

MARSHALL POND

TRACT INFORMATION

- Total Acres: 230, according to tax map
- Map and Lot:
 - Map 7, Lot 622, 180 acres
 - Map 3, Lot 755, 50 acres
- Conservation Status:
 - Easement held by Town of Unity with SPNHF Executory Interest: Book 984, Page 466

OWNERSHIP DESCRIPTION

Location:

- Borders both sides Mica Mine Road, including the Marshall Pond waterbody.
- Borders Unity Mountain tract to the west.

General Description:

- Marshall Pond forest includes open, maintained fields, a variety of wetlands, streams, the Marshall Pond waterbody and a mixed forest.
- Portions of the southern field and adjacent forest along Mica Mine Road (south of the cemetery), is mapped as prime agricultural soil. Maintaining the best farmlands is a land use goal in the Unity Master Plan.
- The forest includes early successional types on agricultural land abandoned in the 1950-60s that now host an overstory of white pine on somewhat enriched hardwood sites.
- In other areas the forest shifts to a mix of spruce and hardwoods and hemlock and hardwoods. Some areas include northern hardwoods, other areas are dominated by a mix of oak and red maple.
- Lowland spruce-fir forest also occurs in the northern half of the parcel east of Mica Mine Road.
- There is a small section of red pine/Norway spruce plantation situated below the cellar hole on the east side of Mica Mine Road.
- The forest ranges in age from 60 to 80+ years and is largely well-stocked to overstocked, except in areas recently harvested.
- Regeneration is variable, generally light to moderate shade tolerant species except in areas recently harvested.

Access:

- Tract is bisected by town-maintained Mica Mine Road.
- Parking area, kiosk and gated truck access across from the Marshall family cemetery on Mica Mine Road. The Unity Mountain hiking trail begins at the parking area and provides access across the tract to the Unity Mountain parcel.

Landing Sites:

- Two potential landing sites in fields on west side of Mica Mine Road.
- Third potential landing on east side of Mica Mine Road.

Operability:

- Generally good ground. Some areas shallow soil and rocky, but in general no steep, inoperable slopes.
- Need to layout management activities to avoid multiple wetlands and streams using Best Management Practices and Riparian Management Zones.

Harvest History:

- 2007-8 light harvest in northwest corner of tract.
- 2011 moderate to heavy harvest generally south of Marshall Pond.

Wildlife:

- Tract provides a diversity of wildlife habitat:
 - Marshall pond water body and pond edge with quality perch trees.
 - Open fields and field edge.
 - Forested and shrub/herbaceous wetlands.
 - Mix of interior forest species (red spruce, white pine, hemlock, red oak, red maple, white birch, aspen primary species). Also good range of forest types from all softwood to all hardwood.
 - Average to below-average amount snags, cavity trees and down logs.
 - Wetlands and field edges provide soft mast. The middle and north field edges support abundant choke cherry of high value to birds, pollinators and other wildlife.
 - Hard mast fairly abundant in oak and small tree seeds (maple, birch, pine, spruce). Pockets of mature beech north of Marshall Pond highly valuable for turkey, grouse, bear and other mammals.
 - Scattered apple trees on east side of Mica Mine road would benefit from being released.
 - Beaver are active in Marshall Pond and nearby wetlands. A large wetland connected to the manmade canal (dug for the waterpipe that brings water to the County Complex) has seen high levels of historical and current beaver activity, resulting in flooding of the road and trail system.

Wetland and Water Features:

- Tract hosts 18+ acre Marshall Pond
 - 25' No Harvest RMZ
 - 300' Special Management RMZ- follow recommendations in GFGS
- Diversity of wetlands present
 - Spruce-fir sphagnum wetland
 - Swamp saxifrage wetland
 - Alder swamp with abundant Joe pye weed and wild clematis has high value for pollinators

- Numerous small forested and shrub wetlands in mixed spruce-fir habitat
 - 150' (variable) Special Management RMZ- follow recommendations in GFGS
- Multiple streams
 - Several 1st order streams associated with various wetlands
 - 1st order stream inlet to Marshall Pond
 - Marshall Pond outlet including 1st and 2nd order streams; historic water source for County Farm
 - All streams have recommended 25' No Harvest RMZ
 - Follow BA law
 - 1st and 2nd order streams have recommended 100' Special Management RMZ- follow recommendations in GFGS

Forest Health:

- Invasive exotics, primarily buckthorn but also barberry, multiflora rose, etc. fairly well established within wetlands, on field edges, around Marshall Pond, and along major trails/roads.
- Health and vigor of spruce and fir threatened by effects from climate change. Transitional state will likely shift towards red oak and pine, especially in the mixed sites.
- Existing pine shows sign of typical health issues including weevil damage, red rot and white pine blister rust. As of mid-summer, there was no significant sign of needle cast that is present in other areas.
- Scattered beech with moderate to severe beech bark disease.
- Deer browse moderate to heavy, especially on desirable species.

