

**Minnesota Department of Natural Resources
Division of Forestry**

**Silviculture Program Strategic and Work Plan
For FY2013 & 2014**

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Executive Summary

Mission Statement

Utilize forest science, expertise, experience, and tools to develop and apply site-level management plans that will meet management objectives while addressing forest health and productivity in a sustainable manner.

What is Silviculture?

Silviculture is the art and science of controlling the establishment, growth, composition, and quality of forest vegetation for the full range of forest resource objectives. Or more simply, it can be thought of as the art and science of growing trees, for a purpose.

The DNR Silviculture Program goal is to synthesize scientific (e.g. ecology, silvics, forest health), economic, and social inputs to create prescriptions that will achieve healthy, productive, diverse forests that meet society's needs for wildlife habitat, forest products, clean air, clean water, and outdoor recreation.

Objectives

- Provide leadership in the practice of silviculture in Minnesota
- Manage state forest land to meet Subsection Forest Resource Management Plan (SFRMP) objectives
- Prepare silviculture program staff at all levels to meet future staffing, program and forest needs
- Integrate the silviculture program with other state land programs

Strategic Issues

The Silviculture Program identified five important external and internal programmatic strategic issues through staff input. The strategic issues also reflect key priorities identified by the Department and Division. Action items have been identified, prioritized and assigned for each strategic issue

I. Tight Budgets will Require Maximization of Staff and Program Efficiency, Effectiveness and Integration. *We will have less staff and less money with which to do our work in the future.*

Strategies to Address the Issue

- Improve efficiency of information management systems including SRM
- Improve efficiency of silvicultural monitoring systems such as regeneration checks
- Improve efficiency of silvicultural information communication systems, such as web pages, meetings, etc.
- Develop staff for leadership positions, including skills such as project management, consensus building and time management.
- Incorporate emerging information and best practices into silvicultural operations
- Incorporate systems to facilitate "continuous improvement" in operations.
- Greater Integration with DoF Programs including Planning, Certification, Timber Sales, ECS, Forest Health

II. Emerging Forest Issues Such as Invasive Species, Climate Change, and Changes to Forest Products Markets are Likely to have Increasing Impacts on Forests. *We will need to continually assess information on these issues and adapt our practices for a future outcome of healthy, productive forests*

Strategies to Address the Issue

- Facilitate the sharing of silvicultural information about emerging issues between Areas and other agencies and organizations
- Incorporate information and analysis of impacts of emerging issues into silvicultural operations. *e.g, EAB and gypsy moth, carbon storage, climate change and woody biomass markets. What do we need to do differently to thrive in a changing environment?*
- Engage in groups and forums (within and outside of the Department) on emerging issues such as EAB

III. Development and Delivery of Appropriate Communications, Training, Communication and Monitoring is Critical to the Practice of Silviculture *Are we getting information where and when it is needed? Is the communication two-way? Are we monitoring and adjusting our practices as needed?*

Strategies to Address the Issue

- Determine information needs of the program, division and department
- Further develop and use of feedback systems with program staff, field foresters and subject experts. *It is important to continually adapt and improve our practices and program delivery.*
- Improve effectiveness of information management systems including SRM
- Improve effectiveness of silvicultural monitoring systems such as regeneration checks
- Improve effectiveness of silvicultural information delivery, using resources such as web meetings and the web page
- Improve integration, effectiveness and efficiency of training

IV. Adequate Financial Support for Silvicultural Activities is Critical to the Outcome of Productive, Diverse, Healthy Forests *It is possible that funding additional to bonding will be needed to fully meet our silvicultural investment needs.*

Strategies to Address the Issue

- Engage in regular communication with Division leadership and other key audiences on Program financial needs, benefits and issues.
- Explore greater use of alternative or supplemental funding sources to bonding such as Lessard-Sams Outdoor Heritage and non-governmental sources.
- Engage in further development and use of effective, lower-cost silvicultural options such as aerial seeding and natural regeneration.

V. A Leadership Role is Critical to Development and Implementation of Silvicultural Systems that result in Healthy, Productive Forests

Minnesota DNR has the staff resources and land base that uniquely position it for this leadership role among other agencies, organizations and landowners in Minnesota.

Strategies to Address the Issue

- Maintain Tree Improvement activities
- Continue development, assessment, use and continuous improvement of aerial forest management operations
- Maintain regular engagement with nurseries to facilitate development of bare root and container nursery stock that consistently meets our regeneration needs.
- Engage in further development and use of effective, lower-cost silvicultural options. (e.g., aerial seeding and natural regeneration).

**Minnesota Department of Natural Resources
Division of Forestry**

**Silviculture Program Strategic and Work Plan
For FY2013 & 2014**

What is Silviculture and Why is it Important?

Silviculture is the art and science of managing the establishment, growth, composition, and quality of forest vegetation for the full range of forest resource objectives. Or more simply, it can be thought of as the art and science of growing trees for a purpose.

The DNR Silviculture Program goal is to synthesize scientific (e.g. ecology, silvics, forest health), economic, and social inputs to create prescriptions that will achieve healthy, productive, diverse forests that meet society's needs for wildlife habitat, forest products, clean air, clean water, and outdoor recreation.

