrub layer (1.2 m) has 36.3% cover. The most abundant shrubs are *Decodon verticillatus* (33.8%), *Clethra alnifolia* (2.3%), and *Rosa palustris* (<1%). The dwarf shrub layer (0.5 m) has 5% cover of *Decodon verticillatus*.

The short vine layer (1-1.3 m) has 5.3% cover comprised of *Solanum dulcamara* (3.8%) and *Toxicodendron radicans* ssp. *radicans* (1.3%).

The herbaceous layer (0.9 m) has 58.5% cover. The most abundant herbs are *Typha latifolia* (16.8%), *Glyceria obtusa* (7.5%), *Phragmites australis* (5.5%), *Juncus effusus* ssp. *solutus* (5.3%), *Carex lurida* (5.0%), *Calamagrostis canadensis* var. *canadensis* (4.5%), *Leersia oryzoides* (2.5%), *Juncus canadensis* (1.8%), *Hypericum virginicum* (1.3%), *Lythrum salicaria* (1.3%), *Bidens tripartita* ssp. *comosa* (1.3%), *Alliaria petiolata* (1.3%), *Impatiens capensis* (1.3%), and *Lycopus uniflorus* (1.0%). The following herbs have <1% cover each: *Scirpus cyperinus, Carex stricta, Sagittaria latifolia, Symphyotrichum laeve* var. *laeve, Thelypteris palustris* var. *pubescens, Persicaria hydropiperoides, Bidens frondosa, Alisma subcordatum, Galium tinctorium, Juncus* sp., *Scutellaria galericulata,* and *Persicaria* sp.

The non-vascular layer has 5% cover of *Sphagnum lescurii* (2.5%) and *Sphagnum* sp. (2.5%).

The unvegetated surface has 22.5% cover of water.

Figure 13. Shallow emergent marsh in Parcel 13: M&M Harry Cant Wildlife Sanctuary (13.02) face E.

13. Shallow emergent marsh (Calamagrostis canadensis)

Table 11. Shallow emergent marsh (Calamagrostis canadensis) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
20.02	17	100.00	0.00	5.18	6.78	21.34	27.95	9/1/2021	F21EDI35NYUS
20.15	10	100.00	0.00	4.10	6.32	12.97	20.00	9/1/2021	F21EDI35NYUS
20.16	11	100.00	0.00	4.36	6.35	14.47	21.06	9/1/2021	F21EDI35NYUS
20.19	15	100.00	0.00	4.33	6.08	16.78	23.53	9/1/2021	F21EDI35NYUS

Highest Weighted FQI Score highlighted in green.

The short shrub layer (0.9 m) has 7.3% cover. The most abundant shrub is *Rubus allegheniensis* (6.0%). The following shrubs have <1% cover each: *Viburnum dentatum* var. *lucidum, Sambucus nigra* ssp. *canadensis,* and *Rosa palustris.* The dwarf shrub layer (0.4 m) has 2.5% cover comprised *of Rubus allegheniensis* (2.0%) and *Rubus flagellaris* (<1%).

The short vine layer (0.4 m) has 2.8% cover. The most abundant vine is *Apios americana* (1.8%). The following vines have <1% cover each: *Toxicodendron radicans* ssp. *radicans, Calystegia sepium,* and *Fallopia scandens.*

The herbaceous layer (0.8 m) has 90% cover. The most abundant herbs are *Calamagrostis canadensis* var. *canadensis* (66.3%), *Eutrochium dubium* (9.3%), *Panicum virgatum* (3.5%), *Persicaria* spp. (2.8%), *Eupatorium perfoliatum* (1.8%), *Asclepias incarnata* ssp. *pulchra* (1.3%), and *Euthamia graminifolia* (1.3%). The following herbs have <1% cover each: *Thelypteris palustris* var. *pubescens, Osmundastrum cinnamomeum* var. *cinnamomeum, Solidago rugosa* var. *rugosa, Osmunda regalis* var. *spectabilis, Impatiens capensis, Eupatorium pilosum, Lycopus* sp., *Persicaria hydropiperoides, Galium tinctorium, Scutellaria galericulata, Iris prismatica,* and *Persicaria pensylvanica.*

Figure 14. Shallow emergent marsh (Calamagrostis canadensis) in Parcel 20: Matty Matthiessen Wildlife Sanctuary (20.15) face E.

14. Shrub swamp (Clethra alnifolia)

Table 12. Shrub swamp (Clethra alnifolia) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
04.07	5	100.00	0.00	5.80	6.81	12.97	15.23	9/27/2021	F21EDI43NYUS
17.02	5	100.00	0.00	6.20	5.82	13.86	13.01	9/16/2021	F21EDI41NYUS
20.17	8	100.00	0.00	6.13	6.42	17.32	18.16	9/1/2021	F21EDI35NYUS
23.03	5	100.00	0.00	6.20	6.68	13.86	14.93	9/14/2021	F21EDI39NYUS
23.11	7	100.00	0.00	6.29	6.75	16.63	17.85	9/14/2021	F21EDI39NYUS
24.04	6	83.33	0.00	4.00	6.67	9.80	16.33	8/4/2022	F22EDI20NYUS
32.02	1	100.00	0.00	7.00	7.00	7.00	7.00	9/2/2021	F21EDI36NYUS
32.04	4	100.00	0.00	6.00	6.82	12.00	13.64	9/2/2021	F21EDI36NYUS
36b.04	12	100.00	0.00	6.33	6.39	21.94	22.15	9/28/2021	F21EDI44NYUS

Highest Weighted FQI Score highlighted in green.

The tree canopy layer (9.3 m) has 3.6% cover comprised of *Acer rubrum* var. *rubrum* (3.6%) and *Amelanchier arborea* (<1%). The tree subcanopy layer (6 m) has 1.4% cover of *Acer rubrum* var. *rubrum.* The tree sapling layer (4.8 m) has 9.5% cover comprised of *Acer rubrum* var. *rubrum* (7.6%) and *Nyssa sylvatica* (1.8%). The tall tree seedling layer (2.2 m) has 2% cover of *Acer rubrum* var. *rubrum* (2.0%). The short tree seedling layer (0.4 m) has <1% cover of *Acer rubrum* var. *rubrum.*

The tall shrub layer (3.5 m) has 57.3% cover. The most abundant shrubs are *Clethra alnifolia* (49.1%), *Ilex verticillata* (5.9%), *Vaccinium corymbosum* (1.4%), and *Lyonia ligustrina* var. *ligustrina* (<1%). The short shrub layer (12.7 m) has 39.4% cover. The most abundant shrubs are *Clethra alnifolia* (24.1%), *Decodon verticillatus* (11.1%), *Ilex verticillata* (2.1%), *Rosa palustris* (1.4%), *Lyonia ligustrina* var. *ligustrina* (<1%), and *Vaccinium corymbosum* (<1%). The dwarf shrub layer (0.5 m) has 7.7% cover. The most abundant shrubs are *Clethra alnifolia* (5.0%), *Decodon verticillatus* (2.3%), *Rosa palustris* (<1%), and *Vaccinium corymbosum* (<1%).

The vine layer (1.8 m) has <1% cover of *Smilax rotundifolia* and *Apios americana.*
The herbaceous layer has 5.9% cover. The most abundant herb is *Sparganium eurycarpum* (2.7%). The following herbs have <1% cover each: *Osmunda regalis* var. *spectabilis, Thelypteris palustris* var. *pubescens, Dulichium arundinaceum* var. *arundinaceum, Glyceria obtusa, Hypericum virginicum, Leersia oryzoides, Boehmeria cylindrica, Peltandra virginica, Osmundastrum cinnamomeum* var. *cinnamomeum, Bidens tripartita, Juncus effusus* ssp. *solutus.*

The non-vascular layer has 10% cover comprised of *Sphagnum recurvum* (6.4%) and *Sphagnum* spp. (3.6%).

The unvegetated surface has 19.2% cover comprised of water (9.5%), litter and duff (8.9%), and wood (CWD) >7.5 cm (<1%).

Figure 15. Shrub swamp (Clethra alnifolia) in Parcel 23: Charles B. Ferguson Sanctuary (23.11).

15. Shrub swamp (Decodon verticillatus)

Table 13. Shrub swamp (Decodon verticillatus) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
20.18	5	80.00	20.00	3.60	6.65	8.05	14.87	9/1/2021	F21EDI35NYUS
23.04	6	100.00	0.00	6.50	6.69	15.92	16.39	9/14/2021	F21EDI39NYUS
32.03	1	100.00	0.00	7.00	7.00	7.00	7.00	9/2/2021	F21EDI36NYUS
32.06	1	100.00	0.00	7.00	7.00	7.00	7.00	9/2/2021	F21EDI36NYUS
34.05	6	83.33	16.67	4.50	6.52	11.02	15.98	9/13/2021	F21EDI38NYUS
04.03a	4	100.00	0.00	5.00	6.38	10.00	12.75	9/27/2021	F21EDI43NYUS
36b.02	22	100.00	0.00	5.77	6.31	27.08	29.60	9/28/2021	F21EDI44NYUS

Highest Weighted FQI Score highlighted in green.

The tree canopy layer (8 m) has <1% cover of *Acer rubrum* var. *rubrum*. The tree sapling layer (2.5 m) has <1% cover of *Acer rubrum* var. *rubrum*. The tall tree seedling layer (1.5 m) has <1% cover of *Acer rubrum* var. *rubrum*. The short tree seedling layer (0.1 m) has <1% cover of *Acer rubrum* var. *rubrum*.

The tall shrub layer (2.7 m) has 22.8% cover. The most abundant shrubs are *Decodon verticillatus* (8.9%), *Ilex verticillata* (6.2%), *Clethra alnifolia* (5.0%), *Vaccinium corymbosum* (1.3%), *Cephalanthus occidentalis* (<1%), and *Frangula alnus* (<1%). The short shrub layer (1.3 m) has 63.6% cover. The dominant shrub is *Decodon verticillatus* (62.2%). Other short shrubs include *Clethra alnifolia* (<1%) and *Cephalanthus occidentalis* (<1%). The dwarf shrub layer (0.4 m) has 3.6% cover comprised of *Decodon verticillatus* (3.3%) and *Cephalanthus occidentalis* (<1%).

The vine layer (1 m) has 2.6% cover. The most abundant vines are *Apios americana* (1.1%), *Cuscuta gronovii* var. *gronovii* (1.1%), *Parthenocissus quinquefolia* (<1%), *Celastrus orbiculatus* (<1%), and *Clematis virginiana* (<1%).

The herbaceous layer has 11.4% cover. The most abundant herbs are *Leersia oryzoides* (4.4%) and *Bidens tripartita* ssp. *comosa* (3.3%). The following herbs have <1% cover each: *Bidens discoidea, Bidens frondosa, Calamagrostis canadensis* var. *canadensis, Sparganium eurycarpum, Lycopus uniflorus, Hypericum virginicum, Carex bromoides* ssp. *bromoides, Proserpinaca palustris, Hypericum mutilum* ssp. *mutilum, Galium* sp., *Sagittaria latifolia, Carex interior, Carex stricta, Glyceria obtusa, Thelypteris palustris* var. *pubescens, Dulichium arundinaceum* var. *arundinaceum,* and *Lysimachia terrestris*.

The non-vascular layer has <1% cover of *Sphagnum torreyanum*.

The floating aquatic layer has <1% cover of *Lemna minor* and *Ludwigia palustris*.

The submerged aquatic layer has <1% cover of *Utricularia* sp.

The unvegetated surface has 64.7% cover of water.

Figure 16. Shrub swamp (Decodon verticillatus) in Parcel 04 (04.03a).

