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Forest Service Handbook 2409.17 – Silvicultural Practices Handbook

Chapter 80 - Silvicultural Examinations, Prescriptions, and Evaluations

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Responsible Staff:

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Digest: Following is an explanation of the changes throughout the directive by section.

80.1-80.4: Updates coding and revises text to conform with FSM 2470.

80.5: Revises exhibit 01 regarding minimum national standards for silvicultural certification.

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80 - Silvicultural Examinations, Prescriptions, and Evaluations

Some of the most important tasks connected with proper management of the National Forests are the:

1. Examination of forest stands;

2. Diagnosis of treatment needs;

3. Prescription of methods, techniques, and timing of silvicultural activities; and

4. Evaluation of treatment results.

Examinations require careful and competent gathering of resource and other site data. Prescription preparation requires a high degree of professional skill by a silviculturist. The silviculturist shall be familiar with local climatic, biotic, and edaphic conditions, the silvics of the tree species, the land management direction pertaining to the area, the available management alternatives, and other pertinent Forest Service direction. It is imperative that these requirements be met in every area in which a silvicultural practice is performed.

80.1 - Silvicultural Examinations

The silvicultural examination collects and records site and stand characteristics needed to identify existing stand conditions, capabilities, and trends. It includes the metrics needed for the diagnosis and silvicultural prescription. The examination design and intensity are based on support information needed to ensure that proper treatment can be prescribed to meet management objectives. Ensure data is entered in the appropriate database (for example, Field Sample Vegetation (FSVeg) and its ArcMap extension (FSVeg Spatial)).

Examinations are made for diverse purposes, such as the:

1. Gathering of basic vegetation and land data for timber inventory records and/or prescription writing.

2. Reforestation examinations, including pre-planting surveys, and first- and third-year reforestation surveys.

3. Surveys or examinations for determining quality of work performance for contract and force account jobs.

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80.2 - Diagnosis of Treatment Needs

Stand diagnosis will take place after the silvicultural examination. The diagnosis considers and evaluates the site capability, management direction, and landscape context relative to desired stand conditions.

The diagnosis is a four step process:

1. Step 1. It first considers whether the stand in question meets the desired condition and thus is expected to achieve management objectives.

2. Step 2. If it:

   a. Does, treatment can be deferred.

   b. Does not, it might still be deferred if there are operational or economic considerations that preclude treatment at this time.

3. Step 3. If treatment is needed and 2b is not applicable, consideration is given whether a stand modification is needed to put the stand back on trajectory.

4. Step 4. If none of the above is applicable, consideration is given to stand replacement with a regeneration harvest. The diagnosis also includes the development of desired stand conditions (for example, species composition, structural characteristics, snags/acre, and so forth.) at various time intervals throughout the life of the stand from initiation to rotation in accordance with management objectives. In addition, it includes a comparison of current versus desired that may lead to alternative treatment needs.

The diagnosis of a stand is accomplished prior to National Environmental Policy Act (NEPA) planning and several years before the detailed prescription is prepared. The diagnosis forms the basis for developing and proposing treatments or treatment alternatives in NEPA.

80.3 - Detailed Silvicultural Prescriptions

A detailed prescription is a written document prepared or reviewed by a certified silviculturist that describes management activities needed to implement a silvicultural treatment or treatment sequence. The prescription documents the results of an analysis of present and anticipated site conditions and management direction. It also describes the desired future vegetation conditions in measurable terms as developed during stand diagnosis. The desired condition is a basis for treatment, monitoring, and evaluation.

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80.4 - Monitoring and Evaluation of Silvicultural Treatment

Field examinations should be made following silvicultural treatment. Some measurements may be necessary to determine if standards described in the silvicultural prescription have been met. For example, following regeneration cutting, the stand would be examined to determine whether the area was restocked to an acceptable number of trees, the proper species, and suitable growth rates for the site.

