Compartment Review Presentation

Shingleton Forest Management Unit

Compartment 164
Entry Year 2015
Acreage: 3,172
County Schoolcraft
Management Area: Cusino Complex

Revision Date: 07/31/2013

Stand Examiner: Robert Tylka

Legal Description:

T47N R16W Sections 9, 16, 17, 19-22, and 27-29

Identified Planning Goals:

This compartment is located within the Cusino Complex Management Area, and is regarded as a part of the Old Cusino Deer Wintering Area. A long-term goal of restoring the winter deer habitat therein has been discussed, and the treatments recommended at this time are consistent with that goal.

Soil and topography:

Most of this compartment is flat and wet, with a series of “islands” of higher ground in sections 20, 21 and 28. Sections 22 and 27 feature more of a rolling upland/lowland terrain association near Worchester Lake.

Ownership Patterns, Development, and Land Use in and Around the Compartment:

The Forest Land Group owns several parcels of CFR lands nearby, including the private lands within this compartment in sections 16, 27 and 28, and the SWSE of section 22. The SESE of section 22 (including a portion of the Worchester Lake shoreline) is privately owned. There are two hunting camps on Worchester Lake itself.

Outside of the compartment, there is an unimproved boat launch on state land on the east side of Worchester Lake. It is not maintained by the state and has no facilities of any kind. Canoe Lake State Forest Campground is also located across the road from this compartment in section 22.

Unique Natural Features:

Archeological, Historical, and Cultural Features:

There are known concerns within the compartment. All proposed management activities have taken these concerns into consideration.

Special Management Designations or Considerations:

The Creighton Marsh Patterned Fen ERA extends into the south end of this compartment. Because of the wet terrain, bottomland timber and associated access problems, this compartment is regarded as prime habitat for moose.

Watershed and Fisheries Considerations:

The upper Creighton River, Stoner Creek and Shotgun Creek are designated trout-waters. There is a need to protect the stream from encroachment by beaver, since the water supports brook trout. Protection from increased sand bedload is still a high priority. Worchester Lake has not received any fish management for many years although it historically supported a limited northern pike and yellow perch sport fishery.

Wildlife Habitat Considerations:

This compartment in the Grand Marais end moraine and outwash ecological sub-subsection. It lies on the north edge of the historic Cusino Deer Yard. Deer no longer utilize this yard during the winter. Pre-settlement data show the uplands supported a mixed deciduous/coniferous forest. Primary component included white pine, hemlock, balsam fir, sugar maple, beech, yellow birch, and spruce. Other species recorded include red maple, white birch, aspen, and cedar. Lowland forests were dominated by cedar, tamarack, black spruce, and tag alder. White pine, white birch, and aspen were also present in the lowland forests.

Current forest likely contain a reduced amount of hemlock and white pine in the uplands, but otherwise appear to be similar in species composition to pre-settlement times.

Wildlife habitat objective include maintaining closed canopy coniferous lowlands, providing deciduous browse, promoting species and structural diversity within the northern hardwood stands, and protecting the hydrological integrity of the wetland systems.

Wildlife species of special interest potentially utilizing this compartment include red-shouldered hawks and moose.

Mineral Resource and Development Concerns and/or Restrictions

Surface sediments consist of glacial outwash sand and gravel and postglacial alluvium and peat and muck. There is insufficient data to determine the glacial drift thickness. The Ordovician Prairie du Chien (PdC) Group subcrops below the glacial drift. The PdC could be used for stone. A gravel pit is in Section 21 and there should be potential. There is no commercial oil and gas production in the UP.

Vehicle Access:

Access from the Wolf Lake Truck Trail (a county road) represents the only viable option, except for the stands directly adjacent to County Rd. 450. With few exceptions, getting to most of this compartment is challenging at all times. At present, vehicle access to the timber near Stoner Creek is virtually impossible until frozen roads allow winter travel. The timber in section 27 is reached by crossing a temporary bridge over Marsh Creek located in the compartment to the east.

Survey Needs:

Land survey may be needed in section 16 to facilitate planned timber sale activity.

Recreational Facilities and Opportunities:

There are no developed recreation facilities within this compartment, but the Canoe Lake State Forest Campground is located on the north side of the Wolf Lake Truck Trail and just outside of the compartment boundary.

Fire Protection:

Access to much of the compartment is extremely difficult. The wet terrain limits the probability of a rapidly-spreading fire unless prolonged drought occurs, but scattered larger trees may be prone to lightning strikes.

Additional Compartment Information:

The following reports from the Inventory are attached:

- **Total Acres by Cover Type and Age Class**
- **Cover Type by Harvest Method**
- **Proposed Treatments – No Limiting Factors**
- **Proposed Treatments – With Limiting Factors**
- **Stand Details (Forested and Nonforested)**
- **Dedicated and Proposed Special Conservation Areas**
- **Site Condition Details**

The following information is displayed, where pertinent, on the attached compartment maps:

- **Base feature information, stand boundaries, cover types, and numbers**
- **Proposed treatments**
- **Site condition boundaries**
- **Details on the road access system**

Cover Type & Treatment Map

Compartment: 164
T47N R16W
09 15 16 17 20 21 22 26 27 28 29
County: Schoolcraft
Unit: Shingleton
YOE: 2015
Acres: 3,172 GIS Calculated
Examiner: Robert Tylka
Map Revised: 09/12/2013
Map Phase: Pre-Review

Stand # 23
Stocking Density
(412)0) - A7
Level 3 Level 4 OI Code
Cover Type Code

17 16
20 21 22
29 28 27
N

Legend

- Miris Corners
- Remonumented Section Corners
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- Bike Trails
- Hiking Trails
- Ski Trails
- Snowmobile Trails
- Ski Trail
- Hiking Trail
- Bike Trail
- Snowmobile Trail
- Stream
- Intermittent Stream
- Lakes and Rivers
- State Forest Land

