

LITTLE SUGAR RIVER

TRACT INFORMATION

- Total Acres: 320, according to tax maps
- Map and Lot:
 - Map 11, Lot 753, 48 acres
 - Map 12, Lot 754, 80 acres
 - Map 12, Lot 619, 192 acres
- Conservation Status:
 - Ownership by Sullivan County

OWNERSHIP DESCRIPTION

Location:

- Two non-contiguous tracts.
- Larger tract located on both sides Carroll Brook Road, bordering Center Road on eastern boundary.
- Smaller tract landlocked, located off Carroll Brook Road, north side of Little Sugar River, just west of larger tract.

General Description:

- Tract can be discussed as four different sections:
 1. The remote, non-contiguous section:
 3. This section has a strong agricultural use history, with a large amount of stone walls.
 4. The forest is dominated by a mix of pine, hemlock and hardwoods, mostly red oak and red maple.
 5. The steep slope leading down to Little Sugar River hosts a stand of hemlock with old forest characteristics, providing an opportunity for a reserve area.
 2. The section on the north side of Carroll Brook Road:
 - Includes land around the Carroll Brook Cemetery. There is an abundance of Allegheny Serviceberry (*Amelanchier laevis*) in the woods behind the cemetery, including the largest recorded specimen in Sullivan County.
 - The forest is largely dominated by red oak, with some white pine, and provides an excellent opportunity for oak silviculture. The oak here is large, and generally of good quality.
 - This section provides access to the waterfall that was part of a large water-powered saw mill on the Little Sugar River. The stone work of the mill and dam remains.
 3. The Beagle Club Lease section:

- This section includes all land within the beagle club fence as well as the club house and curtilage outside of the fenced area.
 - This section includes diverse forest structure, with some lowland spruce-fir, some areas dominated by white pine, and a large amount of oak-hardwood with scattered pine and hemlock.
 - The forest included red pine plantation that was harvested about 10 years ago.
 - The southern portion of the lease area hosts some enriched sites, with a fair amount of sugar maple and ash.
 - Several wetland features are located within the lease area, 3 entirely within the leasehold and the fourth on the boundary. The wetlands are primarily open, shrub wetlands.
 - The beagle club is interested in promoting open shrubby areas conducive to beagle training, and has undertaken some improvement work on their own initiative. Continuation of improvement work will require County approval.
 - Recent harvesting focused on red pine and red oak in and surrounding area
 - The area outside the lease section, south side of Carroll Brook Road:
4. This section is diverse, with some old field white pine, a larger area of mixed oak, red maple and scattered pine and hemlock, some enriched hardwood on the southern end, and hemlock on the steeper slopes.
- Soils are generally shallow here, with the exception of the enriched area where they are somewhat deeper.
 - Two large vernal pools are located in natural gullies near the southern boundary.
 - A well-maintained trail, part of the local snowmobile trail system, crosses the tract.
 - A smaller foot-trail extends into the tract from the Beagle Club gate on Carroll Brook Road.

Access:

- The Little Sugar River Tract is bisected by town-maintained Carroll Brook Road.
- The remote, non-contiguous section is landlocked.
 - Access here is made more difficult because it is separated from the other Little Sugar River sections by the Little Sugar River.
 - Possible access from the north would require permission from neighboring landowner (Wilbur Cox) to gain access to the 2nd NH Turnpike (about 1 mile).
- Access to the remainder of the ownership is fairly good, all border Carroll Brook Road and have decent internal access opportunity.

Landing Sites:

- Potential for landing sites off Carroll Brook Road for all sections except for the remote, non-contiguous section.

Operability:

- Generally good ground on entire tract except for some small sections of moderately steep slope.
- Need to layout work to avoid multiple wetlands and streams using Best Management Practices and Riparian Management Zones.

Harvest History:

- 2011 harvest of oak and red pine in within beagle lease area south of Carroll Brook Road.

