

**Forest Service Manual
National Headquarters - Washington Office
Washington, DC**

**Forest Service Manual 2500 – Watershed and Air Management
Chapter 2520 - Watershed Protection and Management**

Amendment: 2500-2020-1

Effective date: June 25, 2020

Duration: This amendment is effective until superseded or removed.

Approved by: Allen Rowley, Associate Deputy Chief, NFS

Date approved: December 20, 2018

Responsible Staff:

Last Change: id_2500-2020-1 to chapter 20

Superseded Document(s): 2520 Interim Directive, id_2520-2020-1, April 01, 2020; 2520, Amendment 2500-2004-1, May 26, 2004

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

Technical amendment. Section 2420, 2521, 2524, 2525, 2526, 2527, 2528, and 2529 were inadvertently deleted when section 2523 was issued on June 25, 2020. These sections were restored on November 9, 2020.

Notice of issuance of final directive FSM 2523. Interim directive was published in the Federal Register on June 6, 2013 (78 FR 34031). Two comments received and addressed.

2523.04: Removes funding authorities that were removed from annual program direction and establishes official agency correspondence as the method for changing funding authorities. Replaces accomplishment report format with a new form and process.

2523.05: Corrects date in referenced document.

2523.06: Replaces accomplishment report format with a new form. Sets timelines for completion in authorization letter.

2523.1: Updates to Exhibit 01.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

2523.2: Removes incorrect or easily misinterpreted guidance to clarify that BAER does not pay for enforcement actions and that the appropriate 'emergency' response is the closure itself. Clarifies timelines.

2523.3: Clarifies timelines.

2523.5: Clarifies timelines and Forest Service responsibility. Includes tribes as entity to coordinate with.

2523.7: Replaces accomplishment report format with a new form and process.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

Table of Contents

2520.2 - Objective.....	6
2520.3 - Policy	6
2521 - Watershed Condition Assessment	6
2521.02 - Objectives.....	6
2521.03 - Policy.....	6
2521.04 - Responsibility	6
2521.04a - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office	6
2521.04b - Regional Foresters.....	7
2521.04c - Forest Supervisors	7
2521.05 - Definitions	8
2521.1 - Watershed Condition Classes.....	8
2521.11 - Use of Watershed Condition Classes.....	9
2521.11a - Needs Identification	9
2521.11b - Priority Setting.....	9
2521.11c - Trend Identification	9
2521.2 - Reporting	9
2522 - Watershed Improvement	9
2522.02 - Objectives.....	9
2522.03 - Policy.....	10
2522.04 - Responsibility	10
2522.04a - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office	10
2522.04b - Regional Foresters.....	10
2522.04c - Forest Supervisors	11
2522.04d - District Rangers	11
2522.1 - Watershed Improvement Activities	11
2522.11 - Watershed Condition Improvement	11
2522.12 - Water Yield Enhancement.....	11
2522.12a - Modified Forest Structure.....	12
2522.12b - Weather Modification	12
2522.12c - Type Conversion	12
2522.12d - Funding Water Yield Enhancement Projects.....	12
2522.13 - Soil Productivity Enhancement.....	12
2522.14 - Reclamation of Abandoned Mined Land.....	12
2522.2 - Watershed Improvement Planning	13
2522.21 - Controls	13
2522.22 - Use of K-V Funds for Watershed Improvements	14
2523 - Emergency Stabilization - Burned-Area Emergency Response (Baer)	14
2523.01 - Authority	14
2523.02 - Objectives.....	14