Objectives

- Provide leadership in the practice of silviculture in Minnesota
- Manage state forest land to meet Subsection Forest Resource Management Plan (SFRMP) objectives
- Prepare silviculture program staff at all levels to meet future staffing, program and forest needs
- Integrate the silviculture program with other state land programs

Program Structure

- Forest Management Manager – Andrew Arends
- State Lands Supervisor – Keith Jacobson
- Silviculture Program Coordinator – Rick Klevorn
- Silviculture Program Region Leaders
 - Bemidji Region – Mike Locke
 - Grand Rapids Region – Paul Dubuque
 - Central Region – Jean Mouelle
- Silviculture Program Area Leaders
 - Bemidji Region – Nick Severson, Mike Bates, Josh Donatell, Mark Johnson, Joel Lemberg, Terry Novak, Howard Mooney
 - Grand Rapids Region – Lonnie Lilly, Bud Bertschi, Tim Russ, Doug Hecker, Jeff Rengo, Bruce Schoenberg, Anna Heruth, Angela Yuska
 - Central Region – Jeff Wilder, Chad Gelner, Kevin O'Brien, Bob Quady

Program Accomplishments

Annual average acres treated by practice.

Practice	Acres
Planting	5,007
Seeding	5,102
Aerial	4,649
Ground	189
Natural Regeneration	21,809
Site Preparation	4,405
Mechanical	2,809
Chemical - Aerial	468
Chemical – Ground	982
Fire	147
Stand Improvement	2,780
Mechanical	1,252
Chemical – Aerial	765
Chemical – Ground	763
Protection	5,252
Browse – Repellent	1,247
Browse – Budcap	4,006
Browse - Other	51
Oak Wilt Control	210
Blister Rust Pruning	134
Other	396

Department of Natural Resources Mission

We will work with citizens to conserve and manage the state’s natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.

Division of Forestry Mission

In support of the Department mission and strategic goals, the Division of Forestry also has a mission:

In support of the DNR’s mission, as forest stewards we strive to:

- Provide our shared expertise to understand, sustain, and manage Minnesota’s trees, woodlands, and forests
- Provide a sustainable supply of multiple forest resources and opportunities
- Protect lives and property from wildfires
- Fulfill responsibilities to the permanent school trust.

The Division Management Team (DMT) and all Division employees are firmly committed to sustaining Minnesota’s forest resources using the highest standards in daily operations. The work of every employee should exemplify the best in: Safety, Accountability, Quality Assurance, Innovation, Integrity, and Developing Leaders.

Silviculture Program Mission

Utilize forest science, expertise, experience, and tools to develop and apply site-level management plans that will meet management objectives while addressing forest health and productivity in a sustainable manner.

Silviculture Program Vision

Forest planning and site-level management decisions are driven by the applied art and science of silviculture. Prescriptions at the site level are well informed and designed to meet identified objectives. Division of Forestry leadership has a basic understanding of silviculture and its place in forest management decisions, and is supportive of the program. The Program provides statewide leadership in silviculture issues across ownerships, agencies and organizations. The Silviculture Program is seamlessly integrated with other DoF Programs, including Planning, ECS, Timber Sales, Forest Health and Resource Assessment.

Funding

Program funding has come from several sources. Since 2005, the program has received reforestation bonding. Bonding funding in 2005, 2006 and 2008 was appropriated only for regeneration practices (site prep, planting and seeding.) Bonding in 2010 was appropriated for all reforestation practices and salary and fringe, on state forest land and wildlife management area land.

Year	Appropriation
2005	\$2,000,000
2006	\$4,000,000
2008	\$3,000,000
2010	\$3,000,000
2012	\$2,500,000

Also since 2005, the program has received project funding from the Forest Management Investment Account (FMIA). This funding was received in place of a general fund appropriation. FMIA funds are available for all practices. FMIA is also needed for non-practice expenditures such as cooperative dues and required staff training such as pesticide applicator licensing.

Year	FMIA Appropriation
2005	2,100,000
2006	750,000
2007	893,328
2008	1,181,418
2009	591,000
2010	400,000
2011	100,000
2012	225,000
2013	\$76,000

Silvicultural Practice Bonding, FMIA and General Funding Priorities

The overall goal for funding is to meet stand objectives through vegetation management practices. Some of these goals are accomplished through harvesting activity, but some practices such as tree planting require a financial investment.

In recent years the proposed work and spending plan has not been fully funded. Typically, the plan has been funded anywhere from 60 to 90 percent. Although all forest management practices are important, reduced funding requires that practices be prioritized.

How are funding priorities established?

Silvicultural practice funding priorities vary depending on the source and intent of funding. For example, practices funded with Lessard-Sams Outdoor Heritage money are required to be for the purpose of maintaining, restoring or enhancing wildlife habitat. As noted above, for the past few years and for at least the next several, the vast majority of silvicultural practices have been funded by state bonding. Bonding funds are for the purpose of maintaining and improving the state's capital assets – in this case it's forested land assets.