Wildlife:

- Tract provides a diversity of wildlife habitat:
 - Little Sugar River riparian zone
 - Multiple wetlands- shrub, open wetlands, and other wetlands associated with riparian systems
 - Mixed interior forest (red spruce, white pine, hemlock, red oak, red maple, white birch, aspen primary species), red oak dominated forest, white pine dominated forest, and hemlock dominated forest.
 - Average to below-average amount snags, cavity trees and down logs.
 - Hard mast fairly abundant in oak and small tree seeds (maple, birch, pine, spruce)
 - Scattered apple trees on north side of Carroll Brook Road (would benefit from being released).
 - Good component of Serviceberry on property provides soft mast.

Wetland and Water Features:

- Diversity of wetlands present
 - Numerous small and large forested and shrub wetlands
 - 150' (variable) Special Management RMZ- follow recommendations in [GFGS](#)
- Multiple streams
 - Tract is bordered by the Little Sugar River, a combination of 3rd and 4th
 - Several 1st and 2nd order streams both tributaries to the Little Sugar River and associated with various wetlands
 - All 1st, 2nd, and 4th order streams have recommended 25' No Harvest RMZ
 - 3rd order streams have recommended 50' No Harvest RMZ (wider RMZ because of importance of large woody material on streams of this size)
 - 1st and 2nd order streams have recommended 100' Special Management RMZ- follow recommendations in [GFGS](#)
 - 3rd and 4th order streams have recommended 300' Special Management RMZ- follow recommendations in [GFGS](#)
 - Follow BA law

Forest Health:

- Invasive exotics, primarily glossy buckthorn fairly well established around edge of wetlands and scattered throughout the forest.

- 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 have moderate to severe beech bark disease.
- Deer browse moderate to heavy, especially on desirable species.

Cultural Features:

- Two cellar holes, both on Carroll Brook Road
- Old town pound on Carroll Brook Road (rated high priority for protection by the Town Historic Society)
- Abundant stone walls
- Significant old mill site and waterfall on Little Sugar River (rated high priority for protection by the Unity Town Master Plan)
- Tract surrounds the Carroll Brook Cemetery
- Beagle Lease area/fence

Recreation:

- A portion of the snowmobile trail network (Primary 390) crosses the section on the south side of Carroll Brook Road outside of the lease area, maintained by the Crescent Lake Regional Snoriders snowmobile club.
- Potential for a foot trail to provide access to the waterfall and along the Little Sugar River.
- The Beagle Club has a network of trails maintained within the lease area.

Other uses:

- Beagle Club Lease

TRACT LEVEL MANAGEMENT RECOMMENDATIONS

FOREST HEALTH:

- ASAP: Focus on treatment of invasives on open area edges and along roads and trails. Ideally, perform spot-treatment in interior forest, especially prior to commencing timber harvest activities.

RECREATION:

- AS OPPORTUNITY ARISES: Consider creating trail loop system along Little Sugar River providing access to the old mill site. Could connect to existing old woods roads.
- ANNUALLY: Maintain existing foot path on south side of Carroll Road

ACCESS/BOUNDARY:

- As Needed: Paint boundary.

OTHER:

- ANNUALLY: Monitor Beagle Club Lease

STAND DESCRIPTIONS AND MANAGEMENT RECOMMENDATIONS

Stand Number: LSR1

Stand Type: Red oak-red maple-white birch-white pine 3/4 A

Stand Acres: 64.3 (includes strip on south side of Carroll Brook Road)

Soils: Primarily IA, best for high quality hardwoods, with some IB, best for oak-white birch, and some IIB best for spruce-fir associated with wetland drainage

Site: Fairly level old agriculture site, generally good ground with small amount shallow soils and rocky area

Forest Composition: Overstory dominated by sawtimber size red oak, with red maple and white birch. Pockets of sawtimber size white pine as well.

Regeneration: Variable, dominated by beech and sugar maple, with red maple and pockets of white pine. Scattered balsam fir and red spruce.