16. Shrub swamp

Table 14. Shrub swamp Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
48.05	6	66.67	16.67	4.00	4.60	9.80	11.27	8/30/2021	F21EDI33NYUS

Highest Weighted FQI Score highlighted in green.

[Note: The shrub swamp at point 48.05 is invaded by glossy buckthorn (*Frangula alnus*)]

The tree sapling layer (3.5 m) has 30% cover of *Frangula alnus* (30.0%). The tall tree seedling layer (1.5 m) has 5% cover of *Frangula alnus*. The short tree seedling layer (0.2 m) has 3% cover of *Frangula alnus* (3.0%).

The tall shrub layer (3.5 m) has 50% cover. The most abundant shrubs are *Ilex verticillata* (30.0%), *Clethra alnifolia* (15.0%), and *Vaccinium corymbosum* (5.0%). The short shrub layer (1.5 m) has 25% cover comprised of *Ilex verticillata* (20.0%) and *Clethra alnifolia* (5.0%). The dwarf shrub layer (0.5 m) has 5% cover of *Ilex verticillata.*

The short vine layer (0.5 m) has 7% cover comprised of *Parthenocissus quinquefolia* (5.0%) and *Solanum dulcamara* (2.0%).

Forested Mineral Soil Wetlands

17. Red maple-blackgum swamp

Table 15. Red maple-blackgum swamp Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
04.08	10	100.00	0.00	5.50	5.70	17.39	18.03	9/30/2021	F21EDI46NYUS
07.01	10	80.00	20.00	5.20	5.22	16.44	16.52	8/2/2022	F22EDI18NYUS
11.01	5	100.00	0.00	6.20	6.51	13.86	14.55	8/31/2021	F21EDI34NYUS
18.01	15	93.33	6.67	5.13	5.49	19.88	21.27	9/15/2021	F21EDI40NYUS
33.09	14	92.86	7.14	5.50	5.77	20.58	21.58	9/30/2021	F21EDI46NYUS
44.04	26	76.92	19.23	3.89	4.44	19.81	22.66	9/30/2021	F21EDI46NYUS
E08b.01	7	100.00	0.00	5.57	4.87	14.74	12.88	9/17/2021	F21EDI42NYUS

Highest Weighted FQI Score highlighted in green.

The tree canopy layer (20.8 m) has 62.7% cover comprised of *Acer rubrum* var. *rubrum* (46.0%) and *Nyssa sylvatica* (26.9%). The tree subcanopy layer (11.4 m) has 19.7% cover. The most abundant trees are *Acer rubrum* var. *rubrum* (13.7%), *Nyssa sylvatica* (5.0%), *Betula alleghaniensis* (1.2%), and *Sassafras albidum* (1.0%).

The tree sapling layer (4.3 m) has 3.6% cover. The most abundant saplings are *Acer rubrum* var. i (2.0%), *Nyssa sylvatica* (1.0%), *Betula alleghaniensis* (<1%), and *Frangula alnus* (<1%). The tall tree seedling layer (1.2 m) has 1% cover. The following tree seedlings have <1% cover each: *Acer rubrum* var. *rubrum, Nyssa sylvatica, Frangula alnus,* and *Betula alleghaniensis*. The short tree seedling layer (0.2 m) has <1% cover of *Frangula alnus* and *Nyssa sylvatica.*

The tall shrub layer (3.7 m) has 31.9% cover. The most abundant shrubs are *Clethra alnifolia* (16.6%), *Ilex verticillata* (6.0%), *Viburnum dentatum* var. *lucidum* (3.9%), *Hydrangea paniculata* (2.0%), and *Vaccinium corymbosum* (1.6%). The following shrubs have <1% cover each: *Rhododendron viscosum, Sambucus nigra* ssp. *canadensis,* and *Rubus allegheniensis*. The short shrub layer (1.3 m) has 13.2% cover. The most abundant shrubs are *Clethra alnifolia* (7.5%), *Hydrangea paniculata* (1.5%), and *Ilex verticillata* (1.4%). The following shrubs have <1% cover each: *Viburnum dentatum* var. *lucidum, Decodon verticillatus, Ligustrum vulgare, Sambucus nigra* ssp. *canadensis, Aronia arbutifolia, Rosa multiflora,* and *Rhododendron viscosum.* The dwarf shrub layer (0.3 m) has 13% cover. The most abundant shrubs are *Rubus hispidus* (9.0%) and *Clethra alnifolia* (3.5%). The following shrubs have <1% cover each: *Hydrangea paniculata, Viburnum dentatum* var. *lucidum, Sambucus nigra* ssp. *canadensis,* and *Rubus pubescens.*

The tall vine layer (5 m) has 3.9% cover comprised of *Toxicodendron radicans* ssp. *radicans* (1.4%) and *Smilax rotundifolia* (2.5%). The short vine layer (0.3 m) has 6.4% cover. The most abundant vines are *Parthenocissus quinquefolia* (2.0%), *Lonicera japonica* (1.6%), *Toxicodendron radicans* ssp. *radicans* (1.0%), and *Smilax rotundifolia* (<1%).

The herbaceous layer (0.9 m) has 24.8% cover. The most abundant herbs are *Osmundastrum cinnamomeum* var. *cinnamomeum* (15.8%), *Dryopteris carthusiana* (7.5%), *Lorinseria areolata* (3.1%), and *Equisetum arvense* (3.0%). The following herbs have <1% cover each: *Maianthemum canadense, Poa trivialis* ssp. *trivialis, Dennstaedtia punctilobula, Lysimachia ciliata, Carex lurida, Carex bromoides* ssp. *bromoides, Viola* sp., *Impatiens capensis, Onoclea sensibilis, Glyceria striata, Iris* sp., *Osmunda regalis* var. *spectabilis, Arisaema triphyllum* ssp. *triphyllum, Scutellaria lateriflora, Solidago rugosa* var. *rugosa,* and *Symphyotrichum laeve* var. *laeve.*

The non-vascular layer has 3.1% cover comprised of *Aulacomnium palustre* (2.6%) and *Sphagnum palustre* (<1%).

The unvegetated surface has 27.8% cover comprised of litter and duff (22.0%), bare soil (3.0%), muck (2.0%), wood (FWD) <7.5 cm (1.8%), and wood (CWD) >7.5 cm (1.0%).

Figure 17. Red maple-blackgum swamp in Parcel 7 (07.01).

Palustrine Cultural

18. Reed grass marsh

Table 16. Reed grass marsh Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
37.04	3	66.67	33.33	3.33	0.77	5.77	1.33	8/31/2021	F21EDI34NYUS

The vine layer (1.5 m) has 30% cover of *Toxicodendron radicans* ssp. *radicans*. The herbaceous layer (4 m) has 96% cover comprised of *Phragmites australis* (95.0%) and *Hibiscus moscheutos* (1.0%).

Figure 18. Reed grass marsh in Parcel 37 (37.04).

Terrestrial System

Open Uplands

19. Maritime bluff

Table 17. Maritime bluff Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
05.01	10	80.00	20.00	2.60	2.21	8.22	6.98	9/13/2021	F21EDI38NYUS

Highest Weighted FQI Score highlighted in green.

The short shrub layer (1.5 m) has 5% cover of *Morella caroliniensis*. The dwarf shrub layer (0.5 m) has 4% cover. The most abundant shrubs are *Rosa rubiginosa* (2.0%), *Rubus flagellaris* (1.0%), and *Morella caroliniensis* (1.0%).

The short vine layer (0.8 m) has 11% cover comprised of *Lonicera japonica* (10.0%) and *Toxicodendron radicans* ssp. *radicans* (1.0%).

The herbaceous layer (0.8 m) has 25% cover. The most abundant herbs are *Solidago sempervirens* (12.0%), *Erigeron canadensis* var. *canadensis* (10.0%), *Panicum* sp. (2.0%), *Achillea millefolium* (1.0%), *Linaria canadensis* (1.0%), and *Carex silicea* (<1%).

The unvegetated surface has 98% cover comprised of small rocks <10 cm (50.0%), sand <2 mm (40.0%), large rocks >10 cm (5.0%), and very large rocks >1 m (3.0%).

Figure 19. Maritime bluff in Parcel 5: Treasure Pond (05.01).

20. Maritime dunes

Table 18. Maritime dunes Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
38.01	2	100.00	0.00	8.00	8.00	11.31	11.31	9/17/2021	F21EDI42NYUS
38.04	5	100.00	0.00	4.60	6.94	10.29	15.52	9/17/2021	F21EDI42NYUS
26.01e	5	60.00	0.00	3.20	8.00	7.16	17.89	10/1/2021	F21EDI47NYUS

Highest Weighted FQI Score highlighted in green.

The short vine layer (0.2 m) has 1.7% cover of *Parthenocissus quinquefolia* (1.7%).

The herbaceous layer (1 m) has 75.7% cover. The most abundant herbs are *Calamagrostis breviligulata* (61.7%), *Sporobolus pumilus* (10.0%), and *Solidago sempervirens* (3.3%). The following herbs have <1% cover each: *Lathyrus japonicus* var. *maritimus, Xanthium strumarium* var. *strumarium, Raphanus raphanistrum* ssp. *raphanistrum, Erigeron canadensis* var. *canadensis.*

The unvegetated surface has 69% cover comprised of sand <2 mm (65.7%), litter and duff (15.0%), and wood (CWD) >7.5 cm (<1%).

Figure 20. Maritime dunes in Parcel 38 (38.01) face W.

21. Maritime rocky beach - sparsely vegetated to unvegetated

Table 19. Maritime rocky beach - sparsely vegetated to unvegetated Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
25.10	6	33.33	0.00	2.33	2.67	5.72	6.54	9/29/2021	F21EDI45NYUS
29.03	4	100.00	0.00	5.50	4.60	11.00	9.20	9/15/2021	F21EDI40NYUS
38b.01	1	100.00	0.00	9.00	9.00	9.00	9.00	9/17/2021	F21EDI42NYUS
26.01d	1	100.00	0.00	8.00	8.00	8.00	8.00	10/1/2021	F21EDI47NYUS

Highest Weighted FQI Score highlighted in green.

The short shrub layer (0.7 m) has <1% cover of *Iva frutescens* and *Baccharis halimifolia.*

The short vine layer has <1% cover of *Solanum dulcamara* and *Fallopia scandens.*

The herbaceous layer (0.2 m) has 2.4% cover. The most abundant herb is *Solidago sempervirens* (1.6%). The following herbs have <1% cover each: *Distichlis spicata, Lathyrus japonicus* var. *maritimus, Raphanus raphanistrum* ssp. *raphanistrum, Sonchus oleraceus, Panicum virgatum,* and *Atriplex patula.*

The unvegetated surface has 98.6% cover comprised of large rocks >10 cm (50.0%), small rocks <10 cm (25.0%), very large rocks >1 m (13.0%), wood (CWD) >7.5 cm (4.2%), wood (FWD) <7.5 cm (3.4%), shells (3.0%), wrack (2.2%), and trash (<1%).

Figure 21. Maritime rocky beach at point 37.03a facing west on Fishers Island.

22. Maritime rocky beach - vegetated

Table 20. Maritime rocky beach – vegetated Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
03.02	8	87.50	12.50	5.50	5.22	15.56	14.75	9/17/2021	F21EDI42NYUS
25.02	3	66.67	0.00	4.67	6.56	8.08	11.37	9/29/2021	F21EDI45NYUS
43.03	15	60.00	13.33	3.27	3.43	12.65	13.28	9/13/2021	F21EDI38NYUS
29.05a	8	62.50	25.00	3.25	4.47	9.19	12.64	9/15/2021	F21EDI40NYUS
38b.02	8	62.50	25.00	2.75	5.09	7.78	14.41	9/17/2021	F21EDI42NYUS

Highest Weighted FQI Score highlighted in green.