The purposes of monitoring and evaluation are to determine if:

1. Work was accomplished in accordance with the prescription;
2. Silvicultural and land management objectives were achieved;
3. Remedial treatments are needed; and
4. Other prescriptions can be improved.

In some cases, monitoring can be part of the regenerated stand certification process (FSM 2496) as required by National Forest Management Act of 1976 (NFMA).

File the results of evaluations with the prescriptions.

80.5 - Minimum National Standards for Silviculturist Certification

Forest Service Manual (FSM) 2478.51 requires each Regional Forester to ensure that certified silviculturists meet minimum National standards. Exhibit 1 defines these minimum National standards. Regional Foresters shall supplement the standards in areas defined in FSM 2478.51 to establish Regional certification standards.

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80.5 - Exhibit 01

Minimum National Standards for Silvicultural Certification

I. PRESCRIPTION DEVELOPMENT

TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
PRESCRIPTION DEVELOPMENT	**CHARACTERIZE LANDSCAPE**	1. Inventory the landscape. a. Application of multi-scale understanding of inventory and monitoring relationships for vegetation variables. For example: (1) Use FIA grid data at scales above the 5th code watershed (Eco-sub-Region) to describe such things as: (a) Cover type groups. (b) Forest structure class groups. (c) Potential natural vegetation groups. (d) Disturbance regimes. (e) Volume class groups. (f) Habitat stage groups.	Working Level
		(2) Use project exams to describe and display such things as: (a) Cover types. (b) Forest structure classes. (c) Potential natural vegetation types. (d) Disturbance regimes. (e) Volume classes. (f) Habitat stage.	Expert Level
		(3) Use sample data to estimate vegetation attributes. a. This includes use of the concepts of mean, median, mode, standard deviation, coefficient of variation, standard error of estimate, precision, accuracy, and appropriate number of significant digits in the estimates.	Expert Level
		b. Describe human dimensions. This includes recognizing the human values that may dictate management strategies within forested landscapes.	Recognition Level
		2. Describe landscape vegetation trends. Use landscape models to: a. Determine dynamic or processes relationship between individual stands of interest and landscape context.	Expert Level

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80.5 - Exhibit 01--Continued

TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
PRESCRIPTION DEVELOPMENT	**CHARACTERIZE LANDSCAPE**	b. Understand how patterns and processes functioned historically and currently at a landscape level, applying concepts of forest, wildlife, fire and aquatic ecology, insect and disease and stands dynamics.	Working Level
		3. Describe the desired landscape scale vegetation condition and its relationship to purpose and need for proposed actions.	Expert Level
	DETERMINE STAND OR UNIT BOUNDARIES	1. Determine site and stand characteristics, technological limitations, and management objectives to determine effective units of land management. Examples of factors to evaluate are: a. Topography, slope, aspect, and drainage. b. Logging system and fuel management. c. Method of treatment (for example, fire, chemical and mechanical). d. Vegetation, taxonomic composition, and structure. e. Road location and property lines. f. Unit size. g. Differences in soil productivity. h. Conditions of adjacent area for example, past treatments, natural events). i. Watershed boundaries. j. Potential natural vegetation. k. Other administrative boundaries (for example, grazing allotments, municipal watershed boundaries, and so forth.)	Expert Level
	EXAMINE STAND OR UNIT	1. Perform or supervise an examination of site and stand characteristics using appropriate systems. The site or stand components to be examined are: a. Site Attributes (1) Geology and Landforms (a) Determine effects on survival, growth, treatment options, and site stability. Includes evaluation of potential for avalanches, rock-slides, and mud slides.	Working Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
PRESCRIPTION DEVELOPMENT	**EXAMINE STAND OR UNIT**	(b) Know origin of the major landforms and primary rock-types, including general mineral content and availability to plants. (c) Know relationships of profile development of modal soils, site stability, and drainage. b. Climate (1) Consider effects on survival, growth, treatment options (including control of microclimate by vegetation), fire hazard, fire intensity, and fuel loading. This includes determining: (a) The amount, seasonal distribution, and forms of precipitation. (b) Temperature extremes, length of growing season, approximate dates of first and last frost, and plant hardiness zone. (c) The frequency and nature of catastrophic weather conditions. (d) The influence of physiography on climate. (e) Potential evapotranspiration. (f) Radiation intensity (infrared, visible, and ultraviolet. (g) Air quality.	Working Level
		c. Forest Soils (1) Consider the relationship between soil properties (stoniness, texture, structure, color, depth of horizons, hard pans, rooting depth, moisture content, temperature, organic matter content, and soil organisms including mycorrhizal fungi and nitrogen-fixing bacteria) and vegetation survival and growth, palatability, machine use, soil compaction, soil erodibility, and prescribed burning. (2) Consider implications of altering soils by treatments such as, timber harvesting, site preparation, skidding, landing construction, prescribed fire, discing, ripping, brush piling, wildlife treatments, and herbicide application. (3) Determine need for erosion control treatments. (4) Determine need for fertilization. (5) Interpret soil surveys.	