Non-Forest Regeneration

- Natural
- Planted
- Treatments w/ Site Condition

Treatments

- Clearcut (w/Reserves, Patch/Strip)
- Shelter Wood (w/Reserves)
- Selection (Group, Single Tree)
- Pesticide
- Monitoring - See Comments

Forest Stands

Level 3

- 411 - Northern Hardwood
- 429 - Mixed Upland Conifers
- 611 - Lowland Deciduous Forest
- 612 - Lowland Coniferous Forest
- 613 - Lowland Mixed Forest

Non-Forest Stands

Level 3

- 500 - Water
- 622 - Lowland Shrub

Long Lake
Long Lake R
Fawn Lake
Crooked Lake
Gemini Lakes
Long Lake Rd
Twin Lake Rd
Creighton Rd
County Road 450
Canoe Lake
Ross Lake
Cusino Lake
Wolf Lake Rd
Driggs Lake Truck Trl
Worchester Lake
Shotgun Creek

1 6124-Q2
2 6121-T8
3 6122-S5
4 6124-Q6
5 622-L0
6 6120-C5
7 6128-Q5
8 622-L0
9 6122-S6
10 6129-Q9
11 4112-M9
12 4119-M9
13 6120-C6
14 6128-Q6
15 622-L0
16 6128-Q6
17 6120-C6
18 6120-C5
19 622-L0
20 6128-Q6
21 4112-M6
22 6129-Q9
23 4112-M6
24 500-Z0
25 622-D0
26 6128-Q6
27 500-Z0
28 4112-M9
29 6139-LM5
30 622-L0
31 622-L0
32 4112-M6
33 6129-Q6
34 6119-E6
35 4112-M5
36 4112-M6
37 622-L0
38 6117-E6
39 6120-C6
40 6117-E6
41 6128-Q9
42 500-Z0
43 6127-Q8
44 622-L0
45 500-Z0
45 622-L0
47 4112-M6
48 6128-Q6
49 6117-E6
50 6122-S5
51 6119-E6
52 6116-B6
53 4112-M5
54 6128-Q9
55 622-V0
56 429-MC9
57 6128-Q9
58 4112-M9
59 6128-Q9
60 4112-M9
61 6128-Q9

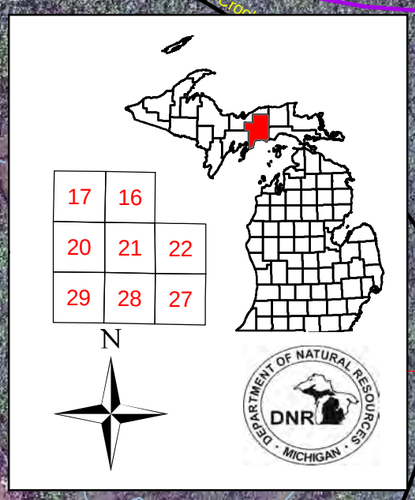
1 0.5 0 1 Miles

86°20'0"W 86°19'0"W 86°18'0"W 86°17'0"W 86°16'0"W
46°30'0"N 46°29'0"N 46°28'0"N 46°27'0"N 46°26'0"N

Stand Boundary Map

Compartment: 164
T47N R16W
09 15 16 17 20 21 22 26 27 28 29
County: Schoolcraft
Unit: Shingleton
YOE: 2015
Acres: 3,172 GIS Calculated
Examiner: Robert Tylka
Map Revised: 09/12/2013
Map Phase: Pre-Review

Stand # 23
Stocking Density
(412)0) - A7
Level 3 Level 4 OI Code
Cover Type Code



Legend

- Miris Corners
- Remonumented Section Corners
- Highway
- County Paved Roads
- Paved Roads
- County Gravel Roads
- Gravel Roads
- Poor Dirt Roads
- County Poor Dirt Roads
- Trail (Non-Recreation)
- Closed Roads
- Stream
- Intermittent Stream
- Stand Boundaries

Forest Stands

Level 3

411 - Northern Hardwood
429 - Mixed Upland Conifers
611 - Lowland Deciduous Forest
612 - Lowland Coniferous Forest
613 - Lowland Mixed Forest

Non-Forest Stands

Level 3

500 - Water
622 - Lowland Shrub

1 0.5 0 1 Miles

Special Conservation Areas & Site Conditions Map

Compartment: 164
T47N R16W
09 15 16 17 20 21 22 26 27 28 29
County: Schoolcraft
Unit: Shingleton
YOE: 2015
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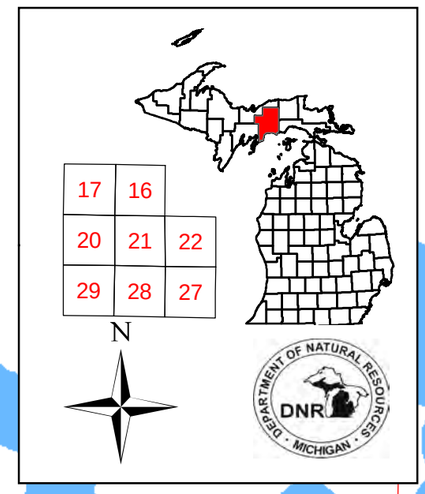

Legend

Miris Corners
Stand Boundaries

Site Condition Available

Available w/ Constraints (Factor - Number)
Unavailable (Factor - Number)

Site Condition Type

Available Factors W/ Constraints

5B: Retention for regeneration purposes
2D: Portable Bridge Needed (Dept. bridge will be adequate)