The tree sapling layer (2.5 m) has 1% cover of *Prunus serotina* var. *serotina.* The tall tree seedling layer (1.1 m) has <1% cover of *Prunus serotina* var. *serotina.*

The short shrub layer (1.1 m) has 12.8% cover. The most abundant shrubs are *Rosa rugosa* (6.4%), *Morella caroliniensis* (2.6%), *Lonicera morrowii* (2.0%), *Baccharis halimifolia* (1.8%), and *Rhus copallinum* var. *copallinum* (<1%). The dwarf shrub layer (0.4 m) has 1.8% cover. The most abundant shrubs are *Rosa rugosa* (1.4%), *Rubus allegheniensis* (<1%), and *Rhus copallinum* var. *copallinum* (<1%).

The short vine layer (0.3 m) has 7.4% cover comprised of *Toxicodendron radicans* ssp. *radicans* (6.2%), *Fallopia scandens* (1.0%), and *Ampelopsis glandulosa* (<1%).

The herbaceous layer (0.5 m) has 31.2% cover. The most abundant herbs are *Sporobolus pumilus* (9.0%), *Solidago sempervirens* (8.4%), *Lathyrus japonicus* var. *maritimus* (7.2%), *Atriplex* sp. (1.8%), *Elymus* sp. (1.0%), and *Sporobolus alterniflorus* (1.0%). The following herbs have <1% cover each: *Calamagrostis breviligulata, Panicum virgatum, Nipponanthemum nipponicum, Raphanus raphanistrum, Chenopodium* sp., *Dichanthelium* sp., *Persicaria* sp., *Ambrosia artemisiifolia, Sonchus* sp., *Verbascum thapsus,* and *Xanthium strumarium.*

The unvegetated surface has 76.8% cover comprised of large rocks >10 cm (33.6%), small rocks <10 cm (28.0%), very large rocks >1 m (12.6%), wood (CWD) >7.5 cm (2.8%), wrack (<1%), trash (<1%), and wood (FWD) <7.5 cm (<1%).

Figure 22. Maritime rocky beach (vegetated) at point 38b.02 facing east on Fishers Island.

23. Maritime sand beach

Table 21. Maritime sand beach Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
26.01d	1	100.00	0.00	8.00	8.00	2.83	2.83	8/2/2022	F22EDI18NYUS
43.02*	0	0	0	0	0	0	0	9/13/2021	F21EDI38NYUS

*unvegetated; Highest Weighted FQI Score highlighted in green.

The beach is typically unvegetated or very sparsely vegetated (<10%). The following herbs may be present with <1% each: *Calamagrostis breviligulata, Atriplex patula,* and *Honckenya peploides*. The unvegetated surface has 100% cover comprised of sand <2 mm (99.5%) and wrack (2.5%).

Figure 23. Maritime sand beach at point 43.02 facing west on Fishers Island.

24. Maritime shrubland

Table 22. Maritime shrubland Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
02.02	8	87.50	12.50	3.63	6.03	10.25	17.04	9/2/2021	F21EDI36NYUS
03.03	9	66.67	33.33	3.22	4.32	9.67	12.94	9/17/2021	F21EDI42NYUS
20.23	10	90.00	10.00	4.00	5.69	12.65	17.99	9/1/2021	F21EDI35NYUS
20.27	9	77.78	22.22	3.00	4.96	9.00	14.88	9/1/2021	F21EDI35NYUS
23.02	11	81.82	18.18	3.36	4.24	11.16	14.07	9/13/2021	F21EDI38NYUS
25.06	12	75.00	25.00	3.25	2.39	11.26	8.29	9/29/2021	F21EDI45NYUS
25.09	6	100.00	0.00	5.67	6.59	13.88	16.15	9/29/2021	F21EDI45NYUS
29.06	12	75.00	16.67	3.83	5.21	13.28	18.05	9/15/2021	F21EDI40NYUS
37.02	12	83.33	16.67	2.83	4.09	9.82	14.16	8/31/2021	F21EDI34NYUS
37.05	15	73.33	26.67	3.00	3.22	11.62	12.47	8/3/2022	F22EDI19NYUS
38.03	5	60.00	40.00	3.40	5.87	7.60	13.13	9/17/2021	F21EDI42NYUS
38.05	12	66.67	25.00	2.92	4.63	10.10	16.05	9/17/2021	F21EDI42NYUS
43.04	14	78.57	21.43	3.86	3.68	14.43	13.78	9/13/2021	F21EDI38NYUS
26.01f	2	0.00	100.00	0.00	0.00	0.00	0.00	10/1/2021	F21EDI47NYUS
29.05b	6	50.00	50.00	1.83	0.37	4.49	0.90	9/15/2021	F21EDI40NYUS
CC2.03b	9	44.44	33.33	1.67	1.45	5.00	4.35	8/30/2021	F21EDI33NYUS
CC2.05 (dup)	9	66.67	33.33	3.44	2.10	10.33	6.30	9/16/2021	F21EDI41NYUS

Highest Weighted FQI Score highlighted in green.

The tree sapling layer (3.8 m) has 6.5% cover. The most abundant saplings are *Prunus serotina* var. *serotina* (5.6%), *Juniperus virginiana* var. *virginiana* (<1%), and *Quercus velutina* (<1%). The tall tree seedling layer (1.4 m) has 3.5% cover. The most abundant seedlings are *Prunus serotina* var. *serotina* (2.8%), *Juniperus virginiana* var. *virginiana* (<1%), *Quercus velutina* (<1%), and *Frangula alnus* (<1%). The short tree seedling layer (0.4 m) has <1% cover of *Prunus serotina* var. *serotina, Juniperus virginiana* var. *virginiana, Quercus alba,* and *Quercus velutina.*

The tall shrub layer (2.9 m) has 40.6% cover. The most abundant shrubs are *Morella caroliniensis* (12.4%), *Rosa rugosa* (8.2%), *Lonicera morrowii* (8.1%), *Baccharis halimifolia* (5.8%), *Clethra alnifolia* (2.4%), *Rhus typhina* (1.6%), *Rhus copallinum* var. *copallinum* (1.1%), *Viburnum dentatum* var. *lucidum* (<1%), and *Rhus glabra* (<1%).

The short shrub layer (1.3 m) has 30.9% cover. The most abundant shrubs are *Morella caroliniensis* (15.0%), *Rosa rugosa* (5.7%), *Baccharis halimifolia* (4.6%), *Lonicera morrowii* (2.6%), and *Clethra alnifolia* (1.2%). The following shrubs have <1% cover each: *Rhus copallinum* var. *copallinum, Iva frutescens, Rubus allegheniensis, Viburnum dentatum* var. *lucidum,* and *Sambucus nigra* ssp. *canadensis.*

The dwarf shrub layer (0.4 m) has 6.6% cover. The most abundant shrub is *Morella caroliniensis* (3.3%). The following shrubs have <1% cover each: *Rhus copallinum* var. *copallinum Rosa rugosa, Rubus flagellaris, Lonicera morrowii, Rubus allegheniensis, Clethra alnifolia, Viburnum dentatum* var. *lucidum,* and *Prunus maritima.*

The vine layer (1.7 m) has 20.2% cover. The most abundant vines are *Smilax glauca* (5.1%), *Toxicodendron radicans* ssp. *radicans* (4.1%), *Celastrus orbiculatus* (4.0%), *Lonicera japonica* (2.6%), *Smilax rotundifolia* (2.6%), *Parthenocissus quinquefolia* (1.3%), *Ampelopsis glandulosa* (<1%), and *Clematis virginiana*

(<1%). The short vine layer (1 m) has 8.1% cover. The most abundant vines are *Celastrus orbiculatus* (2.9%), *Lonicera japonica* (2.4%), *Toxicodendron radicans* ssp. *radicans* (2.4%), *Parthenocissus quinquefolia* (<1%), and *Clematis virginiana* (<1%).

The herbaceous layer (1.1 m) has 7.7% cover. The most abundant herbs are *Solidago sempervirens* (1.9%), *Phragmites australis* (1.5%), and *Panicum virgatum* (1.2%). The following herbs have <1% cover each: *Solidago rugosa* var. *rugosa, Dichanthelium clandestinum, Suaeda maritima* ssp. *maritima, Sporobolus pumilus, Schizachyrium scoparium* var. *scoparium, Atriplex* sp., *Elymus* sp., *Raphanus raphanistrum* ssp. *raphanistrum, Gnaphalium uliginosum, Sonchus arvensis* ssp. *arvensis, Achillea millefolium, Erigeron canadensis* var. *canadensis, Eurybia divaricata,* and *Artemisia vulgaris.*

The unvegetated surface has 13.6% cover comprised of litter and duff (7.5%), large rocks >10 cm (5.3%), wood (CWD) >7.5 cm (<1%), wood (FWD) <7.5 cm (<1%), sand <2 mm (<1%), and small rocks <10 cm (<1%).

Figure 24. Maritime shrubland in Parcel 03 (03.03).

25. Semi-natural-grassland (Andropogon gerardi)

Table 23. Semi-natural-grassland (Andropogon gerardi) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
20.30	14	78.57	14.29	3.14	4.52	11.76	16.90	9/1/2021	F21EDI35NYUS
20.33	15	93.33	6.67	3.67	4.87	14.20	18.85	9/1/2021	F21EDI35NYUS
HAV.01	13	92.31	7.69	4.31	5.50	15.53	19.81	8/5/2022	F22EDI21NYUS

Highest Weighted FQI Score highlighted in green.

The tall tree seedling layer (1.4 m) has 3.5% cover comprised of *Carya glabra* (2.0%), *Quercus velutina* (1.0%), and *Prunus serotina* var. *serotina* (<1%). The short tree seedling layer (0.5 m) has 1.5% cover comprised of *Quercus velutina* (1.0%) and *Carya glabra* (<1%).

The short shrub layer (1.3 m) has 9.8% cover. The most abundant shrubs are *Morella caroliniensis* (4.0%), *Rhus copallinum* var. *copallinum* (3.8%), *Rhus typhina* (1.8%), and *Viburnum dentatum* var. *lucidum* (<1%). The dwarf shrub layer (0.4 m) has 9.5% cover. The most abundant shrubs are *Rubus flagellaris* (2.8%), *Morella caroliniensis* (2.5%), *Rhus copallinum* var. *copallinum* (2.0%), *Viburnum dentatum* var. *lucidum* (2.0%), and *Rhus typhina* (<1%).

The short vine layer (0.3 m) has 19.3% cover comprised of *Lonicera japonica* (15.0%), *Celastrus orbiculatus* (3.8%), and *Clematis virginiana* (<1%).

The herbaceous layer (1.6 m) has 80% cover. The most abundant herbs are *Andropogon gerardi* (41.3%), *Solidago canadensis* var. *canadensis* (8.8%), *Panicum virgatum* (7.8%), *Schizachyrium scoparium* var. *scoparium* (6.3%), *Solidago rugosa* var. *rugosa* (4.5%), *Dichanthelium clandestinum* (3.8%), *Sorghastrum nutans* (3.3%), *Cyperus grayi* (1.3%), *Phleum pratense* ssp. *pratense* (1.3%), and *Euthamia graminifolia* (1.3%). The following herbs have <1% cover each: *Eupatorium hyssopifolium, Agrostis capillaris, Erigeron canadensis* var. *canadensis, Asclepias tuberosa, Daucus carota,* and *Eutrochium dubium.*

Figure 25. Semi-natural grassland (Andropogon gerardi) in Parcel 20: Matty Matthiessen Wildlife Sanctuary (20.33) face S.