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
PRESCRIPTION DEVELOPMENT	**EXAMINE STAND OR UNIT**	d. Hydrology /Watershed (1) Consider the effects of hydrologic properties on vegetation survival, growth, and treatment options. This includes evaluating water interception, movement, and storage; energy exchange; snow interception, accumulation, and melt; and evaporation. (2) Consider the effects of silvicultural practices on hydrologic regime, water quality, and water quantity. (3) Consider off-site effects of alternative vegetation treatments.	Working Level
		e. Ecological Classification (1) Identify site ecological class (usually based on topography, soils, and potential natural vegetation). Includes understanding various classification systems. (2) Identify productivity, biological constraints, and management implications of different ecological classes.	Variable Level
		f. Site Quality /Productivity (1) Estimate site quality and Forest Survey site class based on: (a) Standing tree measurement. (b) Ecological types, indicator plants, current stocking, and/or growth. (c) Site modifications such as fertilization, irrigation, or drainage. (2) Estimate changes in site potential over time.	Working Level
		g. Cultural Resource Characteristics (1) Recognize presence of archeological resources. (2) Know procedures for alerting archeologists about presence of resources.	Working Level
		h. Recreation Setting (1) Evaluate the effects of existing conditions and treatment alternatives on recreational uses and scenery, based upon forest plan descriptions and objectives.	Working Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
PRESCRIPTION DEVELOPMENT	**EXAMINE STAND OR UNIT**	i. Stand attributes (1) Vegetation inventory. (a) Demonstrate ability to set up basic statistical designs to meet inventory objectives. (b) Recognize the limits of confidence on stand data based on sampling techniques. (c) Demonstrate knowledge of forest stand inventory procedures and tools needed. (d) Review sample data to estimate stand attributes. Includes use of concepts of mean, median, mode, and standard deviation, coefficient of variation, standard error of estimate, precision, accuracy, and appropriate numbers of significant digits in the estimates.	Expert Level
		(e) Demonstrate the difference between stand average values and individual plot values as each relates to resources. (f) Understand the capabilities and limitations of growth/yield models. (g) Describe vegetation in the stand or unit including all canopy levels and structural stages, non-native invasive species, noxious weeds, and non-timber forest products.	
		(h) Work with fuel personnel to determine existing fuel loading utilizing available sampling methods. Identify appropriate crown and fuel, models using inventory methods such as photo series, lot, or transect data.	Variable Level
		j. Fish, wildlife and endangered or threatened plant habitat. (1) Recognize and evaluate habitat capability (for example, suitable food, cover, and water) for indicator or emphasis fish and wildlife species, and for sensitive, endangered, or threatened plant species. (2) Identify habitat of threatened, sensitive, and endangered species in the local area.	Working Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
PRESCRIPTION DEVELOPMENT	**EXAMINE STAND OR UNIT**	(3) Know management guidelines and recovery plan guidelines for threatened or endangered species and species of conservation concern used locally.	Working Level
		k. Range Resource (1) Recognize and classify transitory and other range resources.	Variable Level
		l. Visual Resource (1) Identify elements and patterns of the forest landscape significant to National Forest management. (2) Classify and map components most affected by silvicultural practices (for example, skyline, forest edge, and junction of different forest types).	Working Level
		m. Timber Resource (1) Determine stand economic values using: (a) Species value, present grades, and anticipated grade changes. (b) Market conditions and trends. (c) Current and anticipated losses due to pests, fire, weather, and air pollution. (d) Appropriate economic analysis tools. (2) Measure and predict volume and quality of products to be removed. (3) Predict volume and quality of residual trees.	Expert Level