Silviculture practice bond funding priority decisions are based on the following factors:

- Meeting stand objectives, generally including timber value, and non-timber objectives such as wildlife habitat
- Protecting and maintaining silvicultural capital investments already made
- Return on Investment (ROI)

Therefore practices are generally prioritized as follows:

- 1) Animal protection
- 2) Release to prevent mortality
- 3) Seeding
- 4) Planting
- 5) Site Preparation
- 6) Stand Improvement (example: treatments favoring one tree species over another)
- 7) Forest health treatments (for example, mistletoe control)

Strategic Issues

The Silviculture Program identified five important external and internal programmatic strategic issues through staff input. The strategic issues also reflect key priorities identified by the Department and Division.

Some of the strategy implementation action items identified address multiple strategies; however they are only listed once, under the strategic issue where they are deemed to have the greatest impact.

General strategic direction for the Silviculture Program is to:

- Continuously improve efficiency and effectiveness of all Program work
- Develop more stable and diverse funding sources
- Better assess Return on Investment (ROI) for silvicultural practices and prioritize those that meet various stand objectives with a higher ROI. These may include greater use of natural regeneration and seeding.

I. Tight Budgets will Require Maximization of Staff and Program Efficiency, Effectiveness and Integration. *We will have less staff and less money with which to do our work in the future.*

Strategies to Address the Issue

- Improve efficiency of information management systems including SRM
- Improve efficiency of silvicultural monitoring systems such as regeneration checks
- Improve efficiency of silvicultural information communication systems, such as web pages, meetings, etc.
- Develop staff for leadership positions, including skills such as project management, consensus building and time management.
- Incorporate emerging information and best practices into silvicultural operations
- Incorporate systems to facilitate continuous improvement in operations.
- Greater Integration with DoF Programs including Planning, Certification, Timber Sales, ECS and Forest Health

Action Items to Implement the Strategies

Action Description	Timeline	Priority	Responsible Staff
Participate in the reinvigorated SRM User Group <i>Critically important to help identify items needing improvement in SRM, and facilitate the "fixes"</i>	Ongoing.	AA	FIS Supervisor; Program Coordinator; SRMQIT
Develop guidelines for regeneration prescriptions	End of 2013	AA	Program Coordinator; Region Program Leaders; Forest Economist; Timber Sales Program Coord.
Hold a statewide program meeting	Annually	A	Program Coordinator
Hold regional field trainings	Annually	A	Region Program Leaders
Convene and facilitate joint program meetings (silviculture, ECS, forest health, timber, invasives)	Annually	A	Program Supervisor; Program Coordinator from each program

Action Description	Timeline	Priority	Responsible Staff
Lead development of a long-term structure for aerial forest management operations.	By end of 2013	A	Program Supervisor; Helicopter Ops Specialist; Helicopter Management Coordinator
Evaluate effectiveness of aerial herbicide and seeding options as compared to alternative methods.	By end of 2013	A	Program Coordinator; Forest Economist
Incorporate economic analyses into silvicultural operations	By end of 2013	A	Program Coordinator; Region Program Leaders; Forest Economist
Schedule periodic review of program leader responsibilities at all levels. through group or individual training, and regular program meetings	Biennially – even numbered years	B	Program Supervisor; Program Coordinator; Region Program Leaders
Develop a notification system that alerts program leaders of upcoming requirements and deadlines	By end of 2014	B	Program Coordinator
Invite potential leaders to participate in some Regional Coordinator meetings or other leadership development opportunities.	Ongoing	B	Program Coordinator; Region Program Leaders
Facilitate the sharing of silvicultural best practices between Areas and other agencies and organizations	Ongoing	B	Region Program Leaders; Area Program Leaders
Poll program leads for additional information needs	Annually	B	Program Coordinator; Region Program Leaders
Participate in the Division of Forestry Program Integration projects	when offered	B	Program Coordinator; Region Program Leaders
Invite other program leads, non-program field staff and staff from other disciplines to program meetings	when appropriate	B	Program Coordinator; Region Program Leaders
Author a white paper on the contractor option for planting crew supervision	By end of 2013	B	Region Program Leaders
Evaluate silviculture program webpage for utilization, ease of navigation, and content	By end of 2013	C	Program Supervisor; Program Coordinator; Region Program Leaders
Link management information from other programs and disciplines to silviculture web page	Ongoing	C	Program Coordinator; Region Program Leaders; Web Content Coordinator
Invite other programs and disciplines to contribute to the silviculture web page	Ongoing	C	Program Supervisor; Program Coordinator; Region Program Leaders; Web Content Coordinator

II. Emerging Forest Issues Such as Invasive Species, Climate Change, and Changes to Forest Products Markets are Likely to have Increasing Impacts on Forests. *We will need to continually assess information on these issues and adapt our practices for a future outcome of healthy, productive forests*

Strategies to Address the Issue

- Facilitate the sharing of silvicultural information about emerging issues between Areas and other agencies and organizations
- Incorporate information and analysis of impacts of emerging issues into silvicultural operations. *e.g, EAB and gypsy moth, carbon storage, climate change and woody biomass markets. What do we need to do differently to thrive in a changing environment?*
- Engage in groups and forums (within and outside of the Department) on emerging issues such as EAB