Cultural Features:

- Borders Marshall family cemetery on Mica Mine Road.
- Tract includes an old cellar hole east side of Mica Mine Road.
- Stonewalls are abundant here. Especially nice example is located on western edge of field north of the parking/kiosk area.
- Marshall Pond includes a cement dam on the south end of the pond as well as an active water pipe that supplies non-potable water from the pond to the Sullivan County Complex for fire suppression.

Recreation:

- Unity Mountain Trail begins at kiosk in parking area off Mica Mine Road. Trail provides non-motorized access to Marshall Pond and beyond to Unity Mountain tract.
- New trail layout from Daniel Webster Council Scout boy scout camp (the Unity Program Center) will provide access from the camp to Marshall Pond in keeping with an active License Agreement.
- Potential to re-open trail loop around Marshall Pond- requires some clearing and minor water diversion structures.

Other:

- Horse lease on field west side of Mica Mine Road, south of cemetery.

- Fall pheasant release program on middle and north fields by agreement with NH Fish and Game.
- Primitive fishing opportunity (hike in, hike out) on Marshall Pond.
- Large trash dump north of Marshall Pond accessed through field to Mica Mine Road. A second dump is located on the east side of Mica Mine Road.

TRACT LEVEL MANAGEMENT RECOMMENDATIONS

FOREST HEALTH:

- **ASAP:** Focus on treatment of invasives on field edges, pond edge, and along major roads. Also perform spot-treatment in interior forest prior to commencing timber harvest activities.

RECREATION:

- **ANNUALLY:** Maintain Unity Mountain Trail as needed.
- **AS OPPORTUNITY ARISES:**
 - Consider expanding trail system to incorporate old trail loop around Marshall Pond.
 - Consider creating a new hiking trail on the tract east of Mica Mine Road, leading from the old Marshall family cellar hole along a natural ridge to the proposed Spruce/Fir forest Natural Area.

ACCESS/BOUNDARY:

- **As Needed:** Paint boundary.
- **ANNUALLY:** Maintain gate and road to Marshall Pond

OTHER:

- Maintain fields through periodic mowing
 - 11.4-acre north (wildlife) field
 - 13.1-acre south (leased) field- maintained by lessees
 - 2.6-acre middle (wildlife) field
- Around north and middle fields: manage field edges and tree islands to reduce aerial predation. Cut field edges back about 30 feet, leaving quality mast producing shrubs and small trees such as choke cherry, service berry, Viburnums, apple trees etc. Within field, remove trees from tree islands, enhancing growth of quality mast producing trees/shrubs.

STAND DESCRIPTIONS AND MANAGEMENT RECOMMENDATIONS

Stand Number: MP1

Stand Type: Natural Area

Stand Acres: 14.8

Soils: Primarily IIB, best for spruce-fir

Site: Shallow soils; cold acidic site

Forest Composition: Overstory dominated by mature red spruce, with red maple and white pine.

Regeneration: Pockets of dense red spruce and some balsam fir; otherwise sparse

Natural Communities: Lowland spruce-fir

Forest Health: Midstory spruce generally in decline, balsam fir in decline, otherwise typical health concerns

Stocking: Basal area ranges between 120 and 180, which is adequately to overstocked for growth.

Timber Quality: Variable. Spruce average, a fair amount of branching (knots). Scattered good quality white pine and red maple. White pine tends to be large, dominant trees.

Wildlife Habitat: Dense spruce habitat, with patches sphagnum moss and wet ground. Fairly unique site with good habitat for species that require spruce/fir and associated plant species, as well as providing good winter cover.

Water and Wetland Features: Stand includes open shrub/sphagnum wetland and associated 1st order stream.

Invasives: None noted.

Past Management: No recent management. Some old stumps (>25 years).