26. Semi-natural-grassland (Panicum virgatum)

Table 24. Semi-natural-grassland (Panicum virgatum) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
20.01	14	85.71	7.14	3.86	4.84	14.43	18.13	9/1/2021	F21EDI35NYUS
20.03	13	92.31	0.00	3.08	2.27	11.09	8.18	9/1/2021	F21EDI35NYUS
20.04	10	90.00	10.00	3.40	3.73	10.75	11.78	9/1/2021	F21EDI35NYUS
20.07	11	100.00	0.00	2.09	2.89	6.94	9.58	9/1/2021	F21EDI35NYUS
20.08	14	92.86	0.00	3.64	4.50	13.63	16.85	9/1/2021	F21EDI35NYUS
20.09	9	100.00	0.00	4.44	4.34	13.33	13.01	9/1/2021	F21EDI35NYUS
20.10	12	100.00	0.00	3.33	3.60	11.55	12.48	9/1/2021	F21EDI35NYUS
20.11	9	88.89	0.00	3.00	2.62	9.00	7.87	9/1/2021	F21EDI35NYUS
20.12	10	70.00	20.00	2.60	3.30	8.22	10.45	9/1/2021	F21EDI35NYUS
20.13	11	81.82	18.18	3.27	3.10	10.85	10.28	9/1/2021	F21EDI35NYUS
20.14	10	70.00	20.00	2.00	2.69	6.33	8.51	9/1/2021	F21EDI35NYUS
20.20 ref	-	-	-	-	-	-	-	9/1/2021	F21EDI35NYUS
20.26	9	100.00	0.00	4.22	2.93	12.67	8.80	9/1/2021	F21EDI35NYUS
16b.01	7	85.71	0.00	3.57	4.13	9.45	10.94	8/31/2021	F21EDI34NYUS
35b.01	14	71.43	21.43	2.36	2.59	8.82	9.68	9/2/2021	F21EDI36NYUS

Highest Weighted FQI Score highlighted in green.

The tall tree seedling layer (1.3 m) has <1% cover of *Prunus serotina* var. *serotina*. The short tree seedling layer (0.3 m) has <1% cover of *Prunus serotina* var. *serotina*.

The short shrub layer (1.2 m) has 10.6% cover. The most abundant shrubs are *Rhus copallinum* var. *copallinum* (6.0%), *Rhus typhina* (1.8%), and *Viburnum dentatum* var. *lucidum* (1.2%). The following shrubs have <1% cover each: *Morella caroliniensis, Rhus glabra, Baccharis halimifolia, Frangula alnus,* and *Rosa palustris*. The dwarf shrub layer (0.4 m) has 9.4% cover. The most abundant shrubs are *Rubus flagellaris* (5.1%) and *Rhus copallinum* var. *copallinum* (2.7%). The following shrubs have <1% cover each: *Morella caroliniensis, Rhus typhina, Rubus allegheniensis, Rosa carolina* ssp. *carolina,* and *Rhus glabra.*

The short vine layer (0.3 m) has 8.7% cover. The most abundant vines are *Lonicera japonica* (6.4%) and *Clematis virginiana* (1.1%). The following vines have <1% cover each: *Apios americana, Toxicodendron radicans* ssp. *radicans,* and *Celastrus orbiculatus.*

The herbaceous layer (1.5 m) has 83.1% cover. The most abundant herbs are *Panicum virgatum* (51.4%), *Solidago rugosa* var. *rugosa* (8.3%), *Solidago canadensis* var. *canadensis* (7.1%), *Dichanthelium clandestinum* (5.1%), *Eutrochium dubium* (3.8%), *Agrostis capillaris* (2.6%), *Sorghastrum nutans* (2.5%), and *Euthamia graminifolia* (2.1%). The following herbs have <1% cover each: *Ambrosia artemisiifolia, Eupatorium perfoliatum, Schizachyrium scoparium* var. *scoparium, Iris prismatica, Potentilla canadensis, Achillea millefolium, Cirsium* sp., *Eupatorium hyssopifolium, Dichanthelium* sp., *Andropogon gerardi, Erigeron canadensis* var. *canadensis, Thelypteris palustris* var. *pubescens, Daucus carota, Asclepias incarnata* ssp. *pulchra, Sonchus arvensis* ssp. *arvensis, Solidago juncea, Apocynum cannabinum, Thalictrum pubescens, Osmundastrum*

cinnamomeum var. *cinnamomeum, Rudbeckia hirta, Eupatorium pilosum, Symphyotrichum ericoides,* and *Symphyotrichum dumosum.*

Figure 26. Semi-natural grassland (Panicum virgatum) in Parcel 20: Matty Matthiessen Wildlife Sanctuary (20.34).

27. Successional old field

Table 25. Successional old field Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
08.01	10	90.00	10.00	3.40	2.39	10.75	7.56	8/4/2022	F22EDI20NYUS
20.05	9	88.89	11.11	2.89	3.05	8.67	9.16	9/1/2021	F21EDI35NYUS
22.04	8	62.50	0.00	2.25	1.67	6.36	4.71	8/2/2022	F22EDI18NYUS
56.01	10	70.00	20.00	1.60	0.54	5.06	1.72	8/30/2021	F21EDI33NYUS
16a.01	11	54.55	18.18	1.91	2.44	6.33	8.10	8/31/2021	F21EDI34NYUS
53b.01	26	53.85	23.08	1.46	2.78	7.45	14.19	8/31/2021	F21EDI34NYUS

Highest Weighted FQI Score highlighted in green.

The tall tree seedling layer (1.2 m) has 3.2% cover comprised of *Frangula alnus* (3.0%) and *Prunus serotina* var. *serotina* (<1%). The short tree seedling layer (0.5 m) has 1.2% cover of *Frangula alnus.*

The short shrub layer (1.1 m) has 12.2% cover comprised of *Rhus copallinum* var. *copallinum* (12.0%), *Viburnum dentatum* var. *lucidum* (<1%), and *Lonicera morrowii* (<1%). The dwarf shrub layer (0.4 m) has 20.6% cover. The most abundant shrubs are *Rubus flagellaris* (11.4%), *Rhus copallinum* var. *copallinum* (7.2%), *Ligustrum vulgare* (1.0%), *Hudsonia tomentosa* (<1%), and *Morella caroliniensis* (<1%).

The vine layer (1 m) has 8.4% cover. The most abundant vines are *Ampelopsis glandulosa* (7.0%), *Lonicera japonica* (1.0%), and *Celastrus orbiculatus* (<1%). The short vine layer (0.4 m) has 20.2% cover. The most abundant vines are *Lonicera japonica* (13.0%), *Clematis virginiana* (2.0%), *Smilax rotundifolia*

(2.0%), *Celastrus orbiculatus* (1.0%), *Toxicodendron radicans* ssp. *radicans* (1.0%), *Parthenocissus quinquefolia* (1.0%), and *Vincetoxicum nigrum* (<1%).

The herbaceous layer (1.1 m) has 48.2% cover. The most abundant herbs are *Agrostis capillaris* (7.0%), *Solidago canadensis* var. *canadensis* (6.0%), *Ambrosia artemisiifolia* (5.0%), *Panicum virgatum* (4.8%), *Andropogon gerardi* (4.0%), *Solidago juncea* (3.0%), *Schizachyrium scoparium* var. *scoparium* (3.0%), unknown grass (3.0%), *Dichanthelium clandestinum* (2.4%), *Solidago rugosa* var. *rugosa* (2.2%), *Phleum pratense* ssp. *pratense* (2.0%), *Dactylis glomerata* (2.0%), *Anthoxanthum odoratum* (1.0%), and *Bromus inermis* (1.0%). The following herbs have <1% cover each: *Eutrochium dubium, Euthamia graminifolia, Setaria viridis* var. *viridis, Vicia cracca, Asclepias syriaca, Erigeron canadensis* var. *canadensis, Daucus carota, Hypericum perforatum* ssp. *perforatum, Cirsium* sp., *Persicaria lapathifolia, Cyperus strigosus, Lechea* sp., *Oenothera biennis, Oxalis stricta, Trifolium pratense,* and *Pseudognaphalium obtusifolium.*

The non-vascular layer has 2% cover of *Ceratodon purpureus.*

Figure 27. Successional old field succeeding to successional shrubland (Rhus copallinum) in Parcel 53a face SE (2022).

28. Successional old field (Schizachyrium scoparium)

Table 26. Successional old field (Schizachyrium scoparium) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
32.01	12	66.67	25.00	2.50	3.44	8.66	11.90	9/2/2021	F21EDI36NYUS
CC2.05	8	75.00	25.00	3.00	3.91	8.49	11.06	8/30/2021	F21EDI33NYUS
CC2.07 (dup)	11	81.82	18.18	3.36	3.51	11.16	11.63	9/16/2021	F21EDI41NYUS
E05.03	19	78.95	10.53	3.37	2.91	14.68	12.69	8/4/2022	F22EDI20NYUS

Highest Weighted FQI Score highlighted in green.

The tall tree seedling layer (0.9 m) has 5.5% cover comprised of *Prunus serotina* var. *serotina* (5.0%) and *Frangula alnus* (<1%). The short tree seedling layer (0.4 m) has 6.5% cover. The most abundant seedlings are *Prunus serotina* var. *serotina* (4.0%) and *Frangula alnus* (1.5%) The following tree seedlings

have <1% cover each: *Quercus velutina, Juniperus virginiana, Pinus thunbergii, Carya glabra,* and *Juniperus virginiana* var. *virginiana.*

The short shrub layer (0.9 m) has 6.3% cover comprised of *Rhus copallinum* var. *copallinum* (5.0%), *Viburnum dentatum* var. *lucidum* (<1%), and *Morella caroliniensis* (<1%). The dwarf shrub layer (0.3 m) has 28.8% cover. The most abundant shrubs are *Rubus flagellaris* (13.8%), *Rhus copallinum* var. *copallinum* (7.5%), *Frangula alnus* (2.5%), *Lonicera morrowii* (<1%), and *Viburnum dentatum* var. *lucidum* (<1%).

The short vine layer (0.2 m) has 7% cover comprised of *Lonicera japonica* (6.3%), *Celastrus orbiculatus* (<1%), *Smilax glauca* (<1%), and *Clematis virginiana* (<1%).

The herbaceous layer (1 m) has 71% cover. The most abundant herbs are *Schizachyrium scoparium* var. *scoparium* (61.3%), *Agrostis capillaris* (3.3%), *Juncus greenei* (2.5%), *Eupatorium hyssopifolium* (1.3%), and *Solidago rugosa* var. *rugosa* (1.0%). The following herbs have <1% cover each: *Panicum virgatum, Eupatorium pilosum, Nabalus trifoliolatus, Euthamia graminifolia, Solidago nemoralis, Dichanthelium* sp., *Dichanthelium columbianum, Cyperus grayi, Erigeron canadensis* var. *canadensis, Sonchus arvensis* ssp. *arvensis.*

The unvegetated surface has 5.3% cover comprised of bare soil (5.0%), wood (FWD) <7.5 cm (<1%), and sand <2 mm (<1%).

Figure 28. Successional old field succeeding to successional shrubland (Rhus copallinum) in Parcel 53b (53b.01).