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

2523.03 - Policy.....	14
2523.04 - Responsibility	15
2523.04a - Washington Office, Director of Watershed, Fish, Wildlife, Air, and Rare Plants.....	15
2523.04b - Regional Foresters.....	16
2523.04c - Forest, Grassland, and Prairie Supervisors.....	16
2523.04d - Forest, Grassland, or Prairie Supervisors and District Rangers	17
2523.05 - Definitions	18
2523.06 - Timeframes.....	18
2523.1 - Burned-Area Emergency Assessment	19
2523.2 - Emergency Response Actions.....	23
2523.3 - Monitoring	24
2523.4 - Suppression-Damaged Areas	25
2523.5 - Use of Funds.....	25
2523.51 - National Forest System Lands.....	26
2523.52 - Other Federal Lands.....	26
2523.53 - Non-Federal Lands	26
2523.6 - Human Resources.....	27
2523.61 - Safety	27
2523.62 - Pay Provisions.....	27
2523.7 - Reporting	28
2523.8 - Controls	28
2523.9 - Coordination Between BAER and Other Post-Fire Recovery Programs	28
2524 - Support.....	28
2524.02 - Objective	29
2524.03 - Policy.....	29
2524.1 - Support Planning.....	29
2524.2 - Support Operations	29
2525 - Monitoring.....	30
2525.02 - Objectives.....	30
2525.03 - Policy.....	30
2525.04 - Responsibility	30
2525.04a - Regional Foresters.....	30
2525.04b - Forest Supervisors.....	30
2525.1 - Monitoring Plan	30
2526 - Riparian Area Management.....	31
2526.02 - Objectives.....	31
2526.03 - Policy.....	31
2526.04 - Responsibility	32
2526.04a - Associate Deputy Chief for Resources, National Forest System.....	32
2526.04b - Regional Foresters.....	32
2526.04c - Forest Supervisors	33
2526.05 - Definitions	33

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

2526.1 - Inventory and Analysis	33
2526.2 - Monitoring	34
2527 - Floodplain Management and Wetland Protection.....	34
2527.01 - Authority	34
2527.02 - Objectives.....	34
2527.03 - Policy.....	34
2527.04 - Responsibility	35
2527.04a - Associate Deputy Chief for Resources, National Forest System.....	35
2527.04b - Regional Foresters.....	35
2527.04c - Forest Supervisors	35
2527.05 - Definitions	36
2527.06 - Applicability and Exemptions From Executive Order Requirements.....	37
2527.06a - Test for Applicability	38
2527.06b - Exempted Emergency Actions.....	38
2527.1 - Identification of Floodplains and Wetlands	39
2527.2 - Public Notice Requirements.....	39
2527.3 - Analysis and Evaluation of Proposed Actions and Practicable Alternatives	39
2527.31 - Evaluation Factors.....	39
2527.32 - Data Needs for Floodplain and Wetland Evaluation	40
2527.33 - Provision for Minimizing Flood Damage	40
2527.34 - Documentation of Analyses and Evaluations	40
2527.4 - Restrictions	40
2527.5 - Posting of Past and Probable Flood Heights	41
2528 - Emergency Watershed Protection Programs.....	41
2528.01 - Authority	41
2528.02 - Objective	41
2528.03 - Policy.....	41
2528.04 - Responsibility	41
2528.04a - Chief	41
2528.04b - Director, Cooperative Forestry Staff, Washington Office	42
2528.04c - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Management Staff, Washington Office.....	42
2528.04d - Regional Foresters.....	42
2528.04e - Forest Supervisors	42
2529 - Natural Disaster and Flood Damage Surveys.....	42
2529.02 - Objective	42
2529.04 - Responsibility	42
2529.04a - Regional Foresters.....	42
2529.04b - Forest Supervisors.....	43
2529.1 - Reporting Requirements.....	43
2529.2 - Documentation of Natural Disasters	43

2520.2 - Objective

To protect National Forest System watersheds by implementing practices designed to maintain or improve watershed condition, which is the foundation for sustaining ecosystems and the production of renewable natural resources, values, and benefits.

2520.3 - Policy

Apply management practices that meet requirements for protecting, maintaining, restoring, or improving watershed conditions.

2521 - Watershed Condition Assessment

2521.02 - Objectives

1. To assess long-term trends of watershed conditions as influenced by integrated land use practices.
2. To assess the changes in watershed capability to produce resource outputs that result from changes in watershed condition.
3. To use a consistent and scientific approach to land management and to assess, protect, and restore watershed condition.

2521.03 - Policy

1. Use Federal guidelines for delineation of watershed hydrologic unit boundaries.
2. Use a science-based approach to assess watershed condition.
3. Classify the condition of watersheds.
4. Use an integrated approach to identify specific watersheds as a priority for protection and management and for improvement.