Unavailable Factors

3J: Water quality / BMPs (stream, river, or lake)

Dedicated Special Conservation Areas

Ecological Reference Areas

86°20'0"W 86°19'0"W 86°18'0"W 86°17'0"W 86°16'0"W
46°30'0"N 46°29'0"N 46°28'0"N 46°27'0"N 46°26'0"N

17 16 20 21 22 29 28 27

1 6124-Q2
2 6121-T8
3 6122-S5
4 6124-Q6
5 622-L0
6 6120-C5
7 6128-Q5
8 622-L0
9 6122-S6
10 6129-Q9
11 4112-M9
12 4119-M9
13 6120-C6
14 6128-Q6
15 622-L0
16 6128-Q6
17 6120-C6
18 6120-C5
19 622-L0
20 6128-Q6
21 4112-M6
22 6139-QQ
23 4112-M6
24 500-Z0
25 622-D0
26 6128-Q6
27 500-Z0
28 4112-M9
29 6139-LM5
30 622-L0
31 622-L0
32 4112-M6
33 6129-Q6
34 6119-E6
35 4112-M5
36 4112-M6
37 622-L0
38 6117-E6
39 6120-C6
40 6117-E6
41 6128-Q9
42 500-Z0
43 27
44 622-L0
45 500-Z0
46 622-L0
47 4112-M6
48 6128-Q6
49 6117-E6
50 6122-S5
51 6119-E6
52 6116-B6
53 4112-M5
54 6128-Q9
55 622-V0
56 429 -MC9
57 6128-Q9
58 4112-M9
59 6128-Q9
60 4112-M9
61 6128-Q9

5C - 006
3J - 002
3J - 003
2D - 005
5B - 004

1 0.5 0 1 Miles

Report 1 – Total Acres by Cover Type and Age Class

Shingleton Mgt. Unit **Compartment 164 Year of Entry 2015**

Robert Tylka : Examiner

Age Class

	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120 +	Uneven Age	Total
Bog	5	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**
Cedar	0	0	0	0	0	0	18	0	0	0	0	0	275	130	**423**
Lowland Conifers	0	0	0	0	0	0	0	57	0	158	0	0	170	714	**1099**
Lowland Deciduous	0	0	0	0	0	0	0	10	0	0	0	0	0	97	**107**
Lowland Mixed Forest	0	0	0	0	0	0	0	0	0	0	0	0	12	0	**12**
Lowland Shrub	461	0	0	0	0	0	0	0	0	0	0	0	0	0	**461**
Lowland Spruce/Fir	0	0	0	0	0	0	3	0	0	235	0	0	0	0	**237**
Northern Hardwood	0	0	0	0	0	0	0	0	0	0	0	0	0	778	**778**
Paper Birch	0	0	0	0	0	0	0	0	14	0	0	0	0	0	**14**
Tamarack	0	0	0	0	0	0	14	0	0	0	0	0	0	0	**14**
Treed Bog	3	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
Upland Conifers	0	0	0	0	0	0	0	0	0	0	0	0	0	13	**13**
Water	6	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**
Total	**476**	**0**	**0**	**0**	**0**	**0**	**35**	**67**	**14**	**393**	**0**	**0**	**457**	**1732**	**3172**

Report 2 – Proposed Treatment Summaries

Shingleton Mgt. Unit
Year of Entry 2015

Compartment 164
Total Compartment Acres: 3,172

Acres by Treatment Type

Commercial Harvest - 685	Tree Planting - 0	Other - 181
Habitat Cut - 0	Opening Maintenance - 0	

Cover Type by Harvest Method

	Clearcut	Selection	Seed Tree	Shelterwood	Thinning	Other - Specify	Total Acres
Lowland Coniferous Forest	194	76	0	93	0	0	**362**
Lowland Deciduous Forest	82	0	0	0	0	0	**82**
Lowland Mixed Forest	12	0	0	0	0	0	**12**
Northern Hardwood	0	228	0	0	0	0	**228**
Total	**288**	**304**	**0**	**93**	**0**	**0**	**685**

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
2	41164002-Cut	13.6	6121 - Tamarack	Medium Density Log	69	51-80	Harvest	Clearcut with Reserves	6121 - Tamarack	Cmpt. Review Proposal

Prescription Specs: CC with reserves - Reserve the cedar, plus any hemlock and white pine if present. Winter logging only.

Other Comments:

Next Steps: Natural regeneration - all lowland conifer spp. are acceptable for regen. Monitor regeneration per the work instructions.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
3	41164003-Cut	2.9	6122 - Black Spruce	Medium Density Pole	69	51-80	Harvest	Clearcut with Reserves	6121 - Tamarack	Cmpt. Review Proposal

Prescription Specs: CC w/reserves - Reserve the cedar, plus any hemlock and white pine if present. Winter logging only.

Other Comments: BMP issues may preclude harvest if encountered.

Next Steps: Natural regeneration - all lowland conifer species are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
4	41164004-Cut	48.8	6124 - Lowland Spruce-Fir	High Density Pole	95	81-110	Harvest	Clearcut with Reserves	6124 - Lowland Spruce-Fir	Cmpt. Review Proposal

Prescription Specs: CC w/reserves - reserve any hemlock & white pine if present. The actual boundaries and acreage to be treated may vary depending on BMP issues - use retention areas to avoid BMP issues if encountered. Winter logging only.

Other Comments:

Next Steps: Natural regeneration - all lowland conifer species are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
10	41164010-Cut	75.6	6129 - Mixed Coniferous Lowland Forest	High Density Log	132	111-140	Harvest	Group Selection	6129 - Mixed Coniferous Lowland Forest	Cmpt. Review Proposal

Prescription Specs: Group selection - retain the cedar, hemlock and white pine while cutting all others. Winter cut only to protect the existing cedar/hemlock regen. BMP issues may be present - use retention areas to avoid these problems if encountered. Areas where the density of the cedar/hemlock present a challenge to harvesting w/o damaging reserve spp. should also be left as retention areas.