29. Successional shrubland

Table 27. Successional shrubland Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
33.06	6	83.33	16.67	3.83	2.09	9.39	5.11	9/30/2021	F21EDI46NYUS
54.01	18	77.78	16.67	2.83	3.14	12.02	13.33	8/31/2021	F21EDI34NYUS
E01.01	5	40.00	60.00	1.40	0.57	3.13	1.28	8/4/2022	F22EDI20NYUS
E08a.04	6	33.33	66.67	1.33	0.56	3.27	1.38	9/30/2021	F21EDI46NYUS
E08b.02a	10	30.00	70.00	1.90	0.63	6.01	1.99	9/17/2021	F21EDI42NYUS
HAV.02	10	80.00	20.00	3.30	2.33	10.44	7.38	8/5/2022	F22EDI21NYUS

Highest Weighted FQI Score highlighted in green.

The tree sapling layer (2.8 m) has 2.9% cover. The most abundant sapling is *Prunus serotina* var. *serotina* (1.5%). The following saplings have <1% cover each: *Acer rubrum* var. *rubrum, Quercus velutina,* and *Juniperus virginiana* var. *virginiana*. The tall tree seedling layer (1.4 m) has <1% cover of *Prunus serotina* var. *serotina*. The short tree seedling layer (0.5 m) has <1% cover comprised of *Prunus serotina* var. *serotina* and *Frangula alnus*.

The tall shrub layer (4 m) has 38.9% cover. The most abundant shrubs are *Lonicera morrowii* (20.0%), *Ligustrum vulgare* (8.1%), *Rhus typhina* (5.6%), *Ilex verticillata* (2.5%), *Rosa multiflora* (1.4%), *Viburnum dentatum* var. *lucidum* (1.3%), *Morella caroliniensis* (<1%), and *Frangula alnus* (<1%). The short shrub layer (1.3 m) has 29.5% cover. The most abundant shrubs are *Ilex verticillata* (6.3%), unidentified dead shrubs (6.3%), *Rhus copallinum* var. *copallinum* (5.6%), *Rubus allegheniensis* (5.0%), *Sambucus nigra* ssp. *canadensis* (2.5%), *Lonicera morrowii* (1.9%), and *Rhus typhina* (1.3%). The following shrubs have <1% cover each: *Morella caroliniensis, Viburnum dentatum* var. *lucidum, Frangula alnus,* and *Rhus glabra*. The dwarf shrub layer (0.4 m) has 3.4% cover. The most abundant shrubs are *Rhus copallinum* var. *copallinum* (1.3%), *Morella caroliniensis* (<1%), *Rhus typhina* (<1%), and *Rubus flagellaris* (<1%).

The tall vine layer (2.7 m) has 51.9% cover. The most abundant vines are *Lonicera japonica* (43.8%), *Ampelopsis glandulosa* (7.5%), and *Celastrus orbiculatus* (<1%). The short vine layer (1.2 m) has 18.3% cover. The most abundant vines are *Lonicera japonica* (8.8%), *Celastrus orbiculatus* (3.8%), *Parthenocissus quinquefolia* (2.5%), *Smilax rotundifolia* (1.9%), *Toxicodendron radicans* ssp. *radicans* (<1%), and *Smilax glauca* (<1%).

The herbaceous layer (0.8 m) has 5.6% cover. The most abundant herb is *Schizachyrium scoparium* var. *scoparium* (2.5%). The following herbs have <1% cover each: *Impatiens capensis, Agrostis capillaris, Eutrochium dubium, Onoclea sensibilis, Dryopteris carthusiana, Solidago juncea, Solidago nemoralis* ssp. *nemoralis, Nabalus trifoliolatus, Achillea millefolium,* and *Solidago rugosa* var. *rugosa*.

Figure 29. Successional shrubland in Parcel E08a (E08a.04) covered with Japanese honeysuckle (Lonicera japonica).

Figure 30. Successional shrubland in Haver Parcel (HAV.02).

30. Successional shrubland (Rhus copallinum)

Table 28. Successional shrubland (Rhus copallinum) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
20.21	9	77.78	11.11	2.89	3.64	8.67	10.92	9/1/2021	F21EDI35NYUS
20.22	8	75.00	12.50	2.63	3.15	7.43	8.92	9/1/2021	F21EDI35NYUS
20.32	13	84.62	15.39	3.31	5.08	11.93	18.31	9/1/2021	F21EDI35NYUS

Highest Weighted FQI Score highlighted in green.

The short shrub layer (0.9 m) has 46% cover. The most abundant shrubs are *Rhus copallinum* var. *copallinum* (38.3%), *Morella caroliniensis* (7.3%), and *Rhus typhina* (<1%). The dwarf shrub layer (0.3 m) has 32.3% cover. The most abundant shrubs are *Rubus flagellaris* (16.7%), *Rhus copallinum* var. *copallinum* (10.0%), *Morella caroliniensis* (4.0%), and *Rhus glabra* (1.7%).

The short vine layer (0.3 m) has 11.7% cover comprised of *Celastrus orbiculatus* (8.3%) and *Lonicera japonica* (3.3%).

The herbaceous layer (0.8 m) has 43% cover. The most abundant herbs are *Agrostis capillaris* (18.3%), *Panicum virgatum* (8.3%), *Solidago canadensis* var. *canadensis* (5.0%), *Schizachyrium scoparium* var. *scoparium* (2.0%), and *Andropogon gerardi* (1.7%). The following herbs have <1% cover: *Eupatorium hyssopifolium, Solidago rugosa* var. *rugosa, Sorghastrum nutans, Dichanthelium clandestinum, Asclepias tuberosa, Apocynum cannabinum,* and *Achillea millefolium.*

Figure 31. Successional shrubland (Rhus copallinum) in Parcel 20: Matty Matthiessen Wildlife Sanctuary (20.22) face S.

31. Successional vineland

Table 29. Successional vineland

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
22.02	1	100.00	0.00	4.00	4.00	4.00	4.00	8/2/2022	F22EDI18NYUS
30.03	5	40.00	60.00	0.60	0.00	1.34	0.00	9/3/2021	F21EDI37NYUS
46.02	2	100.00	0.00	4.00	4.00	5.66	5.66	9/3/2021	F21EDI37NYUS
04.13b	2	100.00	0.00	3.50	3.94	4.95	5.57	8/2/2022	F22EDI18NYUS

Highest Weighted FQI Score highlighted in green.

The short shrub layer has *Rubus allegheniensis* as the most abundant species.

The tall vine layer (3-8 m) has 51.3% cover. The most abundant vines are *Smilax rotundifolia* (33.8%), *Ampelopsis glandulosa* (17.5%), and *Lonicera japonica* (5.0%). The short vine layer (1.5 m) has 21.3% cover comprised of *Smilax rotundifolia* (20.0%) and *Toxicodendron radicans* ssp. *radicans* (1.3%).

The herbaceous layer (1 m) has 10% cover. The most abundant herbs are *Dennstaedtia punctilobula* (10.0%), *Phytolacca americana* var. *americana* (1.3%), and *Artemisia vulgaris* (<1%).

The unvegetated surface has 23.8% cover of litter and duff.

Figure 32. Successional vineland in Parcel 46 (46.02) face S uphill.

Forested Uplands

32. Coastal oak-beech forest

Table 30. Coastal oak-beech forest Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
04.05	19	94.74	5.26	5.42	6.87	23.63	29.94	9/27/2021	F21EDI43NYUS

Highest Weighted FQI Score highlighted in green.

The tree canopy layer (28 m) has 65% cover. The most abundant trees are *Fagus grandifolia* (40.0%), *Quercus velutina* (20.0%), *Betula lenta* (14.0%), *Quercus alba* (8.0%), and *Carya tomentosa* (8.0%). The tree subcanopy layer (14 m) has 37% cover. The most abundant trees are *Fagus grandifolia* (30.0%), *Acer rubrum* var. *rubrum* (6.0%), and *Quercus alba* (5.0%).

The tree sapling layer (4.5 m) has 8% cover. The most abundant saplings are *Fagus grandifolia* (5.0%), *Acer rubrum* var. *rubrum* (2.0%), and *Betula lenta* (1.0%). The tall tree seedling layer (1.2 m) has 4% cover comprised of *Betula lenta* (2.0%) and *Frangula alnus* (2.0%). The short tree seedling layer (0.4 m) has 6% cover. The most abundant seedlings are *Quercus velutina* (2.0%), *Fagus grandifolia* (1.0%), and *Quercus alba* (1.0%). The following seedlings have <1% cover each: *Acer rubrum* var. *rubrum, Amelanchier arborea, Betula lenta, Frangula alnus,* and *Ilex opaca* var. *opaca.*

The tall shrub layer (2.8 m) has 4% cover comprised of *Vaccinium corymbosum* (3.0%) and *Clethra alnifolia* (1.0%). The short shrub layer (1.5 m) has 3% cover comprised of *Vaccinium corymbosum* (2.0%) and *Ilex verticillata* (1.0%). The dwarf shrub layer (0.2 m) has <1% cover of *Viburnum dentatum* var. *lucidum.*

The vine layer (0.9 m) has 1% cover of *Smilax rotundifolia.*

The herbaceous layer has 14% cover. The most abundant herbs are *Dennstaedtia punctilobula* (5.0%), *Thelypteris noveboracensis* (5.0%), *Maianthemum canadense* (2.0%), *Lysimachia quadrifolia* (1.0%), *Carex* sp. (<1%), and *Pyrola elliptica* (<1%).

The non-vascular layer has <1% cover of *Leucobryum glaucum.*

The unvegetated surface has 98% cover comprised of litter and duff (95.0%), wood (FWD) <7.5 cm (7.0%), large rocks >10 cm (3.0%), wood (CWD) >7.5 cm (3.0%), and small rocks <10 cm (2.0%).

Figure 33. Coastal oak-beech forest patch within coastal oak-hickory forest in Parcel 4 (04.05).

Figure 34. Coastal oak-beech forest in Parcel 2: Island Pond Trail in Betty Matthiessen Wildlife Sanctuary (02.05b).