Other notes:

- Old farm road with minor use by ATV runs through stand
- Old farm dump located on farm road

Management Objectives: Given that this is the only example of Spruce/Fir forest on County lands, its importance as wildlife habitat for a number of plants and animals requiring this type of forest, and its increasing fragility due to climate-related environmental stressors, it would be best to leave this area to develop naturally. Reserving this stand as a designated Natural Area will provide quality spruce/fir habitat and a valuable site for public education and possible long-term research.

Recommended Management:

Year	Treatment	Priority
--	Designate as Natural Area	--

Stand Number: MP2

Stand Type: Red maple-red spruce-white pine 3/4 A/B

Stand Acres: 19.8

Soils: Mix of IB and IIB soils, combination of oak, pine and spruce-fir

Site: Some shallow soils, warmer site.

Forest Composition: Overstory small to large sawtimber size, dominated by red maple, with white pine and a mix of other hardwood including aspen, yellow birch with some scattered red spruce. Patches of pole sized hardwood.

Regeneration: Generally light, mix of shade tolerant species including hophornbeam, striped maple, beech and scattered red spruce.

Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: Typical concerns.

Stocking: Variable, basal area ranges from 100 to over 240

Timber Quality: White pine ranges from good quality, straight stems to poor quality and branchy. Red maple and red spruce are average.

Wildlife Habitat: Mixed, interior forest.

Water and Wetland Features: Stand hosts wetland complex that includes swamp saxifrage and a few scattered black ash trees on an associated 1st order stream.

Invasives: Scattered buckthorn.

Past Management: No recent management. Harvest of primarily white pine >25 years ago.

Other notes:

- Small powerline along the eastern bound of the stand
- Old, downed powerline that appears to be abandoned is located within this stand

Management Objectives: Mix of timber and wildlife. Manage for quality growth of species well suited to the site (red spruce, red maple, black birch) and improved growth on existing pole-sized hardwood. Maintain interior forest conditions and the integrity of the wetland complex.

Recommended Management:

Year	Treatment	Priority
2026	<ul style="list-style-type: none">• Release and thin patches of hardwood poles• Group selection in areas of poor quality, mature, and/or low vigor to establish or release regeneration• Crop Tree Release where opportunity exist	Medium
ASAP	Treat invasives	High

Stand Number: MP3

Stand Type: Red pine/Norway spruce plantation with balsam fir-black cherry-aspen-apple 3/4 A/B

Stand Acres: 5.9

General Description:

- Soils: Mix of IB and IIB soils, combination of oak, pine and spruce-fir.
- Site: Deeper soils here, old agriculture land. Some seepy ground.
- Forest Composition: Small sections of red pine (20+ dbh) and Norway spruce plantation in old field approximately 70 years old with early successional species including a mix of balsam fir, black cherry and aspen.
- Regeneration: Generally light, mix of striped maple, white ash, black cherry, sugar maple with a fair amount of alternate leaf dogwood.
- Natural Community: Hemlock-Red Spruce-Northern Hardwood
- Other notes:
 - Cellar hole located in stand

Forest Health: Balsam fir in decline.

Stocking: Variable, plantation areas overstocked with average basal area 200. Elsewhere lighter stocking.

Timber Quality: Red pine and Norway spruce generally branchy and fair to poor quality. Remainder average.

Wildlife Habitat: Potential to provide excellent early successional habitat with apple trees.

Water and Wetland Features: Small section of 1st order stream associated with larger wetland complex in Stand MP2.

Invasives: Scattered buckthorn.

Past Management: No recent management.

Management Objectives: Manage for early successional habitat, with mast retention. This is a transitional state, not meant to be maintained. It will ultimately transition back to a forested condition. Treat invasive buckthorn prior to harvest and monitor for possible retreatment in following years. Consider maintaining areas around the apple trees with good access as permanent openings. Maintain apple resource with pruning and mowing.

Recommended Management:

Year	Treatment	Priority
2026	Early successional opening, retaining apple trees and other scattered quality mast producing trees such as black cherry.	High
2021	Prune apple trees year following release.	High
Annually	Brushhog to maintain open area around apple trees.	High
As needed:	Prune apple trees to improve structure and growth.	Medium
ASAP	Treat invasives	High

Stand Number: MP4

Stand Type: White pine-mixed hardwood 2/3/4 A

Stand Acres: 41.8

Soils: Mix of IA, IB and IIB soils, combination of somewhat enriched northern hardwoods, oak, pine and spruce-fir.

Site: Better soils here, deeper and more enriched with some bony ground and some seepy ground. Will transition towards Northern hardwoods on better sites.