Other Comments: Survey request needed to establish private boundary.

Next Steps: Natural regeneration - all lowland conifer species are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
11	41164011-Cut	35.7	4112 - Maple, Beech, Cherry Association	High Density Log	100	111-140	Harvest	Single Tree Selection	4112 - Maple, Beech, Cherry Association	Cmpt. Review Proposal

Prescription Specs: Selection cut. Remove all beech and reserve/promote hemlock, cedar and white pine. Where cherry and yellow birch are prevalent, consider lowering residual BA to approximately 50 sq.ft./acre to encourage regeneration of these spp.

Other Comments: Survey request needed to establish private boundary.

Next Steps: Natural regeneration - all species present except beech are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
12	41164012-Cut	14.7	4119 - Mixed Northern Hardwoods	High Density Log	80	141-170	Harvest	Single Tree Selection	4119 - Mixed Northern Hardwoods	Cmpt. Review Proposal

Prescription Specs: Select cut to encourage regeneration of cherry and yellow birch - residual BA may be as low as 50 sq.ft./acre in order to recruit these species. Reserve all hemlock plus any white pine & cedar present. Winter logging only.

Other Comments: High percentage of cherry = extremely valuable bear habitat, especially considering the loss of the beech in this area.

Next Steps: Natural regeneration - all species present plus all native conifers are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
28	41164028-Cut	73.9	4112 - Maple, Beech, Cherry Association	High Density Log	100	111-140	Harvest	Single Tree Selection	4112 - Maple, Beech, Cherry Association	Cmpt. Review Proposal

Prescription Specs: Select cut - remove all beech and thin others. Where black cherry and yellow birch are present, consider lowering residual BA to 50 sq.ft./acre to recruit these spp. Winter logging only.

Other Comments: Watch out for BMP issues - consider using retention areas to avoid these problems if encountered.

Next Steps: Natural regeneration - all species present except beech are acceptable regeneration. Monitor regen in accordance with the work instructions. Underplant oak in canopy gaps.

Proposed Start Date: 10/31/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
29	41164029-Cut	11.8	6139 - Mixed Lowland Forest	Medium Density Pole	131		Harvest	Clearcut with Reserves	6139 - Mixed Lowland Forest	Successful Completion - Pending Next Step

Prescription Specs: Under contract - T-sale 41-028-10-01 Stoner Creek Hardwoods - CC w/reserves.

Other Comments:

Next Steps: Natural regeneration - all species present are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 10/01/2010

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
34	41164034-Cut	34.2	6119 - Mixed Lowland Deciduous Forest	High Density Pole	131		Harvest	Clearcut with Reserves	6119 - Mixed Lowland Deciduous Forest	Fld. Tr. Bdy.

Prescription Specs: Under contract T-sale 41-028-10-01 Stoner Creek Hardwoods - CC w/reserves.

Other Comments:

Next Steps: Natural regeneration - all species present are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 12/16/2011

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
40	41164040-Cut	24.5	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	131		Harvest	Clearcut with Reserves	6117 - Lowland Deciduous, Mixed Coniferous	Fld. Tr. Bdy.

Prescription Specs: Under contract T-sale 41-028-10-01 Stoner Creek Hardwoods - CC w/reserves.

Other Comments:

Next Steps: Natural regeneration - all species present are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 12/16/2011

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
48	41164048-Cut	28.9	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	131		Harvest	Clearcut with Reserves	6128 - Lowland Coniferous, Mixed Deciduous	Fld. Tr. Bdy.

Prescription Specs: Under contract T-sale 41-028-10-01 Stoner Creek Hardwoods - CC w/reserves.

Other Comments:

Next Steps: Natural regeneration - all species present are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 12/16/2011

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
50	41164050-Cut	42.5	6122 - Black Spruce	Medium Density Pole	93	51-80	Harvest	Clearcut with Reserves	6122 - Black Spruce	Cmpt. Review Proposal

Prescription Specs: CC w/reserves. retain all cedar and any hemlock & white pine encountered. Winter logging only. If BMP issues are encountered, use retention areas to avoid the problems if possible.

Other Comments: A temporary bridge across Marsh Creek is needed to access the area.

Next Steps: Natural regeneration - all lowland conifer species are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
51	41164051-Cut	9.9	6119 - Mixed Lowland Deciduous Forest	High Density Pole	79		Harvest	Clearcut with Reserves	6119 - Mixed Lowland Deciduous Forest	Fld. Tr. Bdy.

Prescription Specs: Under contract T-sale 41-028-10-01 Stoner Creek Hardwoods - CC w/reserves.

Other Comments:

Next Steps: Natural regeneration - all species present are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 12/16/2011

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
52	41164052-Cut	13.6	6116 - Lowland Birch	High Density Pole	86		Harvest	Clearcut with Reserves	6116 - Lowland Birch	Fld. Tr. Bdy.

Prescription Specs: Under contract T-sale 41-028-10-01 (Optional unit)- CC w/reserves

Other Comments:

Next Steps: Natural regeneration - all species present are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 12/16/2011

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
54	41164054-Cut	57.3	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	73	111-140	Harvest	Clearcut with Reserves	6128 - Lowland Coniferous, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: CC w/reserves - retain all hemlock, cedar and white pine.

Other Comments: A temporary bridge across Marsh Creek is needed for access to this stand.

Next Steps: Natural regeneration - all species present are acceptable for regeneration. Monitor regeneration in accordance with the work instructions.