33. Coastal oak-hickory forest

34. Table 31. Coastal oak-hickory forest Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
04.05	19	94.74	5.26	5.42	6.87	23.63	29.94	9/27/2021	F21EDI43NYUS
04.06	23	91.30	8.70	5.39	6.43	25.86	30.83	9/27/2021	F21EDI43NYUS
04.10	22	86.36	13.64	4.86	5.24	22.81	24.59	8/2/2022	F22EDI18NYUS
04.12	16	93.75	6.25	5.13	4.63	20.50	18.51	8/2/2022	F22EDI18NYUS
11.02	16	100.00	0.00	5.50	6.75	22.00	26.98	8/31/2021	F21EDI34NYUS
13.03	17	88.24	11.77	4.65	5.58	19.16	23.02	9/3/2021	F21EDI37NYUS
28.03	12	91.67	8.33	4.83	4.29	16.74	14.86	9/30/2021	F21EDI46NYUS
30.02	9	66.67	33.33	2.56	4.76	7.67	14.27	9/3/2021	F21EDI37NYUS
31.01	7	85.71	14.29	4.14	4.90	10.96	12.98	9/3/2021	F21EDI37NYUS
31.02	12	100.00	0.00	5.33	5.47	18.48	18.93	9/3/2021	F21EDI37NYUS
32.05	23	91.30	8.70	5.22	6.51	25.02	31.21	9/2/2021	F21EDI36NYUS
33.10	13	92.31	7.69	4.46	3.22	16.09	11.59	9/30/2021	F21EDI46NYUS
41.01	17	82.35	17.65	4.12	4.76	16.98	19.62	9/2/2021	F21EDI36NYUS
46.01	12	83.33	16.67	3.92	4.60	13.57	15.94	9/3/2021	F21EDI37NYUS
51.01	13	69.23	30.77	3.15	4.38	11.37	15.81	8/30/2021	F21EDI33NYUS
55.02	21	85.71	14.29	4.7	5.2	21.6	24.0	8/4/2022	F22EDI20NYUS
36a.01	22	90.91	9.09	4.55	4.50	21.32	21.12	9/27/2021	F21EDI43NYUS
36b.01	21	95.24	4.76	5.67	6.04	25.97	27.66	9/28/2021	F21EDI44NYUS

Highest Weighted FQI Score highlighted in green

The tree canopy layer (24.4 m) has 62.2% cover. The most abundant trees are *Quercus velutina* (35.0%), *Acer rubrum* var. *rubrum* (14.8%), *Carya tomentosa* (5.5%), *Nyssa sylvatica* (4.8%), *Carya glabra* (2.8%), *Quercus coccinea* (2.7%), *Prunus serotina* var. serotina (2.3%), *Quercus alba* (2.2%), and *Betula lenta* (1.7%). The following trees have <1% cover each: *Betula alleghaniensis, Carya ovata, Carya cordiformis,* and *Quercus rubra*. The tree subcanopy layer (11.4 m) has 27.6% cover. The most abundant trees are *Acer rubrum* var. *rubrum* (10.8%), *Nyssa sylvatica* (4.8%), *Quercus velutina* (4.8%), *Prunus serotina* var. *serotina* (4.2%), *Carya tomentosa* (2.7%), *Carya glabra* (1.0%). The following trees have <1% cover each: *Amelanchier arborea, Sassafras albidum, Betula lenta, Quercus coccinea, Frangula alnus,* and *Quercus alba.*

The tree sapling layer (3.7 m) has 13.5% cover. The most abundant saplings are *Frangula alnus* (4.1%), *Quercus velutina* (2.1%), *Acer rubrum* var. *rubrum* (1.9%), *Prunus serotina* var. *serotina* (1.3%), *Carya tomentosa* (1.2%), and *Nyssa sylvatica* (1.0%). The following saplings have <1% cover each: *Sassafras albidum, Amelanchier arborea, Quercus alba, Carya ovata* var. *ovata, Carya glabra, Juniperus virginiana* var. *virginiana,* and *Betula lenta.*

The tall tree seedling layer (1.3 m) has 9.8% cover. The most abundant seedlings are *Frangula alnus* (5.4%) and *Quercus velutina* (1.5%). The following seedlings have <1% cover each: *Nyssa sylvatica, Acer rubrum* var. *rubrum, Prunus serotina* var. *serotina, Sassafras albidum, Carya tomentosa, Amelanchier arborea, Pinus strobus, Carya glabra, Quercus alba, Juniperus virginiana* var. *virginiana,* and *Betula lenta.*

The short tree seedling layer (0.4 m) has 6.7% cover. The most abundant seedlings are *Frangula alnus* (2.8%) and *Quercus velutina* (1.1%). The following seedlings have <1% cover each: *Prunus serotina*

var. *serotina, Acer rubrum* var. *rubrum, Carya glabra, Carya tomentosa, Sassafras albidum, Nyssa sylvatica, Amelanchier* sp., *Juniperus virginiana* var. *virginiana, Ilex opaca* var. *opaca, Quercus coccinea,* and *Quercus alba.*

The tall shrub layer (2.9 m) has 9.8% cover. The most abundant shrubs are *Clethra alnifolia* (3.0%), *Viburnum dentatum* var. *lucidum* (2.5%), *Ilex verticillata* (1.5%), and *Vaccinium corymbosum* (1.5%). The following shrubs have <1% cover each: *Cornus racemosa, Frangula alnus, Rubus allegheniensis,* and *Rhus copallinum* var. *copallinum.*

The short shrub layer (1.3 m) has 8.5% cover. The most abundant shrubs are *Clethra alnifolia* (2.4%), *Ilex verticillata* (1.7%), and *Viburnum dentatum* var. *lucidum* (1.5%). The following shrubs have <1% cover each: *Frangula alnus, Lonicera morrowii, Cornus racemosa, Aronia arbutifolia, Ligustrum vulgare, Rubus allegheniensis, Vaccinium corymbosum, Euonymus alatus, Morella caroliniensis,* and *Viburnum dilatatum.*

The dwarf shrub layer (0.3 m) has 5.2% cover. The most abundant shrubs are *Rubus hispidus* (2.2%) and *Clethra alnifolia* (1.1%). The following shrubs have <1% cover each: *Viburnum dentatum* var. *lucidum, Ilex verticillata, Frangula alnus, Rubus pubescens, Ligustrum vulgare, Cornus racemosa, Euonymus alatus, Gaylussacia baccata, Lonicera morrowii, Viburnum dilatatum, Rhus copallinum* var. *copallinum, Morella caroliniensis, Rhododendron periclymenoides,* and *Rubus* sp.

The tall vine layer (2-4.2 m) has 15.2% cover. The most abundant vines are *Smilax rotundifolia* (9.2%), *Toxicodendron radicans* ssp. *radicans* (4.3%), *Parthenocissus quinquefolia* (<1%), *Ampelopsis glandulosa* (<1%), *Lonicera japonica* (<1%), and *Hedera helix* ssp. *helix* (<1%), and *Smilax glauca* (<1%).

The short vine layer (0.3 m) has 11.6% cover. The most abundant vines are *Toxicodendron radicans* ssp. *radicans* (5.4%), *Parthenocissus quinquefolia* (3.2%), *Smilax rotundifolia* (1.8%), *Lonicera japonica* (1.1%), and *Smilax glauca* (<1%).

The herbaceous layer (0.4 m) has 17.2% cover. The most abundant herbs are *Maianthemum canadense* (5.5%), *Eurybia divaricata* (3.4%), *Dennstaedtia punctilobula* (3.2%), and *Dendrolycopodium obscurum* (2.0%). The following herbs have <1% cover each: *Lysimachia borealis, Carex pensylvanica, Solidago rugosa* var. *rugosa, Osmundastrum cinnamomeum* var. *cinnamomeum, Polystichum acrostichoides, Chimaphila maculata, Phytolacca americana* var. *americana, Artemisia vulgaris, Lysimachia quadrifolia, Pyrola elliptica, Monotropa uniflora, Carex swanii, Nabalus trifoliolatus, Hypopitys lanuginosa, Medeola virginiana, Pilosella caespitosa, Hypericum virginicum, Pyrola americana,* and *Thelypteris noveboracensis.*

The non-vascular layer has <1% cover comprised of *Leucobryum glaucum, Thelia hirtella,* and other mosses.

The unvegetated surface has 69.7% cover comprised of litter and duff (63.5%), wood (FWD) <7.5 cm (5.0%), wood (CWD) >7.5 cm (3.7%), very large rocks >1 m (2.6%), large rocks >10 cm (1.6%), and small rocks <10 cm (<1%).

Figure 35. Coastal oak-hickory forest in Parcel 36 (36b.09).

Figure 36. Hickories (Carya spp.) in Parcel 36b (36b .07b).

35. Maritime beech forest

Observation Points: 02.01, 02.03

Table 32. Maritime beech forest Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
02.01	5	80.00	20.00	5.20	7.71	11.63	17.24	9/2/2021	F21EDI36NYUS
02.03	4	100.00	0.00	6.50	7.78	13.00	15.56	9/2/2021	F21EDI36NYUS

Highest Weighted FQI Score highlighted in green.

The tree canopy layer (12 m) has 75% cover comprised of *Fagus grandifolia* (70.0%) and *Quercus velutina* (12.5%). The tree subcanopy layer (6 m) has 10% cover of *Fagus grandifolia*.

The tree sapling layer (3.5 m) has 4.5% cover of *Fagus grandifolia*. The tall tree seedling layer (1.5 m) has 3.5% cover of *Fagus grandifolia*. The short tree seedling layer (0.4 m) has 1.5% cover of *Fagus grandifolia*.

The short shrub layer (1.5 m) has 5% cover of *Clethra alnifolia*. The dwarf shrub layer (0.2 m) has <1% cover of *Frangula alnus*.

The vine layer has 2.5% cover of *Smilax rotundifolia*.

The herbaceous layer has 1% cover comprised of *Epifagus virginiana* (<1%) and *Dennstaedtia punctilobula* (<1%).

The non-vascular layer has 1.5% cover of mosses.

The unvegetated surface has 98% cover comprised of litter and duff (96.5%), wood (FWD) <7.5 cm (7.0%), and wood (CWD) >7.5 cm (<1%).

Figure 37. Maritime beech forest in Parcel 2: Island Pond Trail in Betty Matthiessen Wildlife Sanctuary (02.01).

36. Red maple-blackgum slope forest

Table 33. Red maple-blackgum slope forest Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
17.01	8	100.00	0.00	5.38	6.60	15.20	18.66	9/16/2021	F21EDI41NYUS
23.06	10	100.00	0.00	4.30	4.64	13.60	14.67	9/14/2021	F21EDI39NYUS
23.09	5	100.00	0.00	5.40	6.74	12.08	15.07	9/14/2021	F21EDI39NYUS
24.02	11	90.91	9.09	4.64	5.21	15.38	17.28	8/4/2022	F22EDI20NYUS
39.01	12	83.33	16.67	4.08	5.35	14.15	18.53	9/28/2021	F21EDI44NYUS
49.03	18	77.78	22.22	3.83	4.15	16.26	17.59	9/30/2021	F21EDI46NYUS
50.01	28	89.29	10.71	4.89	5.88	25.89	31.10	8/3/2022	F22EDI19NYUS
36b.05	10	100.00	0.00	6.20	6.28	19.61	19.87	9/28/2021	F21EDI44NYUS
E07a.02	17	64.71	35.29	3.18	4.43	13.10	18.24	8/3/2022	F22EDI19NYUS
E08a.01	13	69.23	30.77	3.00	4.67	10.82	16.83	9/17/2021	F21EDI42NYUS

Highest Weighted FQI Score highlighted in green.

The tree canopy layer (19.8 m) has 58.9% cover. The most abundant trees are *Nyssa sylvatica* (31.5%), *Acer rubrum* var. *rubrum* (21.1%), *Quercus velutina* (10.8%), *Quercus alba* (3.2%), *Prunus serotina* var. *serotina* (1.5%), and *Juniperus virginiana* var. *virginiana* (<1%). The tree subcanopy layer (11.2 m) has 24.4% cover. The most abundant trees are *Nyssa sylvatica* (12.2%), *Acer rubrum* var. *rubrum* (5.5%), *Prunus serotina* var. *serotina* (3.5%), *Sassafras albidum* (2.3%), *Juniperus virginiana* var. *virginiana* (1.5%), *Quercus velutina* (<1%), and *Quercus alba* (<1%).