Action Items to Implement the Strategies

Action Description	Timeline	Priority	Responsible Staff
Review current practice and emerging science and lessons learned for at least one key species and/or plant community.	Annually	AA	Program Coordinator; Region Program Leaders; Area Program Leaders
EAB Work Group participation	Ongoing	A	Program Coordinator
Incorporate information on emerging issues into communications and training	Ongoing	A	Program Coordinator; Region Program Leaders; Area Program Leaders
Maintain support for the Tree Improvement Cooperative	Ongoing	A	Program Coordinator
Attend the annual SFEC natural resources research review	Annually	B	Program Coordinator; Region Program Leaders
Joint meeting with DoF Invasives Program; Forest Health; ECS Program to review current info and integration strategies	Annually	B	Program Supervisor; Program Coordinator from each program
Include forest health, invasive species, forest economics, climate change and biomass staff on annual program meeting agenda	Annually	B	All Program Coordinators

III. Development and Delivery of Appropriate Communications, Training and Monitoring is Critical to the Practice of Silviculture. *Are we getting information where and when it is needed? Is the communication two-way? Are we monitoring and adjusting our practices as needed?*

Strategies to Address the Issue

- Determine information needs of the program, division and department
- Further develop and use of feedback systems with program staff, field foresters and subject experts. *It is important to continually adapt and improve our practices and program delivery.*
- Improve effectiveness of information management systems including SRM
- Improve effectiveness and efficiency of silvicultural monitoring systems such as regeneration checks
- Improve effectiveness of silvicultural information delivery, using resources such as web meetings and the web page
- Improve integration, effectiveness and efficiency of training

Action Items to Implement the Strategies

Action Description	Timeline	Priority	Responsible Staff
Review current practice and emerging science and lessons learned for at least one key species and/ or plant community.	Annually	AA	Program Coordinator; Region Program Leaders; Area Program Leaders
Review current prescription worksheet for usefulness.	By end of 2013	AA	Program Coordinator; Region Program Leaders; Area Program Leaders
Schedule area and regional prescription reviews that includes timber, ECS and forest health	A minimum of 1 Region annually	A	Region Program Leaders; Area Program Leaders
Assist in development of periodic accomplishment reports that meet DoF business information needs.	Periodic and Annually	A	Program Coordinator; Region Program Leaders; Division Business Analyst
Use Regional regeneration reports and Regional Silviculture meetings as two feedback systems for continuous improvement.	Annually	A	Region Program Leaders; Area Program Leaders
Develop and Implement an Action Plan for Completing Regeneration Surveys See Appendix A	Complete plan by August 15 2012. Complete implementation by August 15, 2013	A	Program Coordinator, Program Supervisor, Regeneration Standards Program Coordinator, Section manager
Develop monitoring benchmarks based on management objectives and native plant community growth stages	2014	A	Regeneration Standards Program Coordinator; Program Coordinators from each program
Develop monitoring standards that will assess progress toward objectives beyond 5-year check	2013	A	Regeneration Standards Program Coordinator; Program Coordinators from each program
Review regeneration standards including timing, frequency, definitions and reporting	2013	A	Program Coordinator; Region Program Leaders
Train program and other staff to fully and efficiently operate program information system; offer	At least 1 session annually	A	Program Coordinator; Region Program Leaders;

Action Description	Timeline	Priority	Responsible Staff
information system training to other programs and disciplines			FIS Staff
Report annual pesticide usage	Annually	A	Program Coordinator; Region Program Leaders
Share training plans with other program leadership for input and integration	Annually	A	Program Supervisor; Program Coordinator;
Develop a project plan for a system to assess herbicide application <i>effectiveness</i>	By June 30, 2014	B	Program Coordinator
Offer silvicultural practices and contract supervision training and demonstrations	Biennially – even numbered years	B	Region Program Leaders; Area Program Leaders
Schedule prescription writing instruction that is multi-disciplinary and field based	Biennially – odd numbered years	B	Program Coordinator; Region Program Leaders; Area Program Leaders
Develop and collaborate training plan with other programs	By end of 2013	B	Program Supervisor; Program Coordinators from each program
Conduct collaborative/integrated training sessions with other programs	As planned	B	Program Coordinators from each program
Develop a method of communicating division and department policies, recommendations and guidelines to all levels in the program.	Ongoing	B	Section Manager; Program Supervisor; Program Coordinators from each program
Evaluate silviculture program webpage for utilization, ease of navigation, and content: link information and invite contributions from other programs and disciplines to silviculture web page	2014	B	Program Coordinator; Region Program Leaders; Web Content Coordinator; Select Program Coordinators from other programs and Divisions
Document experiential learning.	Ongoing	B	Region Program Leaders; Area Program Leaders
Offer introductory training in administrative and statutory requirements	Annually	B	Region Program Leaders; Area Program Leaders
Maintain collaborative relationship with the Sustainable Forests Education Cooperative	Ongoing	B	Program Coordinator

IV. Adequate Financial Support for Silvicultural Activities is Critical to the Outcome of Productive, Diverse, Healthy Forests *It is possible that funding additional to bonding will be needed to fully meet our silvicultural investment needs.*

Strategies to Address the Issue

- Engage in regular communication with Division leadership and other key audiences on Program financial needs, benefits and issues.
- Explore greater use of alternative or supplemental funding sources to bonding such as Lessard-Sams Outdoor Heritage and non-governmental sources.
- Engage in further development and use of effective, lower-cost silvicultural options such as aerial seeding and natural regeneration.