Forest Composition: Overstory is generally a mix of white pine and hardwoods that came in after agricultural abandonment. Better sites support a fair amount of white ash and sugar maple. Wetter sites with some red spruce and balsam fir.

Regeneration: Ranges from excellent stocking of sugar maple and white ash on better sites, to some red spruce mixed in on wetter sites, and more sparsely elsewhere with striped maple and beech.

Forested Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: Weevil damage in pine; some red spruce and white pine decline around pond edge.

Stocking: Fully to overstocked, with basal area ranging from 80 to over 200.

Timber Quality: Variable. Pine ranges from large, weevilled cull trees to good quality. Overstory hardwoods are average, dominated by red maple.

Wildlife Habitat: Potential to provide excellent early successional habitat in areas that will transition from overstory pine to quality hardwoods (better sites). Elsewhere, manage for interior forest habitat, bordering fields and wetlands.

Water and Wetland Features:

- Stand borders portion of Marshall Pond, with 300' Special Management RMZ and 25' No Harvest RMZ.
- Stand hosts wet meadow, with Joe Pye Weed and Wild Clematis, and small forested wetland.
- 1st order streams associated with wetlands.

Invasives: Buckthorn primarily, present in higher levels near pond and around wetlands and field edges. Some multiflora rose on field edges. Scattered buckthorn throughout interior forest.

Past Management: Harvest of primarily white pine in sections around 20 years ago.

Other notes:

- Stand adjacent to/surrounds 3 maintained fields (northern (wildlife), southern (horse lease), and smaller middle (wildlife))

Management Objectives: This stand provides opportunity to create early successional habitat in patches (as large as 5+ acres) within interior forest conditions. Early successional patches should be located on the better sites where regeneration is well established and consists of quality hardwood species, such as sugar maple and white ash. These patches should not be maintained but allowed to transition to hardwood dominated forest. Elsewhere, the interior forest would benefit from thinning for timber stand improvement.

Recommended Management:

Year	Treatment	Priority
2020	<ul style="list-style-type: none"> • Early successional opening(s), as large as 5+ acres • CTR and Free Thinning between patches to improve growth and vigor on best quality trees. 	High
ASAP	Treat invasives	High

Stand Number: MP5

Stand Type: Red spruce-red maple-white pine 3/4 A/B

Stand Acres: 37.7

Soils: Mix of IIA and IIB, combination of shallow rocky soils, and soils suited for spruce-fir.

Site: Poor site, shallow soils with numerous wet areas and seeps. Cold, spruce-fir site.

Forest Composition: Overstory is dominated by a combination of red spruce and hemlock with red maple, yellow birch and scattered white pine with some pockets of large, mast bearing beech.

Regeneration: Generally light with scattered hemlock, red spruce and beech with pockets of dense red spruce. Spruce regeneration is generally low vigor and in decline.

Natural Communities: Mix of Hemlock-Red Spruce-Northern Hardwood and Lowland Spruce-fir

Forest Health: Understory spruce low vigor and in decline.

Stocking: Fully to overstocked, with basal area averaging around 160, ranging from 100 to 240.

Timber Quality: All generally fair to poor quality, with some scattered good quality white pine. Spruce tends to be branchy, hemlock is typical for poor site, and hardwoods are average.

Water and Wetland Features:

- Stand hosts multiple small forested and shrub wetlands and wet ground with sphagnum
- Potential vernal pool
- 1st order streams associated with wetlands.

Wildlife Habitat: Stand provides good softwood dominated, remote interior forest habitat with numerous small wetlands and seeps.

Invasives: None noted, but likely scattered buckthorn.

Past Management: Portions of stand harvested around 20+ years ago.

Management Objectives: This stand provides good quality, interior, somewhat remote softwood dominated habitat. Given that timber quality is generally poor, there are two reasonable options for management here. The first would be to regenerate sections of poor quality, low vigor and otherwise low quality trees while capturing value on good quality white pine. But given the surrounding landscape, including the heavy harvest on Unity Mountain to the west and abutting forest to the north, as well as the good opportunity to create early successional habitat elsewhere on the Marshall Pond tract, leaving this area for the time being to provide continuous forest cover and interior forest habitat is perhaps a better option.