The tree sapling layer (3.8 m) has 8.7% cover. The most abundant saplings are *Nyssa sylvatica* (5.5%), *Frangula alnus* (1.4%), *Acer rubrum* var. *rubrum* (1.3%), *Quercus velutina* (<1%), and Q*uercus alba* (<1%). The tall tree seedling layer (1.3 m) has 3.7% cover. The most abundant seedlings are *Frangula alnus* (1.9%), *Nyssa sylvatica* (1.1%), *Acer rubrum* var. *rubrum* (<1%), *Prunus serotina* var. *serotina* (<1%), and *Quercus alba* (<1%). The short tree seedling layer (0.3 m) has 1.2% cover. The following seedlings have <1% cover each: *Frangula alnus, Quercus velutina, Quercus alba, Nyssa sylvatica, Prunus serotina* var. *serotina,* and *Acer rubrum* var. *rubrum.*

The tall shrub layer (3.6 m) has 20.8% cover. The most abundant shrubs are *Clethra alnifolia* (16.9%), *Viburnum dentatum* var. *lucidum* (1.5%), and *Vaccinium corymbosum* (1.5%). The following shrubs have <1% cover each: *Ilex verticillata, Rhododendron viscosum,* and *Viburnum dilatatum.* The short shrub layer (1.3 m) has 11.9% cover. The most abundant shrubs are *Clethra alnifolia* (6.3%), *Ligustrum vulgare* (1.7%), *Lonicera morrowii* (1.6%), *Viburnum dentatum* var. *lucidum* (1.2%). The following shrubs have <1% cover each: *Morella caroliniensis, Ilex verticillata, Vaccinium corymbosum,* and *Rosa multiflora.* The dwarf shrub layer (0.3 m) has 4.2% cover. The most abundant shrub is *Clethra alnifolia* (2.7%). The following shrubs have <1% cover each: *Viburnum dentatum* var. *lucidum, Rubus pubescens, Ligustrum vulgare, Morella caroliniensis, Gaylussacia baccata,* and *Lonicera morrowii.*

The tall vine layer (1.5-5.4 m) has 9.9% cover. The most abundant vines are *Smilax rotundifolia* (6.2%), and *Toxicodendron radicans* ssp. *radicans* (2.4%). The following vines have <1% cover each: *Celastrus orbiculatus, Parthenocissus quinquefolia, Smilax glauca,* and *Hedera helix.* The short vine layer (0.5 m) has 18.6% cover. The most abundant vines are *Toxicodendron radicans* ssp. *radicans* (11.8%),

Parthenocissus quinquefolia (2.9%), *Smilax rotundifolia* (2.1%), *Lonicera japonica* (1.1%), and *Celastrus orbiculatus* (<1%).

The herbaceous layer (0.5 m) has 7.8% cover. The most abundant herbs are *Maianthemum canadense* (2.7%), *Dennstaedtia punctilobula* (1.5%), and *Eurybia divaricata* (1.2%). The following herbs have <1% each: *Solidago rugosa* var. *rugosa, Carex pensylvanica, Dryopteris intermedia, Lysimachia borealis, Lysimachia quadrifolia, Osmundastrum cinnamomeum* var. *cinnamomeum, Carex swanii, Dendrolycopodium obscurum, Medeola virginiana, Dryopteris carthusiana, Chimaphila maculata, Viola sagittata,* and *Hypopitys monotropa.*

The non-vascular layer has 5.6% cover comprised of lichens (5.4%) and <1% of white coral fungi (*Ramariopsis kunzei*).

The unvegetated surface has 59.4% cover comprised of litter and duff (55.5%), very large rocks >1 m (3.5%), wood (FWD) <7.5 cm (1.7%), wood (CWD) >7.5 cm (1.2%), and large rocks >10 cm (<1%).

Figure 38. Red maple-blackgum slope forest in Parcel 50 (50.01): Left: face NE; Right: face W.

Table 34. Red maple-blackgum slope forest points with white coral fungi (Ramariopsis kunzei).

Obs. Point	Genus	species	Survey Date	UTM Zone	UTM East	UTM North
02.08 ref	*Ramariopsis*	*kunzei*	10/1/2021	19	249914	4573163
17.01	*Ramariopsis*	*kunzei*	9/16/2021	19	250790	4573873
23.09	*Ramariopsis*	*kunzei*	9/14/2021	19	250952	4573310

37. Successional maritime forest

Table 35. Successional maritime forest Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
10.01	13	84.62	15.39	3.92	3.69	14.15	13.30	9/16/2021	F21EDI41NYUS
17.03	14	71.43	28.57	2.57	2.80	9.62	10.48	9/16/2021	F21EDI41NYUS
19.01	15	66.67	26.67	2.47	3.07	9.55	11.90	10/1/2021	F21EDI47NYUS
19.02	10	90.00	10.00	4.50	5.66	14.23	17.90	10/1/2021	F21EDI47NYUS
20.31	15	66.67	33.33	2.47	2.75	9.55	10.63	9/1/2021	F21EDI35NYUS
27.01	12	75.00	25.00	3.58	4.42	12.41	15.32	9/2/2021	F21EDI36NYUS
30.01	10	60.00	40.00	2.00	1.70	6.33	5.38	9/3/2021	F21EDI37NYUS
32.09	10	80.00	20.00	3.60	2.07	11.38	6.56	10/1/2021	F21EDI47NYUS
34.02	23	86.96	13.04	4.52	4.92	21.69	23.58	9/13/2021	F21EDI38NYUS
37.01	7	57.14	42.86	1.71	2.21	4.54	5.85	8/31/2021	F21EDI34NYUS
37.06	11	72.73	27.27	3.27	3.52	10.85	11.67	8/3/2022	F22EDI19NYUS
37.12	6	83.33	16.67	2.00	2.10	4.90	5.14	8/3/2022	F22EDI19NYUS
42.01	14	71.43	28.57	3.07	3.30	11.49	12.34	9/2/2021	F21EDI36NYUS
43.06	9	77.78	22.22	1.67	1.42	5.00	4.25	9/13/2021	F21EDI38NYUS
47.01	17	76.47	23.53	3.41	3.96	14.07	16.33	8/30/2021	F21EDI33NYUS
56.02	11	36.36	63.64	1.09	1.49	3.62	4.93	8/30/2021	F21EDI33NYUS
16a.02	14	71.43	28.57	3.50	2.81	13.10	10.51	8/31/2021	F21EDI34NYUS
21a.01	13	61.54	38.46	3.31	3.56	11.93	12.84	9/2/2021	F21EDI36NYUS
25.07a	6	66.67	16.67	2.33	2.71	5.72	6.63	9/29/2021	F21EDI45NYUS
CC1.02	15	60.00	40.00	2.00	2.56	7.75	9.92	9/16/2021	F21EDI41NYUS
E01.03	14	71.43	21.43	2.64	2.66	9.89	9.95	8/4/2022	F22EDI20NYUS
E07b.01	14	64.29	35.71	2.36	1.80	8.82	6.75	8/31/2021	F21EDI34NYUS
E08b.03	14	78.57	21.43	3.64	4.22	13.63	15.80	9/17/2021	F21EDI42NYUS

Highest Weighted FQI Score highlighted in green.

The tree canopy layer (13.1 m) has 47.2% cover. The most abundant trees are *Prunus serotina* var. *serotina* (29.9%), *Quercus velutina* (8.3%), *Acer rubrum* var. *rubrum* (6.3%), *Juniperus virginiana* var. *virginiana* (1.4%), and *Robinia pseudoacacia* (1.0%). The following trees have <1% cover each: *Sassafras albidum, Nyssa sylvatica, Quercus alba, Frangula alnus, Amelanchier arborea, Rhus copallinum* var. *copallinum.*

The tree subcanopy layer (7.6 m) has 10.7% cover. The most abundant trees are *Prunus serotina* var. *serotina* (5.0%) and *Acer rubrum* var. *rubrum* (2.8%). The following trees have <1% cover each: *Amelanchier arborea, Quercus velutina, Sassafras albidum, Rhus typhina, Nyssa sylvatica, Robinia pseudoacacia, Juniperus virginiana* var. *virginiana,* and *Amelanchier canadensis* var. *canadensis.*

The tree sapling layer (3.6 m) has 7.7% cover. The most abundant saplings are *Prunus serotina* var. *serotina* (2.9%), *Juniperus virginiana* var. *virginiana* (1.4%), and *Acer rubrum* var. *rubrum* (1.1%). The following saplings have <1% cover each: *Frangula alnus, Quercus velutina, Nyssa sylvatica, Robinia pseudoacacia, Sassafras albidum, Ilex opaca* var. *opaca,* and *Quercus alba.*

The tall tree seedling layer (1.4 m) has 3.1% cover. The most abundant seedling is *Frangula alnus* (1.5%). The following seedlings have <1% cover each: *Prunus serotina* var. *serotina, Juniperus virginiana* var. *virginiana, Sassafras albidum, Quercus velutina, Acer rubrum* var. *rubrum, Quercus alba, Nyssa sylvatica, Fagus grandifolia.*

The short tree seedling layer (0.4 m) has 1.1% cover. The following seedlings have <1% cover each: *Frangula alnus, Quercus velutina, Quercus alba, Prunus serotina* var. *serotina, Acer rubrum* var. *rubrum, Juniperus virginiana* var. *virginiana, Nyssa sylvatica, Fagus grandifolia,* and *Sassafras albidum.*

The tall shrub layer (3.3 m) has 19.3% cover. The most abundant shrubs are *Ligustrum vulgare* (4.1%), *Rhus copallinum* var. *copallinum* (3.5%), *Viburnum dentatum* var. *lucidum* (3.1%), *Lonicera morrowii* (2.5%), *Morella caroliniensis* (1.4%), *Ilex verticillata* (1.1%), and *Rhus typhina* (1.0%). The following shrubs have <1% cover each: *Rosa multiflora, Vaccinium corymbosum, Rubus allegheniensis, Frangula alnus, Amelanchier canadensis* var. *canadensis, Sambucus nigra* ssp. *canadensis.*

The short shrub layer (1.3 m) has 17.6% cover. The most abundant shrubs are *Lonicera morrowii* (7.1%), *Morella caroliniensis* (3.2%), *Ligustrum vulgare* (3.1%), *Viburnum dentatum* var. *lucidum* (1.4%), *Rhus copallinum* var. *copallinum* (1.2%). The following shrubs have <1% cover each: *Ilex verticillata, Frangula alnus, Vaccinium corymbosum,* and *Rubus allegheniensis.*

The dwarf shrub layer (0.4 m) has 7% cover. The most abundant shrubs are *Morella caroliniensis* (1.8%), *Rubus flagellaris* (1.5%), *Lonicera morrowii* (1.2%). The following shrubs have <1% cover each: *Ligustrum vulgare, Frangula alnus, Rubus allegheniensis, Viburnum dentatum* var. *lucidum, Rhus copallinum* var. *copallinum,* and *Rubus pubescens.*

The tall vine layer (2.3-12 m) has 25.4% cover. The most abundant vines are *Ampelopsis glandulosa* (5.5%), *Toxicodendron radicans* ssp. *radicans* (4.9%), *Lonicera japonica* (4.5%), *Smilax rotundifolia* (4.0%), *Celastrus orbiculatus* (3.1%), *Smilax glauca* (2.5%), and *Parthenocissus quinquefolia* (2.0%). The following vines have <1% cover each: *Clematis virginiana, Hedera helix* ssp. *helix,* and *Vincetoxicum nigrum.*

The short vine layer (0.9 m) has 19.6% cover. The most abundant vines are *Lonicera japonica* (6.4%), *Smilax rotundifolia* (3.8%), *Toxicodendron radicans* ssp. *radicans* (3.3%), *Ampelopsis glandulosa* (2.7%), *Parthenocissus quinquefolia* (2.0%), *Celastrus orbiculatus* (1.2%), *Vincetoxicum nigrum* (<1%), and *Vitis riparia* (<1%).