2521.04 - Responsibility

2521.04a - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office

The Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office, has the responsibility to:

1. Consult and coordinate with other Federal agencies to develop approaches and guidance for watershed delineation, watershed assessment, and classification of watershed condition.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

2. Consult and coordinate with other Federal agencies to ensure policies and procedures for National Forest System lands are consistent with those of other Federal lands.
3. Develop criteria and standards for classifying watershed condition for the Government Performance and Results Act (GPRA) assessment, Forest plans, and program development.
4. Develop criteria for determining and displaying watershed condition trends for the GPRA assessment, Forest plans, and program development.
5. Use the results of watershed condition analyses for the GPRA assessment and as a basis for defining needs and opportunities in the program alternatives.

2521.04b - Regional Foresters

Regional Foresters have the responsibility to:

1. Develop and approve appropriate contracts, cooperative agreements, and memorandums of understanding with multicounty and State-level agencies and groups when in the public interest.
2. Develop guidelines and procedures, based upon national criteria and standards, for establishing priorities for assessment and monitoring of watershed conditions and trends. Ensure that assessment and monitoring data are available in a corporate data base.
3. Determine how watershed condition shall be integrated in Regional, Forest, and project planning processes.
4. Work with States, Tribes, and other interests to identify watersheds as priorities for protection and management and for improvement.
5. On the basis of priority watersheds, and by use of economic and environmental analyses, identify opportunities for improving and maintaining watershed condition.

2521.04c - Forest Supervisors

Forest Supervisors have the responsibility to:

1. Assess and monitor watershed conditions and trends, and enter data into a corporate data base.
2. Work with States, Tribes, local governments, and other interests to identify watersheds as priorities for protection and management and for improvement.
3. Coordinate watershed priorities and resource management activities on National Forest System lands to attain Forest plan goals and objectives for watershed condition.

4. Cooperate with other agencies, groups, and individuals whose plans or proposals affect watershed condition on National Forest System lands.
5. With concerned agencies and groups, develop and approve appropriate contracts, memorandums of understanding, and cooperative agreements that govern the assessment, improvement, and monitoring of watershed condition.

2521.05 - Definitions

Hydrologic Condition. The current state of the processes controlling the yield, timing and quality of water in a watershed.

Hydrologic Function. The behavioral characteristics of a watershed described in terms of ability to sustain favorable conditions of water flow. Favorable conditions of water flow are defined in terms of water quality, quantity, and timing.

Potential. The difference between current factor values and the capability to adjust toward reference condition values.

Reference. The range of a factor that is representative of its recent historical values prior to alteration of its environment.

Soil Function. The characteristic physical and biological activity of soils that influences productivity, capability, and resiliency.

Tolerance. The point beyond which there is high risk that potential may be permanently altered or impaired through changes in specified physical, chemical, and biological factors brought about by management activities or natural events.

Watershed Condition. The state of a watershed based upon physical and biological characteristics and processes affecting hydrologic and soil functions.

2521.1 - Watershed Condition Classes

Evaluate watershed condition and assign one of the following three classes:

1. Class I Condition. Watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. The drainage network is generally stable. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are predominantly functional in terms of supporting beneficial uses.
2. Class II Condition. Watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Portions of the watershed may exhibit an unstable drainage network. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are at risk in being able to support beneficial uses.

3. Class III Condition. Watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. A majority of the drainage network may be unstable. Physical, chemical, and biologic conditions suggest that soil, riparian, and aquatic systems do not support beneficial uses.

2521.11 - Use of Watershed Condition Classes

2521.11a - Needs Identification

Use watershed condition in conjunction with other resource conditions and with technical and economic feasibility to determine the need for management actions and treatments to help achieve goals and objectives.

2521.11b - Priority Setting

Use watershed condition to help determine priority fifth field (code) watersheds and decide on treatment priorities within them. Also consider other resource factors, and risks, values and benefits, economics, social factors, and partnership opportunities when setting priorities.

2521.11c - Trend Identification

Use watershed condition at different points in time to determine trend in response to management, atmospheric deposition of materials, and/or treatments.

2521.2 - Reporting

Use watershed condition, trend, and treatment information as appropriate to respond to annual and long-term reporting requirements. Report on the status and trend of watershed condition for the Government Performance and Results Act (GPRA) assessment.

2522 - Watershed Improvement

Watershed improvement includes all work that is done directly and indirectly to improve watershed condition. This work is done to stabilize, maintain, rehabilitate, or improve watersheds so that they should achieve Forest plan goals and objectives, and State water quality requirements. The rehabilitation of abandoned mined land is included within the watershed improvement program.