Natural Communities: Semi rich-Red oak-Sugar maple

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

Stocking: Basal area averages just over 100. Adequately to fully stocked.

Timber Quality: Good quality and relatively high volume red oak. Pockets of good quality white pine. Elsewhere, hardwoods such as red maple and white birch are typical- average quality.

Wildlife Habitat: High level oak mast and scattered apple trees along Carroll Brook Road. Stand hosts shrub wetland with fair amount beaked hazelnut that had been fed heavily upon by black bear during fall 2019 inventory. Also abundant serviceberry trees on east end provides good soft mast.

Water and Wetland Features: Stand hosts small 1.5-acre shrub wetland with associated 1st order streams.

Invasives: None noted, but likely some scattered through interior forest, along road edge, and within wetland.

Past Management: No recent management.

Other notes:

- Stand surrounds Carroll Brook Cemetery
- Stand hosts historically significant town pound on south side of Carroll Brook Road

Management Objectives: High-quality oak dominated stand on a relatively good site with excellent access provides a good opportunity for oak silviculture. Oak shelterwood, focusing on removing during a good seed year would likely result in a fair amount of oak regeneration at levels that would ideally overwhelm the deer population—meaning enough acorns would germinate that the deer couldn't eat

them all. Residual basal area should be about 30 to 40% of current stocking. Establishment of advanced oak regeneration is needed prior to follow up with overstory removal.

In areas where oak does not dominate the overstory, the approach would be to use a combination of group selection and free thinning to improve the quality of the residual forest and either establish new regeneration or release existing regeneration. Some groups may be located where white pine pockets occur in overstory.

In roadside areas, manage with town road maintenance in mind. Also, during active harvest, carefully remove trees impacting town pound area where possible.

Recommended Management:

Year	Treatment	Priority
2022 (if good seed year)	<ul style="list-style-type: none">• Oak shelterwood in areas where oak dominates overstory• Elsewhere, combination of group selection and thinning	High

Stand Number: LSR2

Stand Type: Hemlock-red oak-red maple-yellow birch 3/4 A

Stand Acres: 10.4

Soils: Mix of IA, IB and IIA soils

Site: Moderate to steep slope leading down to Little Sugar River, some boulder fields and rocky areas with shallow soils

Forest Composition: Overstory includes patch of hemlock dominated forest with scattered hardwoods primarily including red maple and yellow birch, with other areas dominated by red oak and red maple. Overstory is a mix of small to large sawtimber size trees.

Regeneration: Sparse regeneration, primarily beech

Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: Typical concerns.

Stocking: Basal area around 180. Fully to overstocked.

Timber Quality: Average hemlock and red maple; yellow birch fair, and red oak generally good. Large sawtimber size.

Wildlife Habitat: Borders Little Sugar River, which is likely a wildlife corridor.

Water and Wetland Features: Stand borders Little Sugar River, combination of 3rd and 4th order.

Invasives: None noted.

Past Management: No recent management.

Other notes: Stand hosts impressive old mill site on the Little Sugar River, located at the eastern edge of the tract.

Management Objectives: This stand should be left to serve as a Riparian Buffer Zone to the Little Sugar River, providing shade and soil protection as well as potential for a wildlife corridor.

Recommended Management:

Year	Treatment	Priority
--	Leave to develop naturally as riparian RMZ.	--

Stand Number: LSR3

Stand Type: Natural Area

Stand Acres: 38.4

Soils: Primarily IA soils, good for quality hardwoods

Site: Includes section of moderately steep slope leading down to Little Sugar River, but dominated by moderate to gentle slope, generally good soils. Good, old agriculture site.

Forest Composition: Steep slope leading to Little Sugar River hosts a dense overstory dominated by fairly old hemlock, with scattered white pine and red oak. The forest here has “old forest” components. This type is uncommon on both the County ownership and on a landscape level. Elsewhere, the overstory is a mix of red oak, red maple, yellow birch and white ash, with some large white pine. Overstory is a mix of small to large sawtimber size trees, with some patchy stocking.