Proposed Start Date: 10/01/2014

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
60	41164060-Cut	53.1	4112 - Maple, Beech, Cherry Association	High Density Log	101	81-110	Harvest	Single Tree Selection	4112 - Maple, Beech, Cherry Association	Cmpt. Review Proposal

Prescription Specs: Select cut to remove all beech and thin others as needed. Where black cherry and yellow birch are present, residual BA may be as low as 50 sq.ft./acre to recruit these spp.

Other Comments: A temporary bridge across Marsh Creek is needed to access the area.

Next Steps: Natural regeneration - all species present except beech are acceptable regeneration. Monitor regen in accordance with the work instructions.

Proposed Start Date: 10/31/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
53	41164053-Spray	85.5	4112 - Maple, Beech, Cherry Association	Medium Density Pole	132	51-80	Pesticide	Skidder	4112 - Maple, Beech, Cherry Association	Cmpt. Review Proposal

Prescription Specs: Area was select cut - spray to eliminate beech regeneration.

Other Comments: A temporary bridge across Marsh Creek is needed to access the area.

Next Steps: Monitor regeneration in accordance with work instructions to evaluate success of releasing/establishing desirable regeneration. Follow up by underplanting oak, white pine and hemlock.

Proposed Start Date: 10/31/2013

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
58	41164058-Spray	95.6	4112 - Maple, Beech, Cherry Association	High Density Log	101	51-80	Pesticide	Skidder	4112 - Maple, Beech, Cherry Association	Cmpt. Review Proposal

Prescription Specs: Area was select cut - spray to eliminate beech regeneration.

Other Comments: A temporary bridge across Marsh Creek is needed to access the area.

Next Steps: Monitor regeneration in accordance with work instructions to evaluate success of releasing/establishing desirable regeneration. Follow up by underplanting oak, white pine and hemlock.

Proposed Start Date: 10/31/2013

Total Treatment Acreage Proposed: 722.0

Report 4 -- Treatments Prescribed with a Limiting Factor

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
14	41164014-Cut	35.6	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	132	81-110	Harvest	Shelter Wood with Reserves	6128 - Lowland Coniferous, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Shelterwood with reserves - retain all cedar, white pine and any hemlock encountered in this stand.

Other Comment: Factor Limited - need a bridge across Stoner Creek to access this for harvest.

Next Steps: Natural regeneration - all species present are acceptable. Monitor regen in accordance with the work instructions.

Proposed Start Date: 10/01/2014

Limiting Factor: 2D: Portable Bridge Needed (Dept. bridge will be adequate)

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
16	41164016-Cut	57.2	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	132	81-110	Harvest	Shelter Wood with Reserves	6128 - Lowland Coniferous, Mixed Deciduous	Cmpt. Review Proposal

Prescription Specs: Shelterwood w/reserves - retain all cedar and white pine plus any hemlock encountered in the stand. Leave at least a 100' buffer uncut along Stoner Creek

Other Comment: Factor Limited - need a bridge across Stoner Creek to access this for harvest.

Next Steps: Natural regeneration - all species present are acceptable. Monitor regeneration inaccordance with the work instructions.

Proposed Start Date: 10/01/2014

Limiting Factor: 2D: Portable Bridge Needed (Dept. bridge will be adequate)

Stand	Treatment Name	Acres	CoverType	Size Density	Stand Age	BA Range	Treatment Type	Treatment Method	Cover Type Objective	Approval Status
21	41164021-Cut	50.9	4112 - Maple, Beech, Cherry Association	High Density Pole	100	51-80	Harvest	Single Tree Selection	4112 - Maple, Beech, Cherry Association	Cmpt. Review Proposal

Prescription Specs: Select cut to improve the quality of the hardwoods. Enhance the diversity by marking to increase the amount of cedar, yellow birch and white pine present. Leave at least a 100' buffer uncut along Stoner Creek

Other Comment: Factor Limited - need a bridge across Stoner Creek to access this for harvest.

Next Steps: Natural regeneration - all species present are acceptable. Monitor regeneration in accordance with the work instructions.

Proposed Start Date: 10/01/2014

Limiting Factor: 2D: Portable Bridge Needed (Dept. bridge will be adequate)

Total Treatment Acreage Proposed: 143.7

Report 5 – Site Conditions

Shingleton Mgt. Unit

Robert Tylka : Examiner

Compartment 164

Year of Entry 2015

Availability for Management

Total Acres	Acres Available	Acres Not Available		Dominant Site Conditions No	5C	5B	3J	2D
423	423		**Cedar**	423				
1097	1075	22	**Lowland Conifers**	859	109	15	22	92
107	107		**Lowland Deciduous**	107				
12	12		**Lowland Mixed Forest**	12				
237	45	192	**Lowland Spruce/Fir**	45			192	
778	778		**Northern Hardwood**	727				51
14	14		**Paper Birch**	14				
14	14		**Tamarack**	14				
13	13		**Upland Conifers**	13				
2,694	2,480	214	Total Forested Acres	2,214	109	15	214	142
	92%	8%	Relative Percent					

**Due to limitations in the current Site Conditions Analysis tool, all nonforested acres are considered available. Future development will enable analysis of nonforested types.*

Site No.	Dominant Site Cond Availability	Dominant Site Condition	Acres	Other Site Condition	Other Site Condition	Other Site Condition	Other Site Condition
002	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	192				
	Comments:						
003	**Not Available**	**3J: Water quality / BMPs (stream, river, or lake)**	22				
	Comments:						
004	**Available**	**5B: Retention for regeneration purposes**	15				
	Comments:						

005	**Available**	**2D: Portable Bridge Needed (Dept. bridge will be adequate)**	144

Comments:

006	**Available**	**5C: Delay treatment for age/size class diversity or exceptional site quality**	109

Comments:

Report 6 – PROPOSED SPECIAL CONSERVATION AREA* (SCA) DETAILS

* This is a partial list of SCAs for this compartment. Not included are those areas identified under other Department initiatives (Natural Rivers, Deer Wintering Areas, etc.). Those will be identified in separate, future map and report products.