Recommended Management:

Year	Treatment	Priority
--	Leave to develop naturally for time being.	--

Stand Number: MP6

Stand Type: Hemlock-white pine-red spruce-red maple 34 A

Stand Acres: 26.2

Soils: IB best for oak and white birch

Site: Shallow soils, generally well drained, good for non-nutrient demanding species.

Forest Composition: Overstory is mix dominated by hemlock with red spruce and white pine and a mix of hardwoods, mostly red maple. Large, old white pine surround Marshall Pond.

Regeneration: Generally light with scattered hemlock, red spruce, striped maple and beech. Blueberry well established around edge of Marshall Pond.

Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: Typical for the site.

Stocking: Overstocked, with basal area ranging from 160 to 240.

Timber Quality: Pine around edge of Marshall Pond is variable, with some good quality stems. Remained of stand is generally fair to poor quality, with some scattered good quality white pine. Spruce tends to be branchy, hemlock is typical for poor site, and hardwoods are average.

Water and Wetland Features:

- Due to abundant water and wetland features, virtually the entire stand is within a No Harvest or modified-harvest riparian zone.
- Stand borders portion of Marshall Pond, with 300' Special Management RMZ and No Harvest RMZ, including outlet and associated 1st order streams.
- Riparian zone around pond includes several seepy, wetland areas.
- Stand includes an additional riparian zone around flowage moving south and east from MP2 wetland complex.

Wildlife Habitat: Stand provides good softwood dominated habitat adjacent to pond. High levels of blueberry and huckleberry provide quality mast when fruiting.

Invasives: Buckthorn around pond edge, and likely scattered through interior forest.

Past Management: No recent management.

Other notes:

- Stand borders Marshall Pond, which has a 300' Riparian Management Zone and a 25' Recommended No Harvest Zone. Follow recommended practices for RMZ's in Good Forestry in the Granite State
- Includes small portion of dug canal housing water pipe providing fire-suppression water to the County Complex

- Active beaver on outlet of Marshall Pond during summer of 2019

Management Objectives: This stand provides good quality, interior, softwood dominated forest adjacent to Marshall Pond. The wildlife habitat potential of continuous forest cover here is of higher priority than actively managing for improved timber quality. The public's continued aesthetic enjoyment of the forested shoreline along Marshall Pond and Unity Mountain Trail is also a priority here. Objectives are to leave this area as dense, softwood dominated forest for the time being.

Recommended Management:

Year	Treatment	Priority
--	Maintain as a Riparian Management Zone	--
ASAP	Treat invasives on pond edge	High

Stand Number: MP7

Stand Type: Red maple-white pine-hemlock 23 BC

Stand Acres: 63.1

Soils: Combination IA, best for quality hardwoods like sugar maple and ash, IB best for oak and white birch, and IIA, steep and/or rocky.

Site: Better site to the east, with deeper, moderately well drained soils and good growing conditions. Western and central portion of stand soils get shallower, rockier and drier.

Forest Composition: Overstory is mix dominated by red maple, white pine, and hemlock with red spruce and yellow birch and scattered red oak. Portions of stand bordering the horse lease field are dominated by a dense stocking of hardwood poles. This stand was harvested in 2011, resulting in patchy conditions.

Regeneration: Patchy, dominated by a mix of beech and *Rubus* sp.

Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: Typical for the site.

Stocking: Under to adequately stocked, variable basal area due to harvest.

Timber Quality: Residual stocking generally fair to poor quality, with some scattered good quality white pine and red oak.

Water and Wetland Features:

- Stand hosts the north end of a large 2.3-acre beaver influenced wetland, which drains south off the tract.
- Convergence of multiple 1st order streams flow into beaver influenced wetland.

Wildlife Habitat: Good mixed forest with some available browse and berry production from *Rubus* sp. in recently harvested openings, field edges and wetlands.

Invasives: Buckthorn scattered through interior forest.

Past Management: Heavy harvest in 2011.

Other notes:

- Stand wraps around bulk of horse lease pasture
- Borders boy scout camp on Mica Mine/Chandlers Mill Road
- Potential link trail from Boy Scout Camp to Unity Mountain trail
- Stand includes several acres of currently forested prime farmland adjacent to the west side of horse lease pasture. Consider reclaiming these soils for agricultural use as part of any planned timber harvesting activity for this stand.

Management Objectives: This stand will be managed for timber and wildlife habitat over time, but for now will be left to grow. Monitor condition of regeneration (browse levels, vigor) over time.

Recommended Management:

Year	Treatment	Priority
--	Leave to develop naturally for time being.	--