2522.02 - Objectives

1. To restore degraded watershed conditions by stabilizing soil, controlling surface runoff and erosion, reducing flood potential, improving long-term soil productivity, and stabilizing the drainage network.
2. To improve watershed conditions.

2522.03 - Policy

1. Implement watershed condition improvement projects when economically, socially, and environmentally feasible. Project development is based upon an understanding of process and functions determined through a watershed assessment. Favor projects that require minimal or no maintenance.
2. Perform an effectiveness analysis for all proposed watershed condition improvement projects. Include both onsite and off-site benefits and values in the analyses. As appropriate, estimate results for non-National Forest System lands, too.
3. Design and implement watershed improvement projects on priority watersheds to achieve a specified improvement in watershed condition.
4. Assign priorities for improving watershed condition in order of decreasing importance as follows:
 - a. Those posing menace to life or property because of flood threats or possible mud or debris flows.
 - b. Those not meeting, or facing an imminent threat of not meeting, water quality requirements of the Forest plan.
 - c. Those needing action to maintain water quality or achieve other Forest plan goals and objectives.
5. Do not use watershed improvement funds for water yield enhancement activities or soil productivity enhancement (FSM 2522.12d and 2522.13).

2522.04 - Responsibility

2522.04a - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office

The Director, Watershed, Fish, Wildlife, Air, and Rare Plants Staff, Washington Office, has the responsibility to develop policy and program direction and to assign targets for the watershed improvement program.

2522.04b - Regional Foresters

Regional Foresters have the responsibility to:

1. Establish Regional guidelines for priorities for watershed improvement projects.
2. Establish and maintain a corporate database of watershed improvement needs.
3. Provide training for personnel involved in watershed improvement planning, project implementation, maintenance, monitoring, and reviews.

2522.04c - Forest Supervisors

Forest Supervisors have the responsibility to:

1. Develop and maintain a Watershed Improvement Needs Inventory in a corporate database.
2. Identify priority watersheds and develop and approve prescriptions and plans for a Forest watershed improvement program. Delegate the development of detailed prescriptions and plans to the District Rangers when expertise is available at the District level.

2522.04d - District Rangers

District Rangers have the responsibility to:

1. Maintain the District Watershed Improvement Needs Inventory, identify high priority improvement projects, and, as delegated by the Forest Supervisor, prepare prescriptions and plans for improvement projects.
2. Ensure that funded watershed condition improvement projects are accomplished and that treatment measures are implemented as prescribed and approved.
3. Perform needed maintenance of improvement projects.

2522.1 - Watershed Improvement Activities

Watershed improvement activities are land treatments or management measures are implemented to improve watershed condition.

2522.11 - Watershed Condition Improvement

Install land treatment and structural measures to reduce erosion, stabilize land mass movement, mitigate adverse soil chemistry, and provide for favorable conditions of water flow. Measures include: vegetative and mechanical sheet erosion control; rehabilitation of abandoned roads and trails; stream bank, gully, and lakeshore stabilization; stream channel clearing; sediment basin construction; prescribed fire; insect and disease control; invasive plant control; and other activities designed to stabilize watersheds.

2522.12 - Water Yield Enhancement

Water yield enhancement includes the following activities set out in the following sections FSM 2522.12a - 2522.12d.

2522.12a - Modified Forest Structure

Modification of forest structure can influence the deposition and melt of snow. When developing timber harvest plans in water short areas, consider modifying harvest patterns and procedures to increase water yields. Where Forest plans indicate a need for both increased water and available storage to recover the increased yield, evaluate opportunities to enhance existing water supplies. Implement enhancement practices only if cost-effective, environmentally and scientifically feasible, and consistent with other resource uses and values.

2522.12b - Weather Modification

Support properly designed and technically sound snow augmentation or other weather modification activities carried out by cooperators, provided those activities and anticipated results are consistent with any applicable law or regulation governing the administration and management of National Forest System lands. See FSM 2323.45 for the policy on weather modification over wilderness.

2522.12c - Type Conversion

Do not permit the conversion of vegetative types for the purpose of increasing water yields, until such conversion is proved to be environmentally sound, and cost effective, and can meet the objectives of the Forest plan.

2522.12d - Funding Water Yield Enhancement Projects

Project proponents shall provide direct capital investments needed to implement, monitor, and maintain water yield enhancement projects. If proposed and implemented by the Forest Service, it is appropriate to multifinance such projects using watershed administration funds and funds contributed by the benefiting functional areas, or funds appropriated specifically for this purpose.