SCA Name	SCA Category	Detail Type	Recommendation	Acres

Comments

Report 7 – DEDICATED CONSERVATION AREA DETAILS

* This is a list of Dedicated Biodiversity Areas for this compartment along with a 1/4 mile buffer surrounding the compartment. Refer to Dedicated Conservation Area Map for areas that the below listed Conservation Areas are located.

ERA = Ecological Reference Area
HCVA = High Conservation Value Area
SCA = Special Conservation Area

Conservation Area	Type	Description
SCA	Archaeological Site	An aquatic or terrestrial area of the State that contains physical remains of human occupation. These are sites of cultural and historical significance that may occur upon terrestrial areas and Great Lakes bottomlands. They include thousands of Native American settlements and burial sites, as well as French and British outposts, nineteenth century logging camps, mines and homesteads. Beneath the waters of the Great Lakes, there are shipwrecks and other remains documenting the maritime trade. Such sites may be identified by Natural heritage data from the State Historic Preservation Office. Proposed treatments in this compartment will be implemented in such a manner as to maintain the integrity of these sites. Due to the sensitive nature of this information, no further detail about location is available.
SCA	Cold Water Lake	A coldwater lake has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species to persist from year to year. Suitable conditions for coldwater fishes may occur in Michigan lakes if they are relatively deep, have substantial groundwater inflows, or are located in colder (northern) areas of the state. Such lakes are established by Director's action and designated as trout resources by Fisheries Order 200.
SCA	Cold Water Stream	A coldwater stream has temperature and dissolved oxygen conditions that allow naturally-reproduced or stocked trout populations and those of other coldwater fish species (e.g., slimy sculpin) to persist from year to year. Coldwater streams in Michigan typically provide these conditions due to substantial contributions of groundwater to their stream flows. Such streams are established by Director's action and designated as trout resources by Fisheries Order 210.
SCA	Habitat Area	An area that provide some specific need for the life cycle of wildlife species, including State Wildlife Areas and Waterfowl Production Areas, deer wintering complexes in lowland conifer communities, grassland openings and savannas. Habitat areas are distinct from critical habitat designated for recovery of endangered or threatened species (such as Kirtland's warbler or piping plover areas) in that they are more general in nature, are not primarily associated with threatened or endangered species, and are not covered by species recovery plans that are developed in cooperation with Federal agencies.
ERA	Ecological Reference Areas	Ecological Reference Areas (ERAs) are high quality examples of natural communities that have been identified as Element Occurrences (EOs) by the Michigan Natural Features Inventory (MNFI) within the context of their natural community classification system. Element Occurrences with viability ranks of A (Excellent) or B (Good) and a Global (G) or State (S) element (rarity) ranking of endangered (1), threatened (2), or rare (3) serve as an initial base of ERAs. They may be located upon any ownership in the State. The system is comprised of individual or associations of natural community types that are managed for restoration and maintenance of natural ecological processes and values. The public may submit recommendations for lands as ERAs using the DNR Conservation Area Recommendation Form.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
1	6124 - Lowland Spruce-Fir	Medium Density	14.8	Uneven Age	1-50	Cut back in 1962 - mostly regen, with larger trees that were probably residuals left after the cut.
2	6121 - Tamarack	Medium Density Log	13.6	69	51-80	Some unevenaged characteristics are present, and there is evidence that stand break-up is underway - harvest now to recover the impending losses. Reserve the cedar, plus any hemlock and white pine if present.
3	6122 - Black Spruce	Medium Density Pole	2.9	69	51-80	Spruce mix - harvest now along with the stand just to the west.
4	6124 - Lowland Spruce-Fir	High Density Pole	158.0	95	81-110	Age class diversity is beginning to appear as natural disturbances create more canopy gaps. Break this stand up into several blocks and harvest approximately 33-50% of it now, reserving the cedar, white pine and any hemlock if encountered.
6	6120 - Lowland Cedar	Medium Density Pole	18.4	69	51-80	Cut in 1944 - cedar with spruce, fir, etc. Crown closure varies considerably as some areas are semi-open.
7	6128 - Lowland Coniferous, Mixed Deciduous	Medium Density Pole	112.2	Uneven Age	51-80	This stand dispalys highly variable crown closure/basal area as well as apparent differences in site indices. Overall it is best described as an unevenaged mix of lowland timber with cedar/black ash/mixed lowland conifers as the featured species. Tag alder is the dominant understory species, but there are adequate numbers of both conifer and hardwood seedlings & saplings present to call the stand multi-storied. The spruce and balsam fir appear to be the second cohort of each in the stand, while the cedar currently ranges in size from seedlings to 16" DBH.
9	6122 - Black Spruce	High Density Pole	192.1	90	51-80	Generally a mix of slow-growing but dense conifers and semi-open, boggy areas with scattered trees. Overall, black spruce is the dominant species. The age given is an estimate for the spruce/tamarack component, but the cedar shows definitive evidence of multiple age classes.
10	6129 - Mixed Coniferous Lowland Forest	High Density Log	75.6	132	111-140	Mix of conifers but cedar is the most prevalent species. The age shown represents the cedar, hemlock and white pine; some age class diversity appears to be present based on the presence of pole-sized spruce and fir. Consider cutting the red maple, spruce, fir etc. while reserving the cedar, hemlock, white pine and scattered yellow birch. The understory is heavy cedar and hemlock regeneration, so steps to protect this are highly desirable. Areas of dense cedar may be left as reserve areas.
11	4112 - Maple, Beech, Cherry Association	High Density Log	35.7	Uneven Age	111-140	Ready for a selection cut. Mark enough in key areas to promote yellow birch and black cherry regen by lowering residual BA to 50 sq.ft./acre. Reserve/promote hemlock, white pine and cedar as well.
12	4119 - Mixed Northern Hardwoods	High Density Log	14.7	Uneven Age	141-170	Select cut now, reserving the hemlock and any white pine encountered in the stand.
13	6120 - Lowland Cedar	High Density Pole	14.3	132	81-110	Slow-growing cedar-spruce mix. Age class diversity appears to be present in some areas, but site indices are low enough overall that multi-storied characteristics are difficult to define.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
14	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	35.6	Uneven Age	81-110	Wetter ground than the stand adjacent to the south, this stand features a mix of cedar and red maple plus a variety of associated species. Unevenaged characteristics are well-developed, so the age given for the cedar component is from nearby conifer stands.
16	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	57.2	132	81-110	Conifer mix on wet but slightly rolling ground. Natural disturbances are beginning to create a two-storied condition. Red maple is sometimes more prominent in the northern portion of the stand (which appears to be somewhat dryer ground) but cedar is generally the featured species throughout. A few yellow birch and tamarack are also present.
17	6120 - Lowland Cedar	High Density Pole	7.9	132	81-110	The age given here reflects the history of the area's timber, but some age variation is evident within this stand.
18	6120 - Lowland Cedar	Medium Density Pole	253.0	132	81-110	Slow-growing cedar on wet ground.
