

Timber – Timber Harvest Area

Activities, Effects and Resources To Be Measured.

Timber Harvest Area

Methods.

Semi-annual review of timber program to ensure that harvest area will not exceed 10 year estimate by more than 10%.

Location.

Forest-wide sales.

Variation.

Planned harvest area exceeded by more than 10% in any given year.

Results.

Acres harvested are monitored annually and compared with the Forest Plan projected average of 10,525 acres per year. In 2004, 2,266 acres of timber harvest areas were sold. An average of 3,902 acres in timber sales were sold in 1987 to 2004. In 2004, 144 acres were harvested. The average acres harvested in timber sales sold 1987 to 2004 is 3,502.

Interpretation.

Are tolerance limits exceeded? No, harvested acres have not exceeded the projected Forest Plan decadal average stated in the Forest Plan.

What are the implications? Impacts from timber harvest and outputs are less than projected in the Forest Plan.

Conclusion. There is no variation that would cause further evaluation and/or change in management direction.

Monitoring Resources Available.

The sold and harvest acres are taken from the 2400-17 report generated through Transaction Appraisal program, RMRIS, and Cut and Sold Report from TSA.

Recommendation.

Continue monitoring volume and acres as harvested.

The Forest Plan states the monitoring method as, "Review of timber program to ensure that harvest area will not exceed 10 year estimate by more than 10%". The variation causing further evaluation and/or change in management direction is, "Planned harvest area exceeded by more than 10% in any given year". These two measures are not consistent: one states a 10-year estimate and the other is in any given year. A Forest Plan amendment is needed to make these items consistent.

Timber – Clearcut Size

Activities, Effects and Resources To Be Measured.

Maximum size of openings created by clearcuts.

Methods.

Review timber sale silvicultural prescriptions and post-sale silvicultural exams on a project basis.

Location.

Forest-wide sales.

Variation.

Clearcut sizes either restrict timber harvest practices or adversely affect visuals or other resource values.

Results.

A total of 114 acres were clearcut during FY2004 to meet disease control objectives. There have been no perceived or recorded adverse effects to harvest practices, visual quality, or other resources values because of the size or location of the clearcut.

Interpretation.

Are tolerance limits exceeded? No, the data indicate that clearcut sizes have not restricted timber harvest practices or adversely affect visuals or other resource values.

What are the implications?

The use of clearcuts do not appear to cause adverse impacts.

Conclusion. No variation that would cause further evaluation and/or change in management direction has been identified.

Monitoring Resources Available.

Resources have been allocated for this monitoring.

Recommendation.

Continue monitoring to assess the impacts of clearcut size and effects on other resources.

Forest Plan Amendment is recommended. It was proposed in the Spruce Ecosystem Recovery Project (SERP) Environmental Impact Statement, signed January 30, 1998, “When responding to catastrophic events, such as insect and disease, no opening size limitations will apply”.

Timber – Fuelwood

Activities, Effects and Resources To Be Measured.

Fuel wood consumption and Supply

Methods.

Determine supply by fuels inventories and acres available; determine demand by monitoring permits issued and sampling actual removal on a project basis.

Location.

Forest-wide sales

Variation.

Supply is not meeting or projected to not meet demand within 5 years.

Results.

Vegetative management practices on the Forest result in the availability of an estimated 14,000 cords of fuelwood annually. During the first five years of the Plan period, an average of 7,446 cords of fuelwood was utilized each year. After natural gas was delivered to the major population centers in the area, the fuelwood consumption has declined to approximately 5,000 cords per year. In the past ten years, the Forest has experienced catastrophic Engelmann spruce tree mortality due to a spruce bark beetle epidemic. This has resulted in thousands of acres of dead trees and heavy volumes/acre of fuel loading contributing to an increasing amount of fuelwood availability.

Interpretation.

Are tolerance limits exceeded? No. Although localized fuelwood shortages may occur, primarily in the St. George area, the fuelwood supply appears to be able to meet the projected demand during the next five years.

What are the implications? The importance of meeting demands for fuelwood may have changed since the Forest Plan was written.

Conclusion. No variation that would cause further evaluation and/or change in management direction was identified.

Monitoring Resources Available.

Sales of fuelwood are recorded annually.

Recommendation.

Continue monitoring.

Timber #10

Activities, Effects and Resources To Be Measured.