The herbaceous layer (0.9 m) has 9.2% cover. The most abundant herbs are *Carex* sp. (2.0%), *Dennstaedtia punctilobula* (2.0%), *Maianthemum canadense* (1.4%), and *Solidago rugosa* var. *rugosa* (1.1%). The following herbs have <1% cover each: *Solidago canadensis* var. *canadensis, Artemisia vulgaris, Phytolacca americana* var. *americana, Schizachyrium scoparium* var. *scoparium, Reynoutria japonica, Eurybia divaricata, Impatiens capensis, Lysimachia borealis, Lysimachia quadrifolia, Solidago nemoralis* ssp. *nemoralis, Solidago sempervirens, Dichanthelium clandestinum, Tridens flavus* var. *flavus,* and *Carex silicea.* The non-vascular layer has <1% cover of *Polytrichum commune.*

The unvegetated surface has 26.3% cover comprised of litter and duff (25.0%), wood (FWD) <7.5 cm (1.7%), very large rocks >1 m (<1%), large rocks >10 cm (<1%), and wood (CWD) >7.5 cm (<1%).

Figure 39. Successional maritime forest in Parcel 19 (19.01).

Figure 40. Successional maritime forest in Parcel 19 (19.01).

38. Successional southern hardwoods

Table 36. Successional southern hardwoods Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
06.01	17	76.47	23.53	2.59	2.84	10.67	11.70	9/30/2021	F21EDI46NYUS
24.03	13	84.62	15.39	3.69	4.12	13.31	14.85	8/4/2022	F22EDI20NYUS
28.01	9	77.78	22.22	3.33	1.74	10.00	5.22	9/30/2021	F21EDI46NYUS
33.03	8	75.00	25.00	3.63	2.85	10.25	8.05	9/17/2021	F21EDI42NYUS
34.06	12	91.67	8.33	4.58	4.51	15.88	15.62	8/2/2022	F22EDI18NYUS
44.06	9	100.00	0.00	5.78	4.55	17.33	13.65	9/30/2021	F21EDI46NYUS
48.02	14	85.71	7.14	4.14	2.53	15.50	9.45	8/30/2021	F21EDI33NYUS

Highest Weighted FQI Score highlighted in green.

The tree canopy layer (16.8 m) has 55.2% cover. The most abundant trees are *Acer rubrum* var. *rubrum* (46.4%), *Prunus serotina* var. *serotina* (6.2%), *Frangula alnus* (2.8%), *Acer platanoides* (2.2%), *Robinia pseudoacacia* (1.8%), and *Quercus velutina* (<1%).

The tree subcanopy layer (9.9 m) has 21.3% cover. The most abundant trees are *Prunus serotina* var. serotina (12.2%), *Acer rubrum* var. *rubrum* (4.4%), *Frangula alnus* (4.4%), and *Robinia pseudoacacia* (<1%).

The tree sapling layer (3.8 m) has 16.9% cover. The most abundant saplings are *Frangula alnus* (10.7%) and *Acer rubrum* var. *rubrum* (4.9%), *Prunus serotina* var. *serotina* (<1%), and *Robinia pseudoacacia* (<1%).

The tall tree seedling layer (1.4 m) has 20.7% cover. The most abundant seedlings are *Frangula alnus* (18.0%), *Acer rubrum* var. *rubrum* (1.1%), *Robinia pseudoacacia* (<1%), *Prunus serotina* var. *serotina* (<1%), and *Quercus velutina* (<1%).

The short tree seedling layer (0.4 m) has 9.8% cover. The most abundant seedlings are *Frangula alnus* (9.6%), *Quercus velutina* (<1%), *Prunus serotina* var. *serotina* (<1%), and *Quercus alba* (<1%).

The tall shrub layer (3.6 m) has 5.7% cover. The most abundant shrubs are *Ilex verticillata* (2.3%), *Vaccinium corymbosum* (1.1%), *Viburnum dentatum* var. *lucidum* (<1%), *Clethra alnifolia* (<1%), and *Rhododendron viscosum* (<1%).

The short shrub layer (1.1 m) has 3.9% cover. The most abundant shrubs are *Rubus allegheniensis* (1.1%), *Viburnum dentatum* var. *lucidum* (1.1%), *Clethra alnifolia* (1.0%), and *Ilex verticillata* (<1%).

The dwarf shrub layer (0.4 m) has 5.8% cover. The most abundant shrubs are *Clethra alnifolia* (1.2%) and *Rubus hispidus* (1.1%). The following shrubs have <1% cover each: *Viburnum dentatum* var. *lucidum, Kalmia angustifolia* var. *angustifolia, Rubus allegheniensis, Ilex verticillata,* and *Rhus copallinum* var. *copallinum.*

The short vine layer (1.1 m) has 32.1% cover. The most abundant vines are *Smilax rotundifolia* (13.3%), *Toxicodendron radicans* ssp. *radicans* (10.0%), *Lonicera japonica* (5.0%), and *Parthenocissus quinquefolia* (3.8%).

The short vine layer (0.2 m) has 2% cover. The most abundant vines are *Toxicodendron radicans* ssp. *radicans* (1.0%), *Smilax rotundifolia* (<1%), *Smilax glauca* (<1%), *Lonicera japonica* (<1%), *Parthenocissus quinquefolia* (<1%).

The herbaceous layer has 10.6% cover. The most abundant herbs are *Maianthemum canadense* (4.7%), *Dennstaedtia punctilobula* (2.2%), *Solidago rugosa* var. *rugosa* (1.4%), and *Thelypteris noveboracensis* (1.1%). The following herbs have <1% cover each: *Phytolacca americana* var. *americana, Maianthemum*

racemosum ssp. *racemosum, Onoclea sensibilis, Lysimachia borealis, Carex swanii, Impatiens capensis,* and *Lysimachia quadrifolia.*

The unvegetated surface has 21.4% cover comprised of litter and duff (20.0%), wood (FWD) <7.5 cm (1.4%), very large rocks >1 m (<1%), large rocks >10 cm (<1%), and wood (CWD) >7.5 cm (<1%).

Figure 41.Successional southern hardwoods at point E07b.01

39. Successional southern hardwoods (Acer platanoides)

Table 37. Successional southern hardwoods (Acer platanoides) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
22.01	5	40.00	60.00	2.00	1.58	4.47	3.54	8/2/2022	F22EDI18NYUS

The tree canopy layer (28 m) has 70% cover of *Acer platanoides* (70.0%). The short vine layer (0.3 m) has 42% cover of *Lonicera japonica* (30.0%) and *Celastrus orbiculatus* (12.0%). The herbaceous layer (0.5 m) has 65% cover comprised of *Dennstaedtia punctilobula* (55.0%) and *Eurybia divaricata* (10.0%).

The unvegetated surface has 95% cover comprised of litter and duff (95.0%).

Figure 42. Successional southern hardwoods (Acer platanoides) in Parcel 22 (22.01).

40. Successional southern hardwoods (Acer pseudoplatanus)

Table 38. Successional southern hardwoods (Acer pseudoplatanus) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
12.01	13	53.85	46.15	1.46	1.47	5.27	5.32	8/2/2022	F22EDI18NYUS

The tree canopy layer (25 m) has 42% cover. The most abundant trees are *Acer pseudoplatanus* (20.0%), *Robinia pseudoacacia* (20.0%), and *Prunus serotina* var. *serotina* (10.0%). The tree subcanopy layer (10 m) has 51% cover. The most abundant trees are *Acer pseudoplatanus* (35.0%), *Robinia pseudoacacia* (12.0%), *Frangula alnus* (10.0%), and *Prunus serotina* var. *serotina* (5.0%).

The tree sapling layer (4 m) has 9% cover of *Acer pseudoplatanus* (8.0%) and *Robinia pseudoacacia* (1.0%). The tall tree seedling layer (1.5 m) has 5% cover of *Acer pseudoplatanus* (4.0%) and *Robinia pseudoacacia* (1.0%). The short tree seedling layer (0.5 m) has 1% cover of *Robinia pseudoacacia.*

The tall shrub layer (2.5 m) has 15% cover of *Viburnum dentatum* var. *lucidum* (10.0%) and *Rubus allegheniensis* (5.0%). The short shrub layer (1.2 m) has 38% cover of *Rubus allegheniensis* (30.0%), *Viburnum dentatum* var. *lucidum* (5.0%), and *Rosa multiflora* (3.0%). The dwarf shrub layer (0.3 m) has 1% cover of *Rubus allegheniensis.*

The liana layer (10 m) has 23% cover comprised of *Smilax rotundifolia* (10.0%), *Parthenocissus quinquefolia* (8.0%), and *Hedera helix* ssp. *helix* (5.0%). The short vine layer (0.6 m) has 40% cover comprised of *Lonicera japonica* (20.0%), *Smilax rotundifolia* (15.0%), and *Parthenocissus quinquefolia* (5.0%).

The herbaceous layer (1.3 m) has 7% cover comprised of *Solidago rugosa* var. *rugosa* (5.0%) and *Phytolacca americana* var. *americana* (2.0%).

The unvegetated surface has 92% cover comprised of litter and duff (90.0%), wood (FWD) <7.5 cm (1.0%), and wood (CWD) >7.5 cm (1.0%).

Figure 43. Sycamore maple (Acer pseudoplatanus) in Parcel 12 (12.01).

Terrestrial Cultural

41. Japanese knotweed (Reynoutria japonica) thicket

Japanese knotweed (*Reynoutria japonica*) was found in five parcels (Table 39).

Table 39. Japanese knotweed (Reynoutria japonica) thicket Observation Points

Obs. Point	Survey Date	Comments	% cover	UTM Zone	UTM East	UTM North
04.09 ref	9/30/2021	At end of bridge, between bridge and road there is a tulip tree and small patch of Japanese knotweed. Reference point. Vegetation cover data not collected.	NA	19	248945	4572311
30.01	9/3/2021	SSH//SMF? Open woodland with widely spaced large crown trees with dense vines blanketing the shrubs in between. Successional southern hardwoods?	5	19	252652	4574265
Parcel 37	NA	Japanese knotweed located between chain link fence and pond in Parcel 37. Not surveyed in 2021 or 2022. GPS coordinates estimated. Management priority.	NA	18	754577	4574033
40.02 ref	8/5/2022	Modified SSH invaded by Japanese knotweed; no photo taken; observed from road facing W	NA	18	750973	4571928
49.01 ref	9/30/2021	Japanese knotweed 3 m tall patch (25 m along road x 5 m back from road) along south side of unpaved road in Parcel 49. Reference point. Vegetation cover data not collected.	90	18	751242	4572158

Figure 44. Parcel 49: Japanese knotweed (Reynoutria japonica) (49.01).

42. Hardwood plantation (Tilia cordata)

Table 40. Hardwood plantation (Tilia cordata) Observation Points

Obs. Point	Richness	% Native	% Invasive	Mean C	Weighted C	FQI	Weighted FQI	Survey Date	FCODE
33.01a	8	62.50	25.00	3.63	1.05	10.25	2.97	8/31/2021	F21EDI34NYUS

The tree canopy layer (28 m) has 85% cover of *Tilia cordata*. The tree subcanopy layer (12 m) has 12% cover of *Tilia cordata*. The tall tree seedling layer (1.7 m) has 5% cover of *Tilia cordata*.

The short shrub layer (1 m) has 70% cover of *Ligustrum vulgare*. The dwarf shrub layer (0.3 m) has 20% cover of *Ligustrum vulgare* (20.0%) and *Viburnum dentatum* var. *lucidum* (<1%).

The short vine layer (0.2 m) has 2% cover comprised of *Lonicera japonica* (2.0%) and *Smilax glauca* (<1%).

The herbaceous layer has 41% cover. The most abundant herbs are and *Eurybia divaricata* (40.0%), *Maianthemum stellatum* (1.0%), and *Chimaphila maculata* (<1%).

The unvegetated surface has 99% cover comprised of litter and duff (98.0%) and large rocks >10 cm (1.0%).

Figure 45. Hardwood plantation (Tilia cordata) on Parcel 33 (33.01).

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