Action Items to Implement the Strategies

Action Description	Timeline	Priority	Responsible Staff
Identify and seek alternative or supplemental funding sources to bonding	Ongoing	AA	Program Supervisor; Program Coordinator; Region Program Leaders
Develop and administer an annual work and spending plan	Annually	A	Program Coordinator; Region Program Leaders;
Develop a Program "Fact Sheet" as an educational tool for decision makers on budgets, and others. <i>Briefly: What is silvicultural work and why is important? Why do we need to invest in it? What are the economic and other benefits?</i>	2013	A	Program Coordinator; Forest Economist; U&M Program Coordinator
Incorporate economic analyses into silvicultural operations	By end of 2014	A	Program Coordinator; Region Program Leaders; Forest Economist

V. A Leadership Role is Critical to Development and Implementation of Silvicultural Systems that result in Healthy, Productive Forests *Minnesota DNR has the staff resources and land base that uniquely position it for this leadership role among other agencies, organizations and landowners in Minnesota. Note: Silvicultural systems include natural and artificial regeneration.*

Strategies to Address the Issue

- Maintain Tree Improvement activities
- Continue development, assessment, use and continuous improvement of aerial forest management operations
- Maintain regular engagement with nurseries to facilitate development of bare root and container nursery stock that consistently meets our regeneration needs.
- Engage in further development and use of effective, lower-cost silvicultural options. (e.g., aerial seeding and natural regeneration).

Action Items to Implement the Strategies

Action Description	Timeline	Priority	Responsible Staff
Deliver program vision, status, plans and accomplishments summary at annual program meeting	Annually	AA	Division Director; Program Manager; Program Supervisor; Program Coordinator
Include a leadership topic at regional program meetings	Annually	A	Region Program Leaders
Include a leadership topic at the statewide program meeting	Annually	A	Program Coordinator
Convene a meeting with state forest nursery program leadership to facilitate development of bare root nursery stock that consistently meets our regeneration needs.	2013	A	Program Coordinator; Region Program Leaders; Area Program Leaders
Maintain an active membership in the Minnesota Tree Improvement Cooperative	Annually	A	Program Coordinator
Develop method for evaluating seedlings to determine best stock type for sites	By May 2013	A	Program Coordinator; Region Program Leaders; Area Program Leaders
Maintain an active membership in the Minnesota Forest Productivity Research Cooperative	Annually	A	Program Coordinator
Maintain an active membership in the Sustainable Forest Education Cooperative	Annually	A	Program Coordinator

Workload Indicators – Annual Plan (number preceding workload indicator is the due date)

Month	Program Activity	Northwest Region	Northeast Region	Central Region
January		1 – Aerial herbicide project proposals (RL) 1 – Winter Site Prep Contract (BO) 10 – CY Pest Application Summary (RL) 10 – Container Seedling Order (SRM) 15 – Final bareroot Order (SRM) 10 – Seed order (stratify) (RL) 15 – Planting Site Data (SRM) 30 - Aerial Seed Estimate (SRM) 31 – Region Planting Contract (BO)	1 – Aerial herbicide project proposals (RL) 1 – Winter Site Prep Contract (RO) 10 – CY Pest Application Summary (RL) 10 – Seed order (stratify) (RL) 10 – Area Seedling Order (SRM) 15 – Final bareroot Order (SRM) 15 - Seed order (stratify) (SFNP) 15 - CY Pest Application Summary (PC)	1 – Aerial herbicide proposals to AFMC 1 – Winter Site prep Contract (BO) 10 - Seed order (stratify) (RL) 10 – Seedling Order (SRM) 15 - CY Pest Application Summary (PC) 15 – Final bareroot Order (SRM)
February	Work & Spending Plan Winter Site Prep	10 – Aerial herbicide Contract (BO) 15 – Area Scarification/ground herbicide projects (SRM) 21 – Seedling project proposals (RO) 21 – Area Seed Order (SRM) 25 – Region Seed Order (SFNP) 28 - Aerial Seedling Contract (BO) 28 – Area Scarification/ground herbicide projects (BO)	1 – Planting project proposals (RL) 10 – aerial herbicide contract (BO) 21 – Region planting contract (BO) 21 – seeding project proposals (RL) 21 – seed order (SRM) (RL) 21 – Disk trench project proposals (RL) 25 – Seed Order (SFNP) 28 – aerial seeding contract (BO)	1 – Planting Proposals (RL) 1 – Regen Surveys for Regen Standards Report (RL) 21 – Planting Contract (BO) 21 - Aerial herbicide proposals to AFMC 21 – Updated Seedling order (PC) 21 - disk trench/ground herbicide contract (RL) 25 – Seed Order (PC)
March			7 – disk trench/ground herbicide contract (BO)	1 – ASEL from TSP to ECS 7 - disk trench/ground herbicide contract (BO) MO – Team meeting
April	Seeding & Planting			
May		1 – Region W&S Plan due to St. Paul 1 – Shapefiles for aerial herbicide application sites (FMHC) 15 – Area protection application project proposals (SRM) 20 – Area hand TSI projects (SRM)	1 – Region W&S Plan due to St. Paul 1 – SRM data entry complete for W&S Plan (SRM) 1 – Aerial herbicide notice to EQB (PC) 15 – Protection project proposals (RL)	1 – Region W&S Plan due to St. Paul 1 - Shapefiles for aerial herbicide application sites (FMHC) (RL) 15 - Protection project proposals (RL) 15 – Hardwood Marking proposals (RL) 15 – W&S Plan (SRM) 20 - Hand TSI project proposals (RL)