Growth response of regenerated stands, precommercially thinned stands and cutover sawtimber (including effects of insects and diseases).

Methods.

Every 5th year, stage II stand examinations, permanent growth plots.

Location.

Forest-wide sales

Variation.

A 10% plus or minus variance in actual growth measured against assumptions made in growth simulations (prognosis) is the variation that would cause further evaluation and/or change in management direction. The Forest Plan projected potential growth (cubic feet/acre/year) to be 20-40 on 89,424 acres and 50-84 on 241,776 acres.

Results.

Four permanent growth plots were established in 1991, and one in 1990. Post harvest Stage II stand examinations were completed on stands on the Cedar City, Powell, and Teasdale Districts during 1991.

A random sample of 581 trees measured in the 1980 Forest Inventory shows a diameter growth of 0.7 inches per 10 years in natural stands. Post harvest growth studies conducted in managed stands during 1991 disclosed an average diameter growth of 1.6 inches per 10 years. Preliminary findings are that increased growth response is evident in sampled managed stands. Permanent growth plots have not been measured since 1991.

Interpretation.

Are tolerance limits exceeded? No. Although data presented were in inches per ten years rather than cubic feet/acre/year, growth responses to managed stands are positive.

What are the implications? Thinning was intended to promote wood growth. Since the plan was written, emphasis is now on ecosystem health rather than growth for production.

Conclusion. No variation that would cause further evaluation and/or change in management direction was identified.

Monitoring Resources Available.

Monitoring of the recently established growth plots provided data for this Forest Plan requirement.

Recommendation.

Monitoring Priority 2. Continue monitoring. Revisit growth plots and re-measure.

Timber – Research Needs

Activities, Effects and Resources To Be Measured.

Timber Research Needs

Methods.

Research was initiated in 1991 to study the survival and growth differences between spring and fall lifting of nursery seedlings. The results of this information will determine the best time to lift seedlings from nursery beds so as to provide the best survival and growth.

The Forest, in conjunction with Forest Pest Management (FPM), implemented a study on timber harvest and slash treatment methods to control the spread of *Tomentosus* root rot in Engelmann and blue spruce. The study began with the first treatment in 1984. Another series of study plots were established in 1989. This is long-term study to assess the results of the various treatments, with no results to report yet.

Location.

No research was conducted in FY2004

Variation.

Inability to solve problems though existing¹ technology or practices

Results.

Research is ongoing. Results will be determined upon research completion.

Interpretation.

Are tolerance limits exceeded? The results are not yet complete.

What are the implications? Results may result in better seedling survival rates and treatments to control the spread of *Tomentosus* root rot.

Conclusion. There is no variation that would cause further evaluation and/or change in management direction.

Monitoring Resources Available.

Research Stations and Forest Pest Management conduct research projects.

Recommendation.

Continue to use research to study Forest problems.

¹ The word “existing” (above) is out of place and should be moved to “Variation” column to read “Inability to solve problems through existing technology or practices” (Forest Plan amendment).

Timber – Retention/Partial Retention Harvest Practices

Activities, Effects and Resources To Be Measured.

Harvest Practices in Retention, Partial Retention Areas

Methods.

Review of silvicultural prescriptions for timber sales and post-sale stand exams on a project basis.

Location.

Forest-wide sales.

Variation.

Violation of visual quality objectives or riparian area damage.

Results.

Of 10 timber sales planned and implemented in 2004, three had no mitigations identified in the landscape architect report. Of the remaining seven sales for which mitigations were recommended, all contained the mitigations in the environmental document and in the silvicultural prescription. Of these sales, none have documentation of post sale monitoring completed by a landscape architect, as work has not yet commenced. Of the 12 active sales no documentation of monitoring has occurred.

Interpretation.

Are tolerance limits exceeded? Yes, mitigation measures necessary to reduce management impacts on the visual landscape were minimal for most silvicultural prescriptions. The Forest Landscape Architect, sale preparation and marking crews, and sale administrator implemented some of the mitigations. Overall, it is felt that visual quality standards in the Landscape Management Report are being carried through the sale implementation process and accomplished on the ground.

What are the implications? Documentation is needed to determine if achieving Visual Quality Objectives is occurring.

Conclusion. The downfall for this monitoring is after the sale has been completed. Either the post-sale monitoring is not occurring, or monitoring is not documented.

Monitoring Resources Available.