		n. Disturbance Agents (1) Recognize evidence of and susceptibility to disturbance agents. (2) Identify signs, symptoms, and alternate plant host of significant current or potential insects, diseases, and vertebrate animal pest.	Working Level
		(3) Identify symptoms of weather on survival and growth. Includes effects of excessive temperatures, winds, snow, and frost heave; low relative humidity, and freeze/thaw (root damage). (4) Understand the relationship between various disturbance agents, pest complexes, and other stand attributes.	Expert Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
PRESCRIPTION DEVELOPMENT	**EXAMINE STAND OR UNIT**	o. Fuel loading and fire behavior (1) Determine fire regimes based on local studies, research, and so forth	Working Level
	DIAGNOSIS OF STAND OR UNIT CONDITIONS AND TREATMENT NEEDS	1. Evaluation of current conditions and trends. a. Summarize and evaluate results of examination for the landscape, site, and stand attributes. b. Evaluate the effects of succession. c. Evaluate the potential for mortality and growth loss due to: (1) Competing vegetation, noxious weeds, and exotic plants. (2) Density (3) Disturbance agents (for example, fire, wind, pollution, ice, disease, and animal damage)	Expert Level
		2. Legal requirements. a. Know National, Regional, and Forest directives; state laws; tribal rights; and county laws pertaining to water quality, soil standard, best management practices (BMP's), pesticide use, wildlife management, timber management, visual resources, air quality, cultural resources, and threatened and endangered species. b. Knowledge of environmental laws, such as NEPA, NFMA, ESA, and so forth.	Working Level
		3. Management Direction a. Interpret management direction (for example, Forest Plan, Forest Plan amendments, other appropriate District, or area multiple use plans, and Environmental Analysis) pertaining to vegetation in the stand or unit.	Expert Level
		4. Desired stand conditions a. Describe desired stand in terms of: (1) When it will occur. (2) Taxonomic composition (usually species), or successional stage by layer or story. (3) Structure (for example, stocking, size classes, spatial variation within stand). (4) Other attributes as needed (for example, volume, growth rates, vigor, risk rating, value). (5) Evaluate the relationship of the stand or project to the overall landscape. (6) Consider vegetative patterns and flows at the landscape level.	Expert Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
DIAGNOSIS OF STAND OR UNIT CONDITIONS AND TREATMENT NEEDS	**APPROPRIATE SILVICULTURAL SYSTEMS**	1. Consult with interdisciplinary team specialists, including forestry operations specialists, to determine forest vegetation desired condition objectives, treatment constraints, and operational feasibility of silvicultural treatment alternatives 2. Determine feasible alternative silvicultural systems and initial treatments. 3. Determine if available treatment alternatives will achieve land management objectives, and address issues developed by the interdisciplinary team.	Expert Level
	ALTERNATIVE TREATMENTS IN TERMS OF:	1. Forest Regulation and Sustainability. a. Determine if treatment alternatives will improve age class distribution to contribute toward a regulated flow of timber on lands designated for that purpose. b. Determine if treatment alternatives will achieve desired stand conditions. c. Understand the effect of even-aged, two-aged, and uneven-aged management on forest regulation. 2. Regeneration. a. Determine if the site can be regenerated. This includes: (1) Feasibility of site preparation. (2) Whether the site can be planted, seeded, or stocked with sufficient natural regeneration from desirable species of acceptable phenotypes within the desired period. b. Select the desirable regeneration species. Factors to consider include: (1) Current and potential microsite conditions. Survival, growth rates, and economics of establishment. (2) Desired products. (3) Gene conservation/tree improvement and seed transfer guidelines. (4) Wildlife, fisheries, visual, range, soil, watershed, pest management, fuel management, and biodiversity objectives. (5) Historic species composition and stocking levels. c. Decide on natural or artificial regeneration. Factors to consider include:	Expert Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