Regeneration: Under the hemlock, regeneration is sparse. Elsewhere it is comprised of a light mix of sugar maple, red maple, beech, spruce and some white pine

Natural Communities: Hemlock and Semi rich-Red oak-sugar maple

Forest Health: Typical concerns.

Stocking: Basal area in the hemlock averages around 180, which is fully stocked. Elsewhere it averages around 120, which is adequately to fully stocked.

Timber Quality: Generally good quality red oak, of small to large sawtimber size and fairly abundant. White pine varies from some good quality to a fair amount of fair to poor quality. Hemlock is large and better suited for habitat and site legacy. Other hardwood fair to poor quality.

Wildlife Habitat: Interior, mixed forest with good amount hard mast. Fairly remote. Likely wildlife corridor along Little Sugar River.

Water and Wetland Features: Stand borders 4th order Little Sugar River, and has a mix of moderately steep to fairly gentle slopes. No mapped Riparian Buffer, but utilize 300' Recommended RMZ practices from GFGS.

Invasives: None noted.

Past Management: Portions outside hemlock area harvested 15-20 years ago, mostly focusing on white pine.

Other notes:

- Access to this section of the Little Sugar River tract is difficult. It is located on the far side of the Little Sugar River, requiring crossing of privately held lands a significant distance.
- The combination of difficult access and the old forest hemlock site provide an excellent opportunity for designation of stand as a Natural Area. There is benefit to protecting sites with

significant ecological features, such as the old forest components of the hemlock stand, as well as area of more typical forest, including the surrounding area.

Management Objectives: This area should be designated as a Natural Area. Management here could include such things as treatment for invasives, education and research.

Recommended Management:

Year	Treatment	Priority
--	Designate as Natural Area	--

Stand Number: LSR4

Stand Type: Red oak-red maple-red spruce-balsam fir 3 A

Stand Acres: 10.8

Soils: Mix of IB (oak and white birch), IIA (shallow and rocky) and IIB (spruce-fir).

Site: Shallow soils, some poorly drained. Cooler, softwood site.

Forest Composition: Overstory is dominated by red oak, with a fair amount of red maple mixed in. Balsam fir and red spruce exist scattered and in the mid-story.

Regeneration: A mix, some patchy areas of balsam fir and red spruce. Elsewhere red maple scattered.

Natural Communities: Combination of Lowland Spruce-Fir and Hemlock-Red Spruce-Northern Hardwood

Forest Health: Decline in spruce and fir mid-story poles.

Stocking: Basal area averages around 140. Adequately to fully stocked.

Timber Quality: Scattered red oak generally good quality, small sawtimber size. Red maple generally poor quality; spruce and fir average to poor quality, generally low vigor or in decline.

Wildlife Habitat: Fenced area. Mixed spruce-fir with red oak and red maple. Some patches good softwood regeneration, elsewhere sparse to none.

Water and Wetland Features: Stand borders open/shrub wetland.

Invasives: None noted.

Past Management: No recent commercial management. Some non-commercial felling and leaving adjacent to wetland and open patches by Beagle Club to stimulate understory growth.

Other notes:

- Stand contained within Beagle Club lease area
- Some cutting and felling has occurred mainly near existing openings and along wetland edges geared to improve structure and habitat for rabbits released by the Beagle Club.

Management Objectives: Management will be geared towards improving the red oak timber component where opportunities exist while managing for improved rabbit habitat. Lowland spruce-fir forests with dense softwood understories and a mix of hardwoods are ideal habitat. Large group openings should be made, targeting areas of better soils to regenerate spruce and fir and a mix of hardwoods. Release around quality red oak for crop trees.