The resources are available for planning, but do not appear to be available for post-sale monitoring.

Recommendation.

The active and closed sales need to monitor as described in the NEPA documents. Change “Variation” standard to “Deviation from Visual Quality Objectives” (Forest Plan amendment).

Timber – Riparian Harvest Practices

Activities, Effects and Resources To Be Measured.

Harvest Practices in Riparian Areas

Methods.

Review of silvicultural prescriptions for timber sales and post-sale stand exams on a project basis. The project files of 42 sales sold since implementation of the Forest Plan were reviewed.

Location.

Forest-wide sales.

Variation.

Riparian area damage.

Results.

A total of two sales were reviewed. Riparian areas ranging from isolated springs to streams and ponds were present on both of the reviewed sales. The Hydrologist's recommendations were tracked through the EA, silvicultural prescription, marking guidelines and contract/sale area map in the documents. A review of silvicultural prescriptions suggests that existing timber sale contract provisions, when fully implemented with a map, are adequate to protect and maintain riparian areas in their existing condition. No riparian area damage was observed.

During project planning, specific restrictions (buffer zones) or special harvesting practices intended to protect riparian areas were identified. Most of these were carried into the EA as stated in the report. Recommendations were based on informal field visits. Several projects contain general recommendations such as "protect riparian areas". Most of these recommendations were included in the EA.

Interpretation.

Are tolerance limits exceeded? No, a review of silvicultural prescriptions suggests that existing timber sale contract provisions, when fully implemented with a map, are adequate to protect and maintain riparian areas in their existing condition.

What are the implications? Riparian areas appear to be adequately protected and maintained.

Conclusion. No variation that would cause further evaluation and/or change in management direction has been identified.

Monitoring Resources Available.

The District Hydrologist, Silviculturist, and timber sale administrator to ensure that riparian objectives and mitigation measures are met as prescribed conducts monitoring.

Recommendation.

Continue monitoring silvicultural prescriptions and project areas for protection of riparian areas. Use the timber sale NEPA process to evaluate riparian area condition, where appropriate to the project analysis. Coordinate the broad watershed and riparian inventory with baseline data collection for individual timber sale planning, using the seasonal crew proposed in “BMP Effectiveness” monitoring.

Continue to strengthen the link between the Environmental Assessment/Environmental Impact Statement through timber sale administration. Ensure that riparian recommendations in the project decision are incorporated into marking guidelines and timber sale contracts. Where site-specific guidelines for harvesting activities in riparian areas are identified, use the sale area map and appropriate contract provisions.

Timber – Stand Stocking

Activities, Effects and Resources To Be Measured.

Adequate stocking of stands within a reasonable time period, generally 5 years of final harvest.

Methods.

Silvicultural exam (Type 3), five years after final harvest Location. Code of Federal Regulations 36 CFR 219.27©(3) states, “When trees are cut to achieve timber production objectives, the cuttings shall be made in such a way as to assure that the technology and knowledge exist to adequate restock the lands within five years after final harvest...” Five years after final harvest means five years after clearcutting, five years after final overstory removal in shelterwood cutting, five years after the seed tree removal cut in seed tree cutting, or five years after selection cutting.”

Location.

Forest-wide sales.

Variation.

Less than 5th year stocking standards in FSH 2409.26b—5.31-4.

Results.

A total of 802 acres were certified in FY2004. First year survival was excellent at 93% and third year at 58%. Pine and Douglas-fir areas 3rd year survival were poor but the Engelmann spruce was excellent. The pine and DF areas will have to be replanted.

Interpretation.

Are tolerance limits exceeded? No. Though no 5-year measurements have been made for treatments harvested since 1987 under the Forest Plan, provides the 1st and 3rd year survival records for artificial regeneration (planting) that has occurred between 1987-2004.

What are the implications? Most areas that were harvested through a final harvest treatment prior to the adoption of the Forest Plan have regenerated to an adequate restocking level. However, some areas have not reached adequate stocking level. In these areas, work and evaluation will continue toward adequate restocking. The standards and guidelines implemented in the Forest Plan will be used to prevent these problems in the future.

Conclusion. Monitoring information for final harvest treatments implemented after the adoption of the Forest Plan will be available beginning in 1992. This information will allow us to assess the effectiveness of the standards and guidelines and make additional adjustments, if necessary.

Monitoring Resources Available.

