



Station Note

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Stand and Site Evaluation for Silvicultural Prescriptions

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A silvicultural prescription displays comprehensive information and a plan of activities related to natural resources production in a forest stand. Recent improvements in site classification techniques and data analysis have made forest measurement data much more useful, particularly for projecting tree growth and stand response to silvicultural practices. New data analyses and display techniques may simplify choosing among alternative forest management regimes; however, the data output depends entirely on the format, sequence, completeness and accuracy of the information provided by those who make silvicultural prescriptions.

Most forest stands could be managed under several silvicultural alternatives within the biotic potential and constraints of the site and current stand. The selected alternative will, in such a situation, be chosen on the basis of economic and other social factors. A comprehensive record

of field information is essential to the prescription process to ensure that most alternatives are identified, and that the selected management regime is biologically sound and operationally feasible.

An itemized stand and site evaluation form for silvicultural prescriptions is provided and explained. The form, designed for use by foresters and forest technicians in the northern Rocky Mountains, could be used in other forest regions with modifications for local conditions. Although the information level is well suited for field evaluations by certified silviculturists, anyone with knowledge of forest inventory techniques and local soil, vegetation, and protection needs should be able to complete the form adequately. No specialized equipment or measurements are required, and most items are evaluated on the basis of visual observation.

The evaluation should show which sites and stands require additional examination by a specialist in road engineering, vegetation or soils management, grazing, fire, or insect and disease protection. The field evaluation can be completed prior to, during, or following the stand inventory, but should be a permanent and updated part of stand records prior to any management activity.

This form is not intended to reduce writing a silvicultural prescription to a series of mechanical steps, but

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rather it is designed to ensure that many prescription influencing factors are considered during the first stand examination. In addition, we feel that the information provided by the evaluation form should help refresh the memory of a silviculturist who may write or review a prescription at some future time after the field examination, and would serve as a record for review by an incoming silviculturist.

Itemized Explanation of Stand and Site Evaluation for Silvicultural Prescriptions

1. Name of actual field observer(s).
2. Date of evaluation.
3. File or map number for the stand and other identity.
4. Legal description of stand location, including meridian (e.g., NW ¼, SE ¼, Sec 10 T41N R3W BM).
5. Stand size (identify if hectares or acres).
6. Check No _____ if not cruised for inventory. If cruised, record observers, date cruised, fixed and/or variable plot size and break point, and the number of sample plots. Check status of data processing.
7. Record elevation to nearest 100 feet.
8. Record average percent slope inclination to the nearest 5 percent.
9. Record average stand aspect and note range of aspects.
10. Check topographic position relative to local topography.
11. Check the localized landform in terms of stand contour.
12. Check the appropriate main access condition. Main access refers to roads suitable for heavy-haul traffic. A *primary* haul road is a two or more lane, all-weather, heavy-duty road with a paved or graveled surface that is normally free of drainage and surface problems or other factors that may limit access. A *secondary* haul road may have one or two lanes with a graveled surface, is capable of supporting heavy-duty traffic on a seasonal basis, and may be limited by poor drainage or other weather related factors.

If a stand does not have direct main access, estimate and record the distance to main access along a route suitable for road construction. Check whether existing or proposed main access is above and/or below the stand.

13. Check the appropriate sub-access condition. Sub-access refers to within-stand access required for management and harvest activities. *Excellent* sub-access includes proper design, location, and maintenance of existing stand roads, skid trails, and landings, which are permanently established and intended for reuse. *Adequate* sub-access means that these features are of less than excellent quality and may cause some damage to the site and stand, but are retained and reused to avoid losing additional stand growing space to construction of a new road/landing system.

Redesign of sub-access is required when increasing loss of site and water quality and integrity will result from reuse of all or part of the existing system, or where the design and location of existing stand roads, skid trails, and landings are not adequate for future management and harvest activities.