RL-regional program leader BO-business office FMHC-Forest Management Helicopter Coordinator PC-Program Coordinator SFNP-Nursery Program

Workload Indicators – Annual Plan (number preceding workload indicator is the due date)

Month	Program Activity	Northwest Region	Northeast Region	Central Region
June		1 – Protection Contract (BO) 1 – W&S Pan (PC) 15 – TSI Contract (BO)	1 – region protection contract (BO)	1 – W&S Plan Run (PC) 1 – protection contract (BO) 1 – hardwood marking contract (BO) 15 – TSI contract (BO) 15 – summer site prep contract (BO)
July	Site Prep & Release	1 – Summer Raking Contract (BO) 15 – prescribed Burn report (RL)	1 – area regen survey assignments (A) 1- area news release for herbicide applications (RL)	
August		15 – First Seedling Order (SFNP)	15 – First Seedling Order (SFNP)	1 – area action actual (SRM) 15 – first Seedling Order (SFNP) 30 – area accomplishment narrative (RL) M – Team Meeting/Tour
September	Protection		1 – Area herbicide effectiveness surveys (A)	1 – Oak Wilt proposals (RL)
October		1- area bareroot order (SRM) 5- region bareroot order (SFNP) M – Nursery Stock Inspections	1 – bareroot and container order; planting actions (SRM) 1 – area summary of herb effectiveness (RL) 5 – bareroot order (SFNP)	1 – area & bareroot order (SRM) 5 – bareroot order (SFNP) 15 – site prep proposals (RL) 15 – regen surveys (SRM) M – Nursery Stock Inspections
November		1- area regen survey report for previous FY (SRM) 1 – Area Region Standards Report (RL) 1- winter site prep projects (SRM) 15- winter site prep contract (BO)	1 – regen surveys for previous FY (SRM) 1 – regen standards report (RL) 15 – Winter site prep projects (RL)	1 – regen standards report summary (SRM) 1 – Winter Site Prep (BO) 1 – regen standards narrative (RL) 15 – seedling order (SRM)
December		1- area pesticide project proposals (RL) 1- region regen standards report (PC)	1 - regen standards report (PC) 1 – winter site prep contract (BO) 1 – winter site prep proposals (RL) 15 – pesticide project proposals & shapefiles (RL)	1 – pesticide proposals (RL) 1 - Winter site prep proposals (RL) M – team meeting

RL-regional program leader BO-business office FMHC-Forest Management Helicopter Coordinator PC-Program Coordinator SFNP-Nursery Program

Appendix A - Division of Forestry Issue Brief: Uncompleted Regeneration Surveys

Issue Description

Some regeneration surveys are not being completed in time to ensure successful site regeneration.

Purpose of Brief

This brief will describe the issue, and outline an action plan for ensuring timely completion of regeneration surveys that meet the business needs of the Division of Forestry. Target audience: Klevorn, Jacobson, Region Silviculture staffers, Andrew Arends & Regional Foresters.

Background

Under all regeneration methods it is likely that further management activity will be necessary to insure seedling survival and progress toward the desired future stand condition. Regeneration surveys provide foresters with information needed to make prescriptions for management activities beyond the initial regeneration action. For example, surveys are required prior to making herbicide “release” treatments to identify the type and amount of competing vegetation.

On average, regeneration surveys are required on nearly 40,000 acres and 2,000 sites annually, which represents a significant effort for field staff. In addition to providing critical information to inform forest planning and management, completed regeneration surveys are a requirement under DNR’s third party certification standards.

Only 65% of regeneration surveys required in FY 11 were completed as of January 13, 2012. Early reports indicate that the trend of incomplete regeneration surveys appears to be continuing in FY 12.

FY 2011 Regeneration Survey Status on DNR Timberlands by Area									
Data from Silviculture and Roads Module (SRM) report date: January 13, 2012									
		Total Required Surveys		Completed			Not Completed		
RAN	Area	Sites	Acres	Sites	Acres	% ac	Sites	Acres	% ac
111	Bemidji	93	2045	88	1,868	91.3%	5	177	8.7%
117	Blackduck	50	825	38	631	76.4%	12	195	23.6%
121	Warroad	88	1994	47	1,039	52.1%	41	954	47.9%
131	Baudette	66	1539	33	856	55.6%	33	683	44.4%
142	Backus	103	1815	76	1,140	62.8%	27	675	37.2%
161	Park Rapids	151	2654	150	2,650	99.8%	1	4	0.2%
163	Detroit Lakes	2	37	2	37	100.0%	0	0	0.0%
221	Deer River	187	3138	166	2,555	81.4%	21	583	18.6%
232	Aitkin	92	1685	75	1,445	85.8%	17	240	14.2%
234	Hibbing	242	3828	148	2,313	60.4%	94	1,516	39.6%
241	Orr	143	2586	123	2,146	83.0%	20	440	17.0%
244	Sandstone	122	4669	27	554	11.9%	95	4,115	88.1%
245	Tower	57	881	34	549	62.3%	23	332	37.7%
251	Cloquet	53	1295	51	1,170	90.3%	2	125	9.7%
253	Two Harbors	222	7229	120	4,420	61.1%	102	2,810	38.9%
261	Littlefork	298	6464	164	4,094	63.3%	134	2,370	36.7%
312	Little Falls	15	535	15	535	100.0%	0	0	0.0%
334	Lake City	20	225	0	0	0.0%	20	225	100.0%
341	Rochester	12	328	9	250	76.1%	3	78	23.9%
351	Cambridge	0	0	0	0		0	0	
		2,016	43,772	1,366	28,251	64.5%	650	15,521	35.5%