Certified silviculturists conduct monitoring to meet the Code of Federal Regulations.

Recommendation.

Continue monitoring.

Timber – Suitable/Unsuitable Land Classification

Activities, Effects and Resources To Be Measured.

Verify Classification of Suitable and Unsuitable lands

Methods.

Examine lands during silvicultural exams, timber inventories, and ID team reviews to ground truth capabilities on a project basis. On a project basis as available, but prior to plan update, complete soil/geologic survey of lands identified as unsuitable because of potential irreversible resource damage by 1990.

A process was developed to verify suitability during timber sale project planning, and to accomplish the classification on the earlier sales made since 1986.

Location.

Forest-wide sales.

Variation.

10% of land area found to be incorrectly identified.

Results.

Table 1 displays the number of timber sales and total acres verified for timber suitability. The total forest acres verified for suitability equals 268,479.

Table 1. Number of timber sales and acres verified for timber suitability from 1987 to 2004.

District	Number of Sales	Total Acres Verified
Cedar City	29	119,809
Escalante	15	95,173
Powell	5	27,992
Teasdale	14	25,505
TOTAL	56	268,479

Interpretation.

Are tolerance limits exceeded? Data are not available to determine. Project level suitability classification is progressing. The acres verified are less than was identified in the Forest Plan as suitable forest land (page II-28).

What are the implications? A comparison with the suitability classification shown in the Forest Plan will not be possible until the classification program is completed. The resulting classification data will be used in the revision of the Forest Plan.

Conclusion. No variation that would cause further evaluation and/or change in management direction has been identified.

Monitoring Resources Available.

District personnel are conducting the project level suitability classification on a project-by-project basis.

Recommendation.

Continue project level classification process.

Timber – Timber Supply Projections

Activities, Effects and Resources To Be Measured.

Timber supply projections.

Methods.

Stage II stand examination to complete exam on remainder of commercial Forest land annually in an accelerated basis until completed. Work toward goal of 45,000 acres per year on a continuing basis.

Location.

Forest-wide sales.

Variation.

± 10% variation in projections measured against Forest Plan projections.

Results.

The latest Forest inventory (1998 Inventory) shows the following results:

- Net volume of sawtimber (Scribner rule) on nonreserved timberland is 3,534,863 MBF/1,197,122 MCF
- Net annual growth (Scribner rule) of sawtimber trees on nonreserved timberland is 45,134 MBF/15,364 MCF
- Annual mortality of sawtimber (Scribner rule) on nonreserved timberland is 53,763 MBF/18,800 MCF

Interpretation.

Are tolerance limits exceeded? Not determined.

What are the implications? Stand examinations have not proven effective in determining forest-wide timber supply projections. Timber supply projections should be determined by the Forest-wide timber inventory. Stand examinations have not proven effective in determining forest-wide timber supply projections.

Conclusion. Timber supply projections should be determined by the Forest-wide timber inventory.

Monitoring Resources Available.

The latest Forest inventory in 1998 is the source used.

Recommendation.

Results of the timber inventory will be incorporated into the Forest Plan revision process. The monitoring requirement for Stage II stand exams should be modified or dropped and stand exams

limited to use in timber sale project planning (Forest Plan amendment). Use the 10-year Forest-wide inventory and vegetation classification to determine timber supply.

Timber – Reforestation/Stand Improvement

Activities, Effects and Resources To Be Measured.

Reforestation and Timber Stand (TSI) improvement accomplishment.

Methods.

Annually review TSI and reforestation needs and accomplishment reports, KV plans.

Location.

Forest-wide sales.

Variation.

Failure to meet targets or accomplish KV needs in timber sale plans.

Results.

A total of 1796 acres were thinned or released and 113 acres were planted in FY2004.

Interpretation.

Are tolerance limits exceeded? Yes, thinning/reforestation accomplishments to date have not met the projections of the Forest Plan. This is due to the decline in the timber harvest program and the accomplishment of most thinning needs early in the monitoring period.

What are the implications? Thinning and reforestation needs are assessed and identified during the site-specific timber sale project analysis, and are being accomplished as identified. Reforestation projections are expected to continue in conjunction with the bark beetle recovery projects in the spruce type.

Conclusion. No variation that would cause further evaluation and/or change in management direction has been identified.

Monitoring Resources Available.

Thinning and planting targets are reported annually as MAR targets.

Recommendation.

Continue monitoring.