Recommended Management:

Year	Treatment	Priority
2028	<ul style="list-style-type: none"><li data-bbox="431 296 1219 359">• Group selection to regenerate pockets of spruce-fir and mixed hardwoods<li data-bbox="431 365 915 394">• Crop Tree Release on quality red oak	Medium

Stand Number: LSR5

Stand Type: Red oak-red maple-hemlock-spruce-fir 3 A/B

Stand Acres: 27.0

Soils: Mix of IIA (shallow and rocky) and IIB (spruce-fir).

Site: Some poorly drained ground, mixed with average site. Soils generally shallow.

Forest Composition: Forest structure is patchy. Overstory a mix of red oak, red maple, some white birch with scattered hemlock, and some spruce and fir. There are patches of younger hardwoods mixed in from older harvests, as well as some patchy openings with good dense understory growth.

Regeneration: Variable. Some patchy areas of spruce and fir mixed with hardwoods and some shrubby growth, elsewhere regeneration sparse.

Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: Decline in spruce and fir mid-story poles.

Stocking: Basal area variable, from 60 to 180. Adequately stocked.

Timber Quality: Scattered red oak generally good quality, small sawtimber size. Red maple generally poor quality; spruce and fir average to poor quality, generally low vigor or in decline.

Wildlife Habitat: Fenced area. Interior forest of mixed red oak and red maple, with some spruce and fir, scattered hemlock and white pine. Riparian system associated with wetland drainage. Patchy.

Water and Wetland Features: Stand borders large open/shrub wetland.

Invasives: None noted.

Past Management: Patchy cutting occurred here about 5 years ago to stimulate understory growth.

Other notes: Stand part of Beagle Club lease area

Management Objectives: Over time, management will be geared towards improving the red oak timber component where opportunities exist while managing for improved rabbit habitat. Lowland spruce-fir forests with dense softwood understories and a mix of hardwoods are ideal habitat. Large group openings should be made, targeting areas of better soils to regenerate spruce and fir and a mix of hardwoods. Release around quality red oak for crop trees. For this planning period, leave to grow.

Recommended Management:

Year	Treatment	Priority
--	Leave to grow.	--

Stand Number: LSR6

Stand Type: White pine-red oak-red maple-hemlock 4 A

Stand Acres: 5.1

Soils: Mix of IIA (shallow and rocky) and IIB (spruce-fir).

Site: Moderate to steeper slope. Shallow soils. Some bony ground.

Forest Composition: Dense overstory dominated by large pine and hemlock, with scattered red oak and red maple.

Regeneration: Sparse, fairly open.

Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: Some spruce decline, especially in bony site.

Stocking: Basal area averages around 180-200. Overstocked for growth.

Timber Quality: Some good quality, large white pine. Spruce tends to be fair to poor. Hemlock is average, typical for site. Scattered red oak fair to good quality, and red maple generally poor.

Wildlife Habitat: Fenced area. Interior forest of dense softwood dominated stand, with sparse, fairly open understory. Adjacent to wetland.

Water and Wetland Features: Stand borders open/shrub wetland and is almost entirely in the wetland's riparian management zone.

Invasives: None noted, but likely some associated with wetland.

Past Management: No recent management. Some selective cutting of white pine occurred in small area around 20 years ago.

Other notes:

- Stand part of Beagle Club lease area
- Beagle fence goes over County boundary onto neighboring land in this area
- Access difficult (but not impossible) because of wetland and fence. Portions have been managed in past. Because of relatively large, old pine and hemlock here consider leaving this area to develop naturally.

Management Objectives: This area could be managed for improved timber production, capturing value on large white pine and maturing oak. Given the difficult access, the high aesthetics of this area and presence of large, relatively undisturbed pine-hemlock forest, this stand would better be left as is, at least for this planning period.

Recommended Management:

Year	Treatment	Priority
--	Leave to grow this planning period	--

Stand Number: LSR7

Stand Type: Red oak-red maple-hemlock-white pine 3 A/B

Stand Acres: 15.2

Soils: IIA (shallow and rocky)

Site: Bony site, poor, shallow, rocky soils. Ridge.