14. a. Check the physical/biological suitability of the local topography and soils for road construction.
b. Briefly justify 14a.
c. List other constraints on roadbuilding, including ownership, manpower and equipment costs and availability, access control, etc.
15. Name the habitat type(s) or other ecological classification and list authority.
16. Estimate the percent cover class for shrubs, forbs, and grasses independently. For shrubs, indicate the height class(es) under the appropriate cover class (i.e., low shrubs < knee height, mid shrubs—knee height to shoulder height; tall shrubs > shoulder height). List the shrub species that are dominant in terms of cover. Total percent cover may exceed 100 percent.
17. Check the appropriate soil conditions using a soil probe or auger, or clean a profile of a roadcut or gully to estimate soil material and depth characteristics. Visual observation and general knowledge of the potential response of local soils to disturbance are required to estimate the various soil characteristics.
18. Check the air drainage conditions for the stand area, using topography as the main criteria.
19. Record the event of past fires, including year(s), and cite evidence such as charred boles or stumps, charcoal in the litter or soil profile, etc.

20. Record fuel size classes as large, medium, or small for each fuel load class. *Heavy* fuel loads comprise a continuous cover of all fuel sizes over most of the stand. *Moderate* fuel loads either lack continuity or a full range of fuel sizes. *Light* fuel loads contain only patchy residues of large and medium fuels.

Large fuels are those greater than 4 inches in diameter. *Medium* fuels include branches and other woody material 1-4 inches in diameter. *Fine* fuels include duff, litter, grasses and other non woody fuels, and twigs and branches up to 1 inch in diameter.

21. Check the level of past grazing. *Severe* grazing includes a majority of the stand having soil displacement and compaction, erosion of heavily used trails, bare areas, trees browsed, and shrub browsing past the current year's growth. *Heavy* grazing includes a patchy distribution of otherwise severe grazing characteristics, or less deteriorating soil and vegetation conditions. *Moderate* grazing includes sites where the grazing resource is fully utilized with little apparent degradation of the site. *Light* grazing occurs in stands infrequently grazed for a short time with little impact on soils or vegetation. Check the animal(s) grazing or record the common name of other domestic or wild animals.
22. Check the number of stories in the current stand, and the percent cover of tree size classes (e.g., unstocked = 20%, pole = 30%, sawtimber = 50%. May exceed 100%, especially in mixed species stands).
23. Record the cutting history, including commercial and precommercial entries.
24. Check the site preparation for the current stand.
25. Record the planting history.
26. Indicate the condition codes of all tree species in the current stand by size class. Indicate P after the code to show potential conditions. Indicate the extent of the existing condition by placing H (*heavy*

= > 50%), M (*medium* = 25-50%), or L (*light* = < 25%) after the code. Indicate the seed source potential after code 24.

27. Estimate and check the amount of time that can elapse prior to implementing the prescription. This will mainly depend on the changes in the stand and site which would require a change in prescription. For example, incipient insect outbreak, rapid loss of vigor due to competition, or loss of stand volume to disease may require that the prescription be implemented as soon as possible (ASAP). A stand that would not benefit from a thinning, but will be more economically valuable given 20 years additional growth, may be delayed for a harvest/regeneration prescription.
28. List any additional stand and site evaluation by a specialist and state why such an evaluation is needed.
29. Describe the stand structure and proposed prescription in general terms as indicated.

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STAND AND SITE EVALUATION FOR SILVICULTURAL PRESCRIPTIONS

1. Observer(s): _____ 2. Date: ____/____/____
mo. day yr.

3. Stand Ident.: _____

4. Legal Descrip.: _____ Sec _____ T _____ R _____ M _____

5. Stand Size: _____

6. Cruised? No _____ Yes (Observers) _____

Date ____/____/____
mo. day yr.

Aerial Photo Nos. _____ No. Plots _____

Variable Plots Fixed Plots

Plot Size:
 Breakpoint:

Data Processing: Field Forms _____ Cards _____ Printout _____

7. Elev. (ft.): _____ 8. Slope (nearest 5%): _____ 9. Aspect: _____, varies from _____ to _____

10. Topo Position: Low Flat _____ Stream Bottom _____ Lower _____ Mid _____ Upper _____
 Narrow Ridge _____ Flat Ridge _____ Bench _____ Other _____

11. Slope Conformation: Concave _____ Convex _____ Uniform _____ Rolling _____ Flat _____

12. Existing Main Access: Primary Haul Road _____ Secondary Haul Road _____ Estimate distance to
 main access _____ and whether above _____ or below _____ stand

13. Existing Sub-Access (Stand Roads, Skid Trails & Landings): Excellent _____ Adequate _____
 Redesign _____ None _____

14. New or Redesigned Roads:

- a. Road Construction Suitability: Good ____ Fair ____ Poor ____ Unsuitd ____
- b. Why _____
- c. Constraints on roadbuilding _____