DIAGNOSIS OF STAND OR UNIT CONDITIONS AND TREATMENT NEEDS	**ALTERNATIVE TREATMENTS IN TERMS OF:**	(1) Feasibility of site preparation, animal damage control, and release treatments needed for establishment of desired species in the desired period (including economics, treatment timing, and effects on resources). (2) Time frames involved in meeting desired outcomes. (a) Method of regeneration cuttings (e.g., logging system; how the site will be prepared, how the regenerated stand will be released, need for shelter, presence of acceptable advanced regeneration, effects on the genetic quality of the regenerated stand; and effects on resources). (b) Adaptability of regeneration to the site. d. Determine how to artificially regenerate the site. Factors to consider in addition to (3) above: (1) Stock type and size specification, availability of suitable stock, planting method (including the need for shade), and stocking density. (2) Seed transfer guidelines. e. Determine how to naturally regenerate the site. Factors to consider in addition to above: (1) Evaluate sprouting potential of sprouting species. (2) Evaluate seed production potential/ frequency. (3) Current stocking of desired regeneration. (4) Impacts of harvest and other treatments on established regeneration.	Expert Level
	STAND GROWTH/, YIELD AND VEGETATION CHANGE	1. Understand capabilities and limitations of growth and yield models.	Expert Level
		2. Understand and have ability to utilize visualization models to display desired stand conditions or compare treatment alternatives.	Working Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
DIAGNOSIS OF STAND OR UNIT CONDITIONS AND TREATMENT NEEDS	**USE GROWTH/YIELD MODELS TO:**	1. Determine if stand is growing satisfactorily. 2. To project growth of individual trees, layers, crown or DBH classes, and growth and yield of the stand. 3. Predict tree and stand growth in the context of: a. Development of non-crop trees, shrubs, and herbaceous vegetation. b. Tree survival and growth/environmental relationships (including environmental influences on photosynthesis and respiration, crown, height, diameter and root growth patterns, and seed and sprout production). c. Stand development (including formation of crown classes, periodic and mean annual growth relationship, natural pruning, and effects on wood quality.	Expert Level
		4. Genetic implications.	Working Level
		5. Landscape pattern and process dynamics including fire and insect and disease events.	Expert Level
	INTERMEDIATE TREATMENTS	1. Evaluate need for intermediate treatments in immature stands, such as: a. Release. Includes evaluating terrain accessibility, timing, current, and anticipated competing vegetation, risk of losses to fire and insects, opportunities for using livestock, relative cost effectiveness of alternative treatments, management direction pertaining to use of herbicides, and effects on resources. b. Animal damage control. Includes evaluating habitat manipulation, physical barriers, hunting, trapping, and pesticides; timing; cost effectiveness of alternative treatments, management direction pertaining to use of herbicides, and effects on resources. c. Thinning. Includes evaluating residual tree growth and value; development of understory vegetation; timings; cost of effectiveness; need to develop wind firmness in future seed or shelter wood trees; and effects on residual stand and on resources.	Expert Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
DIAGNOSIS OF STAND OR UNIT CONDITIONS AND TREATMENT NEEDS	**PRESCRIBED FIRE**	d. Sanitation, salvage, and weeding. Evaluate effects on value, cost effectiveness, risk of losses to insects and disease, and effects on resources. e. Pruning. Evaluate effects on value, cost effectiveness, risk of losses to insects and disease, and effects on resources. 1. Familiarity with fuel models used in the analysis of alternatives. 2. Evaluate residual tree growth and value; fire hazard reduction; development of overstory and understory vegetation; timing of treatment; cost effectiveness; risk of losses to insects or disease; and effects on resources. Assess the allowable level of damage for treatments.	Variable Level