Forest Composition: Forest a patchy mix of red oak, red maple, hemlock, white pine and scattered spruce.

Regeneration: Patchy. Some pockets of spruce fir, elsewhere sparse with red maple, red oak, black birch and hemlock.

Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: Poor site. Overstory trees generally low vigor.

Stocking: Basal area ranges from 100 to 200. Variably stocked.

Timber Quality: Generally poor quality because of site.

Wildlife Habitat: Fenced area. Bony ridge, interior mixed forest. Patchy growth. Hosts small open/shrub wetland.

Water and Wetland Features: Stand includes an open/shrub wetland.

Invasives: None noted, but likely some associated with wetland.

Past Management: No recent management.

Other notes: Stand part of Beagle Club Lease

Management Objectives: Given the poor site quality this area should be left to develop, at least for this planning period.

Recommended Management:

Year	Treatment	Priority
--	Leave to grow this planning period	--

Stand Number: LSR8

Stand Type: Red oak-sugar maple-red maple-aspen-white ash 3/4 A

Stand Acres: 25.8

Soils: Mix of IA (good for quality hardwoods), IIA (shallow and rocky), and some IIB (spruce-fir)

Site: Variable, shallow but generally better soils here supporting a fair amount of sugar maple and white ash. Small cove area of enrichment with elderberry and some blue cohosh. Ground ranges from well-drained in raised areas, to poorly drained lower areas associated with wetlands.

Forest Composition: Dominated by hardwoods, including a mix of red oak, sugar maple, red maple, white ash and scattered aspen. Small to large sawtimber size, with closed to somewhat open canopy. Small to large sawtimber size. Some sections have good stocking of hardwood saplings and small poles.

Regeneration: Variable, but includes patchy mixes of sugar maple, beech, red oak, and red maple. Ironwood, witch hazel, beaked hazelnut also mixed in.

Natural Communities: Mix of Semi Rich Red Oak-Sugar Maple and Hemlock-Red Spruce-Northern Hardwood

Forest Health: Some high-risk red oak with spider heart.

Stocking: Basal area variable, averages about 120. Fully to overstocked.

Timber Quality: Variable. Some good quality red oak, with some high-risk red oak. Other hardwoods fair quality, likely because of shallow soils with drought tendency in elevated areas.

Wildlife Habitat: Fenced area. Interior, hardwood dominated forest bordering multiple wetlands.

Water and Wetland Features: Stand hosts multiple open/shrub wetlands, with associated seepy ground and 1st order streams.

Invasives: None noted, but likely some associated with wetland.

Past Management: Patchy cutting 15-20 years ago.

Other notes: Stand part of Beagle Club Lease

Management Objectives: This area should be managed for improved timber quality, while protecting enriched areas. Harvest lightly to retain soil moisture and prevent undue stress in droughty areas. Use combination of small groups in areas of poor quality, health, and/or vigor and crop tree release or light thinning elsewhere. Manage RMZs around wetlands and streams.

Recommended Management:

Year	Treatment	Priority
2028	<ul style="list-style-type: none">• Small groups in areas of poor quality, health, and/or vigor• Crop tree release and light thinning elsewhere to improve quality	Medium

Stand Number: LSR9

Stand Type: Mixed 1/2 B/A

Stand Acres: 7.9

Soils: IA (best for quality hardwoods) and IIB (spruce-fir)

Site: Good site with areas that are poorly drained associated with wetlands and streams.

Forest Composition: Dense, young growth, less than 10 years old.

Regeneration: Mix of aspen, red oak, red maple and patches of Rubus sp, along with some red pine and white pine.

Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: No serious problems noted.

Stocking: Dense young growth.

Timber Quality: Not applicable.

Wildlife Habitat: Dense young growth.

Water and Wetland Features: Stand borders open/shrub wetland and associated stream.

Invasives: Scattered small and large buckthorn throughout cut area.

Past Management: Clear cut about 5 years ago.