Survey Frequency

The frequency of required regeneration surveys is determined by several factors, including the regeneration method (planting, seeding or natural regeneration) and the likelihood that the site will need additional treatments to achieve success.

Required Frequency of Regeneration Surveys	
Regeneration Method	Timing
Planting	1 and 5 years after planting
Seeding	5 years after sowing
Natural Regeneration	5 years after harvest or disturbance

Note: These are general, minimum standards. There are some exceptions to these requirements, and foresters also use their professional judgment to determine if a site will need more frequent surveys.

Survey Methods

Plot surveys are required on planted and artificially and naturally seeded sites, and any site where the forester expects that an ocular survey might not closely reflect the condition of the site. Plot surveyed sites require one plot for every two acres (with a minimum of 10 plots for sites > 20 acres).

Ocular surveys are appropriate for aspen regeneration and aerially seeded sites, or if the forester is confident that the survey will adequately describe the site. The aerial (helicopter) ocular survey is an efficient way to monitor large or remote sites, and is especially applicable to natural aspen regeneration, or lowland black spruce/tamarack sites.

Action Plan to Complete All Necessary Regeneration Surveys

For Action Items Within Silviculture Program Control

Action Description	Notes	Priority	Timeline	Responsible
Determine Root Cause(s) for Survey Incompletion by Area	-Focus efforts on Areas with poor completion history. -Along with root causes, we need information on surveys by forest type and /or regeneration method. For example: Are they aspen regeneration or other types where unsuccessful regeneration risk is low?	AA	By August 15, 2012	Lead(s): Klevorn R1: Locke R2: Schnell R3: Mouelle
Develop and Begin Execution of Regional Plans for Survey Completion <i>-Hold staff accountable for completing required surveys</i> <i>-Solicit managerial and supervisory ideas and support for survey completion.</i>	-Need the info on root causes first -Hold individual conversations with Regional Foresters to develop a plan. It will be critical to offer potential solutions such as contractors, etc. -Some Area silviculture program leaders have indicated difficulty in getting cooperation from staff for surveys;	AA	By August 30, 2012	Lead: Jacobson or Arends Others: Klevorn Schnell, Locke, Mouelle
Expand use of contractors and interns for survey completion <i>Require this in Areas where surveys are not all being completed.</i>	-It is ideal for foresters assigned management responsibilities to conduct surveys, however other priorities can prevent this.	A	By August 1, 2013	Lead: Klevorn
Expand the use of helicopter regeneration surveys. <i>Develop and distribute and/ or present promotional communications to supervisors and staff</i>	-Can be a very efficient way to get surveys done, where appropriate. -We are already doing this, but there are opportunities for more widespread use.	A	By September 30, 2012	Lead: Schnell? Others: Klevorn, Jacobson, Schuster?
Update Existing Regeneration Standards	-So that monitoring efforts are both efficient and effective. -Would be a good PRO project.	A	Complete by June 30, 2013	Lead: Schnell
Allow Greater Use of Ocular Surveys Instead of Plot Surveys <i>Step 1: Develop a proposal</i>	-On some sites, clear regeneration success may not require a plot-based survey. This is allowed this in some cases now, but we could expand the allowable instances. -Regardless of regeneration practices if the forester is confident that the survey adequately describes the site.	B	By June 30, 2013	Lead: Schnell
Develop improved usefulness of SRM reports of regeneration information	-Current SRM survey reporting is geared toward regeneration standards reporting and is inadequate for reporting other management objectives	B	By June 30, 2014	Lead: Klevorn Through the SRM User Group
Change the way completed surveys are recorded	Completed surveys are recorded in SRM by posting an action actual. This posting can be time consuming.	B	By June 30, 2014	Lead: Klevorn Through the SRM User Group
Explore using satellite imaging and aerial photography to		C	By June 30, 2014	Lead: Klevorn
Create reporting that lists required surveys based on	Often, Areas prioritize surveys based on regeneration method with the highest priority	C	By June 30, 2014	Lead: Klevorn

For Action Items Requiring Division Management Team Support

Action Description	Notes	Priority	Timeline	Responsible
Develop a comprehensive policy that addresses regeneration survey timing and methods, and updates existing standards	-So that monitoring efforts are both as efficient and effective as possible - PRO project	A	Complete by June 30, 2013	Lead: Schnell
Adapt the Shifted Work Schedule Policy During Fire Season <i>Often cited by staff as a hindrance to getting into the woods in the morning</i>	During the spring survey season, area staff work hours are adjusted to accommodate late afternoon fire program staffing needs and the desire to reduce staff overtime due to fire response requirements.	A		Lead: Arends
Encourage more emphasis/raise priority on PDA application development, testing and use	The development of field data recorders has promise but has yet to be fully embraced by field staff; the data recorders lessen the worker hours needed to enter survey results in SRM.	C		