15. Habitat Type(s): _____

16. Understory Vegetation Cover: Heavy (>50%) Med (25-50%) Light (<25%)

List dominant shrub species (i.e.,
 Pamy, Spbe, Phma)

Indicate shrub height classes:
 Shrubs _____
 Forbs _____
 Grasses _____

17. Soils:

- a. % Bare soil _____ Parent material _____
- b. Depth: deep (>3') _____ Moderate (1-3') _____ Shallow (<1') _____
- c. Depth to drainage-resistant layer: _____ Ash depth: _____
- d. Erosion: (Indicate P for potential, C for current) None _____ Light _____ Moderate _____ Heavy _____ Severe _____
 Indicators _____
- e. Compaction: (Indicate P for potential, C for current) None _____ Light _____ Moderate _____ Heavy _____ Severe _____
- f. Internal Drainage: Excellent _____ Good _____ Fair _____ Poor _____
- g. Texture: Gravel/Rocks _____ Sandy _____ Loam _____ Ash Cap _____ Silty/Loam _____ Clay/Loam _____
 Clay _____ Fragipan _____

18. Air Drainage: Severe (Windy) _____ Good _____ Fair _____ Poor: Frost Pocket _____ Frost Flat _____

19. Fire: No _____ Yes (Evidence?) _____ Year(s)? _____

20. Fuel Load: (Indicate size classes) Heavy _____ Moderate _____ Light _____

21. Grazing: Severe _____ Heavy _____ Moderate _____ Light _____ None _____ Evidence _____
 Animal: Cattle _____ Sheep _____ Horses _____ Other _____

Stand and Site Evaluation for Silvicultural Prescriptions (Continued)

22. Stand Condition:

a. Structure: 1-story _____ 2-storied _____ multi-storied _____
 b. % Cover by Size Class: Unstocked _____ Reprod _____ Sapling _____ Pole _____
 Sawtimber _____ Overmature _____

23. Cutting History: None _____ Yes (System and Year(s)) _____
 Species cut _____ Species left _____

24. Site Prep.: None _____ Mechanical _____ Broadcast burn _____ Pile and burn _____

25. Planted? No _____ Yes (Species, number planted/ac., year) _____

26. Place the appropriate condition codes in each species/size class block represented in the stand (indicate P after code if there is a potential condition; H if > 50% affected, M if 25-50%, L if < 25%).

- | | | | |
|------------------------|------------------|---|---|
| 0 Healthy | 8 Stem rust | 15 Weather (windthrow, snowbreak, hail) | 21 Stem rot |
| 1 Mountain pine beetle | 9 Mistletoe | 16 Suppression | 22 Sound snags: no./acre and avg. size after code |
| 2 Fir engraver beetle | 10 Fire | 17 Logging (Mechanical damage) | 23 Rotted snag |
| 3 Ips beetle | 11 Livestock | 18 Old age | 24 Seed source potential: Exc (E), Good (G), Fair (F), Poor (P) |
| 4 Other bark beetles | 12 Big game | 19 Unknown | |
| 5 Defoliators | 13 Rodents | 20 Poor form | |
| 6 Other insects | 14 Other animals | | |
| 7 Root rot | | | |

Species	Reprod < 1"	Sapling 1" - 6"	Pole 6" - 12"	Sawtimber 12" - 24"	Peeler > 24"	Seed source potential	Snags
PP							
DF							
WL							
GF							
LP							
WP							
CE							
WH							
ES							
AF							
Other							
()							

27. Urgency to Implement Prescription: ASAP _____ by 5 years _____ by 10 years _____ Delay to _____
 Why? _____

28. Recommended Additional Stand and Site Evaluation:
 Specialty: _____
 Why? _____

29. Description of stand structure and prescription: Indicate structure of stand, whether patchy, homogeneous, etc.; whether single story, double, etc.; history, evidence of release, pathogens, etc. Estimate stand stability and utilization of site potential. Briefly describe the timing and nature of prescribed activities, the target stand, and future options. (Use additional sheet if needed.)

FOREST, WILDLIFE AND RANGE EXPERIMENT STATION

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The mission of the Forest, Wildlife and Range Experiment Station, like that of the University, is service—to the people of Idaho and the nation. The experiment station scientists fulfill that mission through research directed toward knowledgeable, responsible use, development and management of renewable natural resources for Idaho and the nation.