20	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	223.9	Uneven Age	51-80	Slow-growing conifer mix with a lot of white pine throughout. Crown closure & site indices appear to be variable due to size class diversity - wetter areas display slower growth and therefore less apparent crown closure. Age class diversity is also becoming evident as natural disturbances create canopy gaps.
21	4112 - Maple, Beech, Cherry Association	High Density Pole	50.9	Uneven Age	51-80	Red maple mix on rolling terrain - dryer than the surrounding conifer stands and definitely an unevenaged association. The conifer component is generally in the lowland inclusions.
22	6129 - Mixed Coniferous Lowland Forest	High Density Log	21.8	132	111-140	Mix of conifers but cedar is the most prevalent species. The age shown represents the cedar, hemlock and white pine; some age class diversity appears to be present based on the presence of pole-sized spruce and fir. The understory is heavy cedar and hemlock regeneration. Hold for now and consider treating next entry.
23	4112 - Maple, Beech, Cherry Association	High Density Pole	2.2	Uneven Age	81-110	Cut next entry along with the adjacent conifers to the west.
26	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	123.9	Uneven Age	111-140	Primarily a mix of cedar, hemlock and red maple with other conifers and birches scattered throughout. The composition, density and site indices vary widely from site to site within this stand.
28	4112 - Maple, Beech, Cherry Association	High Density Log	73.9	Uneven Age	111-140	Ready for a selection cut - salvage all beech, and create canopy gaps to favor recruitment of yellow birch and cherry. Also underplant oak.
29	6139 - Mixed Lowland Forest	Medium Density Pole	11.8	131		Under contract TS# 41-028-10-01
32	4112 - Maple, Beech, Cherry Association	High Density Pole	11.5	Uneven Age	81-110	Island of somewhat dryer ground supporting a mix of red maple and black cherry with a few scattered conifers & birch.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
33	6129 - Mixed Coniferous Lowland Forest	High Density Pole	7.5	Uneven Age	51-80	Multi-storied stand featuring a mix of conifers with some scattered hardwoods throughout. The first age given represents the cedar and white pine; the other spp. present show evidence of various age classes due to natural disturbances.
34	6119 - Mixed Lowland Deciduous Forest	High Density Pole	34.2	Uneven Age		Under contract TS# 41-028-10-01
35	4112 - Maple, Beech, Cherry Association	Medium Density Pole	115.1	Uneven Age	51-80	Unevenaged northern hardwoods - selection cut was completed in early 2008, then beech salvage cut in late 2012.
36	4112 - Maple, Beech, Cherry Association	High Density Pole	219.4	Uneven Age	81-110	Thinned in the 1990's.
38	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	37.6	Uneven Age	81-110	Red maple/cherry on an intermediate site along Stoner Creek. Unevenaged characteristics are prominent.
39	6120 - Lowland Cedar	High Density Pole	129.8	Uneven Age	81-110	Slow-growing lowland mix dominated by cedar. The terrain is generally low and wet, but site indices and stand composition vary significantly with slight changes in elevation. Lowland brush is a significant component of the understory. Age class diversity is becoming more evident as natural disturbances create more canopy gaps.
40	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	24.5	Uneven Age		Under contract TS# 41-028-10-01
41	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	108.5	Uneven Age	81-110	Primarily mixed lowland conifers on slightly rolling, transitional terrain. Stand composition is highly variable, and both site indices & stocking levels are generally lower in the wetter areas. Unevenaged characteristics are becoming more prominent. Reserve this stand for wildlife habitat at this time, with the understanding that it may be entered in the future. The paper birch and much of the balsam fir have already dropped out, and the stand appears to be succeeding to a hemlock/cedar/white pine/red maple complex.
43	6127 - Lowland Pine	Medium Density Log	15.2	133	51-80	Partial cutting left the white pine and paper birch (now dead.) Some areas are still fairly open with lowland brush dominating the desirable regen.
47	4112 - Maple, Beech, Cherry Association	High Density Pole	20.5	Uneven Age	81-110	Narrow strip of upland/transitional hardwoods along the Wolf Lake Truck Trail. Unevenaged characteristics typical of hardwoods are present.
48	6128 - Lowland Coniferous, Mixed Deciduous	High Density Pole	28.9	Uneven Age		Under contract TS# 41-028-10-01
49	6117 - Lowland Deciduous, Mixed Coniferous	High Density Pole	1.2	Uneven Age	51-80	Unevenaged red maple & conifers on a fairly wet island.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
50	6122 - Black Spruce	Medium Density Pole	42.5	93	51-80	This stand is a conglomerate featuring pockets of lowland spruce with cedar and tamarack interspersed throughout on fairly wet ground. Site indices and stocking levels are variable. Some age class diversity is beginning to develop due to natural disturbaces. Cut now, reserving the cedar plus any white pine & hemlock encountered.
51	6119 - Mixed Lowland Deciduous Forest	High Density Pole	9.9	79		Under contract TS# 41-028-10-01
52	6116 - Lowland Birch	High Density Pole	13.6	86		Under contract TS# 41-028-10-01 - Optional unit
53	4112 - Maple, Beech, Cherry Association	Medium Density Pole	85.5	Uneven Age	51-80	Primarily a red maple stand on a transitional site that is more or less halfway between upland habitat and a true lowland site. Heavily cut using a selection system - timber sale closed in 2004. About 50% of the remaining beech (total of less than 10 sq. ft. BA/acre) is now dead and the rest is on its way out due to BBD. Consider spraying to eliminate beech regen, then follow up by underplanting oak, white pine and hemlock.
54	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	57.3	73	111-140	Stand of mixed conifers on the transitional zone between the true uplands and the wetter lowlands. The hemlock displays age class diversity, while the spruce and red maple appear to be more consistent with the age given here. Most of the balsam fir has already dropped out of this stand. Cut now, reserving the hemlock, white pine and cedar. Cut now, reserving hemlock, white pine and cedar. Underplant oak wherever canopy gaps provide the opportunity after cutting.
56	429 - Mixed Upland Conifers	High Density Log	12.5	Uneven Age	141-170	Hemlock/white pine/redmaple association on a transitional zone between true uplands (adjacent northern hardwoods) and the floodplain along Worchester Lake. Classified here as upland habitat due to the slopes running down toward the lake. Truly unevenaged, so the age given here is based on the history of nearby conifer stands.
57	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	49.0	Uneven Age	141-170	Hemlock/red maple association on a site that is more or less halfway between being an upland site and a true lowland habitat. Unevenaged characteristics are well-developed, so the age given here is based on nearby conifer stands.
58	4112 - Maple, Beech, Cherry Association	High Density Log	95.6	Uneven Age	51-80	Thinned about 10 years ago. About 50% of the remaining beech (total of less than 10 sq. ft. BA/acre) is now dead and the rest is on its way out due to BBD. Consider spraying to eliminate beech regen, then follow up by underplanting oak, white pine and hemlock.
59	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	6.3	Uneven Age	111-140	Hemlock/red maple
60	4112 - Maple, Beech, Cherry Association	High Density Log	53.1	Uneven Age	81-110	Cut now - salvage the beech (heavily infested w/BBD) and selection cut of others to improve stand quality. Leave residual BA at 60-80 sq.ft./acre where practical. Any disease-resistant beech encounterd may be retained. Consider herbiciding to reduce beech regeneration after the harvest and before underplanting oak, white pine and hemlock.