Other notes: Stand part of Beagle Club Lease

Management Objectives: This area should be left to develop; it is serving as quality rabbit habitat. Need to treat invasives.

Recommended Management:

Year	Treatment	Priority
ASAP	Treat invasives- scattered throughout cut area	High

Stand Number: LSR10

Stand Type: Red oak 3/4 A

Stand Acres: 8.4

Soils: Mix of IA (good for quality hardwoods) and IIA (shallow and rocky)

Site: Good oak site, shallow soils but somewhat rich. Scattered sugar maple and basswood. Ridge, somewhat droughty.

Forest Composition: Forest largely dominated by red oak with scattered sugar maple.

Regeneration: Patchy. Mix of striped maple, beech, hemlock, red maple, red oak, and ironwood.

Natural Communities: Semi Rich Red Oak- Sugar Maple. Presence of diverse plant species including American ginger, hepatica and other spring ephemerals.

Forest Health: Oak doing well on this site.

Stocking: Basal area about 180, overstocked for growth.

Timber Quality: Good quality red oak. Sugar maple fair quality due to shallow soils and tendency for drought.

Wildlife Habitat: Fenced area. Oak ridge, excellent mast. Interior hardwood forest.

Water and Wetland Features: Stand borders wetland at south end of ridge.

Invasives: Scattered buckthorn.

Past Management: No recent management.

Other notes: Stand part of Beagle Club Lease

Management Objectives: This stand provides an opportunity to manage for both quality wildlife habitat and timber with the high density of quality and healthy red oak. Given the tendency for droughty conditions here, management should be light to help retain soil moisture. Also need to survey and protect diverse spring ephemerals and other unusual plant species growing in the stand. Otherwise, stand would benefit from some light thinning to improve growth on better quality, health and vigor trees. Treat invasives.

Recommended Management:

Year	Treatment	Priority
2026	Light thinning to improve growth	Medium
ASAP	Treat invasives- scattered buckthorn interior forest	High

Stand Number: LSR11

Stand Type: Hemlock-white pine-red oak 3 A

Stand Acres: 10.0

Soils: IIA (shallow and rocky)

Site: Poor site. Shallow, rocky soils.

Forest Composition: Overstory a mix of hemlock, white pine, red oak and red maple. Scattered sugar maple. Small sawtimber size.

Regeneration: Patchy. Mix of striped maple, beech, hemlock, and red maple.

Natural Communities: Hemlock-Red Spruce-Northern Hardwood

Forest Health: Poor site due to shallow, droughty soils. All species generally low vigor, likely with fair amount hemlock shake.

Stocking: Basal area 160 to 180, overstocked for growth.

Timber Quality: Generally poor quality. Some fair quality red oak.

Wildlife Habitat: Droughty, softwood dominated interior forest. Some open patches sections at height of land with exposed ledge and scattered blueberry.

Water and Wetland Features: None.

Invasives: Scattered buckthorn.

Past Management: No recent management. Stand was partially marked but not treated.

Management Objectives: Located on a poor site, with shallow soils and exposed ledge this stand will largely be managed for wildlife habitat. Presently it serves well providing continuous forest cover. Active management here low priority this planning period. Treat invasives.

Recommended Management:

Year	Treatment	Priority
--	Leave to grow this planning period.	--
ASAP	Treat invasives- scattered buckthorn interior forest	High

Stand Number: LSR12

Stand Type: Red oak-red maple-white birch-white ash-white pine-hemlock 3/4 A/B

Stand Acres: 30.6

Soils: Mix of IA (good for quality hardwoods), IB (red oak and white birch), and IIA (shallow and rocky)

Site: Variable. Some enriched soils with maidenhair fern, American ginger, etc., but generally shallow and prone to drought. Elsewhere, soils shallow and rocky.

Forest Composition: Overstory a varied mix of red oak, red maple, white birch, white ash, pine, and hemlock with scattered spruce. Small to large sawtimber size, generally closed canopy.