		3. Evaluate the effects of forest stocking, species composition, and stand structure on fire behavior. 4. Knowledge of the effects of mechanical treatments of fuels.	Variable Level
	FOREST RESTORATION	1. Assess historic forest conditions and the estimated future environmental conditions. Determine whether returning stands to within the historic range of variation would be more resilient, sustainable, and facilitate future adaptation. If not, develop alternative desired conditions based on the estimated future biophysical site conditions. 2. Assess whether future ecological processes will be similar to historic processes to determine the feasibility of restoring historical ecological processes and the relationship of processes to stand conditions. 3. Determine the feasibility of restoring appropriate forest cover following catastrophic disturbance events given a potentially changing environment.	Expert Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
DIAGNOSIS OF STAND OR UNIT CONDITIONS AND TREATMENT NEEDS	**PEST MANAGEMENT**	1. Assess insect and disease occurrence in the context of the natural range of variation and climate change. Determine whether maintaining insect and disease occurrence within the natural range of variation meets resource objectives. If not, develop alternative measures that consider future environmental conditions. 2. Evaluate pest management trade-offs among resource benefits resulting from alternative vegetation manipulations, and determine measures to prevent or mitigate damage that may result from silvicultural operations. 3. Use knowledge of integrated pest management strategies to prevent or control damage.	Working Level
	PROJECT FEASIBILITY	1. Evaluate operational feasibility. This includes: a. Determine the economic feasibility of treatments methods. b. Evaluate the potential effects of different types of logging equipment and systems on the site and residual stand. c. Determine if the prescribed commercial entry require special contract provisions or administrative procedures. 2. Assist in developing burn plans to implement prescribed fire projects, taking into account desired project outcomes and operational feasibility.	Working Level
	PERFORM ECONOMIC ANALYSIS	1. Evaluate economic efficiency of alternative treatments, or treatment sequences, using present net value, benefit/cost, or internal rate of return analysis, as appropriate in support of project level decision-making.	Working Level
		2. Understand economic analysis regarding NEPA requirements at Forest Plan level.	Recognition Level
	PERFORM TRADE-OFF ANALYSIS	1. Evaluate the opportunity costs of the "No Action" alternative. 2. Evaluate the opportunity costs of alternatives not selected.	Working Level
	STAND PRIORITY FOR TREATMENT	1. Evaluate issues for which the silviculturist has technical expertise (for example, regeneration, insects and diseases, stocking needs, stand growth and development) to be considered with other resource issues when setting priorities for stand entry.	Expert Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
DIAGNOSIS OF STAND OR UNIT CONDITIONS AND TREATMENT NEEDS	**DOCUMENT THE PRESCRIPTION**	1. Site and stand conditions a. Interpret and describe the site, current stand conditions, and management direction.	Expert Level
		1. Desired stand conditions a. Describe the desired stand conditions. (See Diagnosis of Stand or Unit Condition and Treatment Needs - Desired Stand Conditions). 2. Prescribed treatments and implementation a. Establish tree-marking guidelines that consider such factors as residual stocking, risk ratings, wind-firmness, crown classifications, and potential for seed production. b. Ensure operational feasibility and safety in consultation with other disciplines. c. Describe resource protection and coordination measures. d. Describe allowable losses and damage from mechanical treatments (for example, soil compaction, bole damage, damage to advanced regeneration), and fire treatments (for example, scorch height, percent crown scorch, duff reduction, fire-caused mortality). e. Describe cultural treatments (for example, kinds of equipment, pesticides, and planting stock; planting densities, pesticide application rates; residual vegetation density, and timing.	Expert level