Stand	Level 4 Cover Type	Size Density	Acres	Stand Age	BA Range	General Comments:
61	6128 - Lowland Coniferous, Mixed Deciduous	High Density Log	3.2	Uneven Age	141-170	Hemlock/red maple

Stand	Cover Type	Acres	Managed Site	Management Priority (Objective)	General Comments:
5	6220 - Alder/willow	15.2	No	Unspecified	
8	6220 - Alder/willow	10.7	No	Unspecified	Lowland brush along Stoner Creek with a few scattered trees.
15	6220 - Alder/willow	6.1	No	Unspecified	Lowland brush along Stoner Creek - a few small pockets of trees included but not enough to classify the stand as forested.
19	6220 - Alder/willow	7.7	No	Unspecified	Lowland brush along Stoner Creek
24	50 - Water	1.0	No	Unspecified	
25	6224 - Treed Bog	3.2	No	Unspecified	Scattered slow-growing conifers and tag alder - some trees have reached merchantable size, but the stand density and average size of the trees is insufficient to call this a forested stand. Site index appears to be too low for commercial timber management.
27	50 - Water	1.9	No	Unspecified	
30	6220 - Alder/willow	30.4	No	Unspecified	Lowland brush/marsh/flood-killed timber along a drainage corridor. Scattered trees are still alive in the northwestern part of the stand but backflooding continues to extend the mortality.
31	6220 - Alder/willow	12.0	No	Unspecified	Lowland shrub/marsh complex showing evidence of seasonal flooding. Pockets of submerchantable trees (black ash/elm/etc.) are scattered throughout the stand.
37	6220 - Alder/willow	326.3	No	Unspecified	
42	50 - Water	2.4	No	Unspecified	
44	6229 - Mixed lowland shrub	43.1	Natural Regen	Lowland Conifers	Cut was completed in winter 2010-2011. Too soon to perform the regen survey while doing the inventory.
45	50 - Water	1.0	No	Unspecified	
46	6229 - Mixed lowland shrub	9.3	Natural Regen	Lowland Conifers	Non-forested due to low percentage of crown closure - scattered white pine, spruce, fir and red maple over heavy lowland brush.
55	6225 - Bog	5.3	No	Unspecified	Boggy wetlands adjacent to Worchester Lake.