Appendix B – Program Training Plan

Annual Silviculture Program Workshop		Course #
Contact: Rick Klevorn 651.259.5275	1.5 days	Location and Date: Cloquet Forestry Center, December 12 & 13, 2012
Target Audience: area program leaders, region program leaders, ECS program, forest health program		
Purpose/Learning Objectives: review important and time-sensitive program directives and policies; offer training on aerial program opportunities; seed bed prep and seeding; herbicide use review; current forest health issues; current utilization and marketing issues;		
NOTES: COST: no registration cost, travel/meals/lodging responsibility of the area		

Pesticide Applicator Recertification Workshops		Course #
Contact: Rick Klevorn 651.259.5274 Terry Stieren 612.751.1187	1 day	Location and Date: 1. Grand Rapids, January 29, 2013 2. Detroit Lakes, January 30, 2013 3. St. Cloud, January 31, 2013 4. Owatonna, 2013, TBD
Target Audience: Licensed pesticide applicators		
Purpose/Learning Objectives: recertify licensed applicators; review important pesticide use guidelines and policies, Division pesticide use guidelines, Department of order		
NOTES: COST: registration paid by St. Paul; travel/meals/lodging responsibility of the area		

SFEC Single Species Workshop Series: Tamarack and Black Spruce		Course #
Contact: Rick Klevorn 651.259.5274 Mike Kroenke 218.726.6406	1 day	Location and Date: Cloquet Forestry Center, February 2013
Target Audience: foresters, prescription writers, planners		
Purpose/Learning Objectives: Review tamarack/black spruce resource, utilization, health and management		
NOTES: COST: registration paid by St. Paul; travel/meals/lodging responsibility of the area		

Appendix C – Program Work Accomplishments

ALL VALUES IN ACRES	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	Min	Max	Avg
Planting	5,073	4,342	4,608	3,973	4,438	5,457	5,812	3,900	6,583	7,211	5,376	4,068	4,248	3,550	3,550	7,211	4,903
Seeding	6,265	5,127	5,680	4,804	5,752	4,377	3,899	2,958	5,472	7,047	7,216	4,229	3,503	3,266	2,958	7,216	4,971
Seeding - Aerial						4,089	3,697	2,784	5,335	6,878	6,982	3,989	3,436	3,075	2,784	6,982	4,474
Seeding - Ground						288	202	174	137	169	234	240	67	191	67	288	189
Natural Regeneration*	23,000	24,578	24,297	24,100	24,449	21,807	23,180	18,999	18,134	21,936	17,773	20,399	20,866	20,686	17,773	24,578	21,729
Site Preparation	3,569	4,184	3,755	3,972	4,072	5,529	4,537	3,933	6,811	5,234	4,280	3,727	3,667	3,588	3,569	6,811	4,347
Mechanical	2,281	2,444	2,378	2,887	3,037	2,861	3,051	2,645	3,813	3,343	2,784	2,604	2,388	2,097	2,097	3,813	2,758
Chemical - Aerial	580	891	462	584	0	939	597	272	918	90	334	322	92	285	0	939	455
Chemical - Ground	390	744	751	497	643	1,301	863	872	2,046	1,763	1,102	648	1,141	696	390	2,046	961
Fire	318	105	164	4	392	428	25	144	34	38	60	153	46	510	4	510	173
Stand Improvement	3,944	3,528	3,340	2,818	2,637	3,651	1,612	1,725	2,885	3,585	2,104	2,644	1,664	1,139	1,139	3,944	2,663
Mechanical	1,743	2,088	1,256	1,050	2,035	1,123	766	880	724	2,187	855	763	806	634	634	2,187	1,208
Chemical - Aerial	1,364	739	1,149	866	0	1,708	261	281	818	689	492	961	612	341	0	1,708	734
Chemical - Ground	837	701	935	902	602	820	585	564	1,343	709	757	920	246	164	164	1,343	720
Protection **	1,948	2,314	1,898	2,841	4,514	5,862	5,465	5,394	6,424	8,604	9,242	7,121	6,652	5,336	1,898	9,242	5,258
Browse - Repellent						857	1,293	1,585	1,865	1,256	1,302	919	897	1,164	857	1,865	1,237
Browse - Bud Cap	1,948	2,314	1,898	2,841	4,514	3,187	3,638	3,599	3,961	5,265	7,303	5,917	5,689	3,837	1,898	7,303	3,994
Browse - Other						0	53	32	34	200	52	20	17	173	0	200	64
Oak Wilt Control						12	113	25	10	1,522	0	1	0	0	0	1,522	187
Blister Rust Pruning						103	40	153	248	100	269	107	49	162	40	269	137
Other						1,703	329	98	308	261	316	157	0	0	0	1,703	352

* Natural regeneration is estimated by dividing the volume (cfs) of natural regeneration species scaled by the average volume per acre for closed timber sales. This method has produced a consistent estimate from year to year rather than a precise estimate of natural regeneration.

** Protection for FY99 thru FY03 is for browse protection only; the majority of protection reported for these years likely was bud capping.