II. IMPLEMENTATION

TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
Implementation	Provide professional and technical expertise	1. Provide oversight for all aspects of silvicultural work. 2. Prepare oral and written communications. 3. Develop quality control STANDARDs. 4. Plan silvicultural projects. 5. Budget for silvicultural projects using appropriate financing. 6. Train Forest and District personnel in all aspects of silvicultural work.	Expert Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
Implementation	**Perform silvicultural work**	1. Perform silvicultural work (for example, seed collection and handling; planting; mixing and hand-applying herbicides; weeding, pruning, and cutting of trees and shrubs; monitoring pest-caused damage; hand baiting and trapping; fertilizing; tree marking and designating; landing, skid trail, and cable corridor layout). 2. Write technical specifications for contracts to accomplish silvicultural projects. 3. Administer contracts as a COR or inspector. Know contract policy and the other administrative and physical factors affecting contract administration work. 4. Maintain records of silvicultural work in compartment, stand, or similar files. 5. Summarize and report silvicultural accomplishments in a timely and accurate manner. 6. Provide leadership in the use and maintenance of electronic data records pertaining to silvicultural work.	Expert Level

III. MONITORING AND FEEDBACK

TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
Monitoring	**Evaluate prescription results**	1. Design and schedule post-treatment examinations and evaluations. 2. Compare results to prescription objectives or to more appropriate criteria if management direction has been revised. 3. Modify prescriptions as needed.	Expert Level
Feedback	**Feedback results into plans and current operations**	Use results of evaluations in new prescriptions. Report significant results to Region or Forest for improvements in prescriptions elsewhere.	Expert Level

IV. OTHER TASKS 1/

TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
Other Tasks	**Work On planning or analysis teams**	1. Perform as member or leader in activities such as land management planning, environmental analysis and reports, watershed analysis, roads analysis, and compartment examination and analysis.	Working Level
	Provide professional technical advise	1. Advise line and primary staff on silviculture and forest ecology.	Expert Level

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TASK 1/	ELEMENT 2/	DESCRIPTION 3/	STANDARD 4/
Other Tasks (Cont.)	**Work With Research**	1. Assist with cooperative research and administrative studies on National Forest lands. 2. Identify research needs and communicate needs to appropriate personnel.	Working Level
	Public involvement and presentation	1. Provide and present silviculture and forest ecology input for public involvement programs. 2. Understand public attitudes related to forest management and effect on silvicultural practices. 3. Organize and prepare written reports, clearly communicating issues and recommendations to a general audience. 4. Make presentations at public meetings, hearings, workshops, and in Service meetings. 5. Prepare expert testimony for legal challenges.	Expert Level
	Personal Training	1. Remain current in knowledge of silviculture, forest ecology and logging systems by reading technical and professional literature, attending training sessions and workshops, and observing in the field.	Expert Level

KEY:

1/ TASK - The jobs that are performed or directed by the silviculturist. Task can be divided into areas of examination, diagnosis, prescription, implementation, monitoring, feedback, and general task.

2/ ELEMENT - Specific components of the task performed or directed by the silviculturist.

3/ DESCRIPTION - Describes actions needed to accomplish a task.

4/ STANDARD - The minimum level of knowledge, skills, and abilities (KSA) required of a silviculturist to perform identified task. The four levels of standard are:

Expert Level - The knowledge, skills, and abilities necessary for a silviculturist to work independently or rarely requiring assistance from specialist in this area of expertise. The silviculturist is the local expert in this area. Include are the skills needed for training others in the principals, terminology, and field practices of the subject.

Working Level - The knowledge, skills, and abilities level necessary to communicate fully with other professional specialists, such as geologists, soil scientists, and hydrologists and to recognize situations requiring other specialist input.

Recognition Level - The knowledge, skills, and abilities level needed to work under the supervision of other specialists. Can recognize field indicators and terminology.

Variable Level - Knowledge, skills, and abilities requirements vary widely among Regions. Regions to determine appropriate standard and publish in a supplement to national direction.

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