Regeneration: Patchy. Mix of ironwood, beech, striped maple, and hemlock. Generally light.

Natural Communities: Mix of Rich Red Oak-Sugar Maple and Hemlock-Red Spruce-Northern Hardwood

Forest Health: Average health and vigor here. Oak tends to do better on shallow, somewhat droughty soils.

Stocking: Basal area 150. Fully stocked.

Timber Quality: Oak is generally good quality, everything else fair to poor. White birch in decline.

Wildlife Habitat: Interior mixed forest. Good mast production.

Water and Wetland Features: None.

Invasives: Scattered buckthorn.

Past Management: Stand was partially marked but not treated. Some harvesting around 25 years ago.

Other notes: Stand includes portion of snowmobile trail maintained by Crescent Lake Regional Snoriders.

Management Objectives: This diverse stand, with good potential for both wildlife and timber management, focusing on oak for timber quality and a diversity of other species for varied habitat. Silviculture here will be geared towards improving growth on the species best suited to the site. There is some enrichment here, but with shallow, droughty soils species such as sugar maple and ash are not doing as well as oak and birch. Also, a small population of Leatherwood (*Dirca palustris*) occurs in this stand, which is not known anywhere else on County lands. This stand would be improved with a combination of group selection focusing on areas of poor quality, health and/or vigor combined with light thinning elsewhere. Care needs to be taken to protect maidenhair fern and other uncommon plant species during management. Medium priority for this planning period.

Recommended Management:

Year	Treatment	Priority
2026	<ul style="list-style-type: none"><li data-bbox="431 296 1203 331">• Group selection in areas of poor quality, health, and/or vigor<li data-bbox="431 331 1276 401">• Elsewhere, light thinning to improve growth on best quality, health and vigor trees	Medium
ASAP	Treat invasives- scattered buckthorn interior forest	High

Stand Number: LSR13

Stand Type: Natural Area

Stand Acres: 28.9

Soils: Mix of IB (red oak and white birch), IIA (shallow and rocky), and some IIB (spruce-fir)

Site: Hemlock dominated area on average site, with moderate to steep slope with some exposed ledge. Hardwoods on enriched ground, some sections highly enriched.

Forest Composition: Hemlock dominated forest with scattered hardwoods dominated by red maple and red oak. Small sawtimber size, generally closed canopy. Enriched hardwood area dominated by sugar maple, with some hemlock and white ash. Overstory is small to large sawtimber, and generally fully stocked. Some section of dense, small poles

Regeneration: Under hemlock, sparse and scattered. Elsewhere, variable, mix of ironwood, ash and sugar maple, with some beech.

Natural Communities: Semi Rich Red Oak-Sugar Maple and Hemlock-Red Spruce-Northern Hardwood

Forest Health: Average health and vigor here. Monitor ash for signs of Emerald Ash Borer. No serious problems noted.

Stocking: Basal area 160 in hemlock, fully stocked. In hardwood, basal area averages 100, adequately stocked.

Timber Quality: Average quality, with some fair to good red oak.

Wildlife Habitat: Interior mixed forest, some areas dominated by hemlock but with sparse regeneration. Elsewhere interior hardwood forest. Red oak for mast fairly abundant.

Water and Wetland Features: None.

Invasives: None noted, but likely scattered buckthorn.

Past Management: No recent management in hemlock. Fairly intensive harvest about 25 years ago in hardwood.

Other:

- The enriched site here is worthy of designating as a Natural Area. The adjacent hemlock dominated stand, with low timber potential and high habitat value, provides an excellent buffer and should be included in the Natural Area.
- Vista opportunity off snowmobile trail on exposed ledge.

Management Objectives: This area should be designated as a Natural Area. Management here could include such things as treatment for invasives, education and research.

Recommended Management:

Year	Treatment	Priority
--	Designate as Natural Area	--
ASAP	Treat invasives- scattered buckthorn interior forest	High