2522.13 - Soil Productivity Enhancement

Undertake these activities to improve soil productivity on areas in satisfactory watershed condition where increased resource outputs and improved watershed condition will result, when compatible with current Forest plans. Activities include using soil amendments and fertilizers and introducing plant species that biologically increase plant nutrients in the soil. Although soil productivity enhancement measures often improve watershed condition, benefiting functional resource areas shall fund implementation.

2522.14 - Reclamation of Abandoned Mined Land

This activity includes all work associated with the reclamation of land and water resources adversely affected by past mining. Activities funded through the Interdepartmental Abandoned Mine Lands Watershed Initiative (AML), the Hazardous Materials Management Program, the regular watershed improvement program, the Office of Surface Mining (OSM), and the States are included.

The AML initiative is managed by the Director of Minerals and Geology. The AML initiative stresses reclamation on a watershed basis and cooperation with other Federal and State agencies and interested parties.

The Hazardous Materials Management Program is managed by the Director of Engineering. One of the activities of the Hazardous Materials Management Program is the cleanup of mining impacted lands that qualify under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA) (FSM 2160).

The OSM and States with approved programs can complete reclamation as described in the Surface Mining Control and Reclamation Act (SMCRA). The SMCRA funds are available only to States with historic coal mines. These funds are intended to be used to mitigate safety, human health, and environmental impacts of historic coal mines. However, if a State certifies that all reclamation of coal mines is completed, the SMCRA funds can be used to mitigate safety hazards at non-coal mine sites and for other purposes, such as the reclamation of hard-rock mine sites. Contact and work with States to include National Forest System abandoned mine reclamation needs in State inventories and State reclamation plans.

Identify abandoned mined land reclamation needs as part of the watershed improvement needs inventory. Work with the Minerals and Geology Staff and the Engineering Staff to identify and use available funding options prior to expending watershed improvement funds.

2522.2 - Watershed Improvement Planning

Identify problems, determine cause and effect, evaluate alternatives through watershed or ecosystem assessments, and develop integrated resource management prescriptions to improve watershed condition.

2522.21 - Controls

Establish controls for watershed improvement activities by:

1. Providing for adequate supervision during project implementation.
2. Coordinating activities with other resource land improvement activities.
3. Curtailing resource use on the project area, if necessary.
4. Monitoring, evaluating, and documenting the implementation and effectiveness of measures used.
5. Performing necessary maintenance to avoid loss of capital investments.
6. Maintaining project accounting records to help make future project cost estimates.

2522.22 - Use of K-V Funds for Watershed Improvements

Include needed soil and water protection and improvement activities in the sale area improvement plan for the timber sale, following direction in FSH 2409.19, Renewable Resource Uses for Knutson-Vandenberg (K-V) Fund Handbook.

2523 - Emergency Stabilization - Burned-Area Emergency Response (Baer)

2523.01 - Authority

Funding authority for the Forest Service to conduct emergency stabilization through Burned-Area Emergency Response (BAER) is contained in the annual Appropriation Act for the Department of the Interior and Related Agencies, which provides for the use of Wildland Fire Management funds for necessary expenses for “emergency rehabilitation of burned-over National Forest System lands and water.”

Public Law No. 105-277, Section 323(a) as amended by Public Law 109-54, Section 434 provides authority to enter into watershed restoration and enhancement agreements and expend appropriated funds on non-Federal lands, when there is a clear benefit to the National Forest System lands in the watershed.

Public Law No. 106-558, Section 2 provides authority to pay BAER assessment team personnel true overtime.

2523.02 - Objectives

To identify imminent post-wildfire threats to human life and safety, property, and critical natural or cultural resources on National Forest System lands and take immediate actions, as appropriate, to manage unacceptable risks.

2523.03 - Policy

1. Conduct assessments (sec. 2523.1) promptly on burned areas following wildfires larger than 500 acres to determine if a burned-area emergency (sec. 2523.05) exists. Assessments may also be conducted when potential threats to human life and safety, property, or critical natural or cultural resources exist as a result of a smaller wildfire. Critical values addressed by the BAER program are limited to those listed in section 2523.1, exhibit 01.
2. Undertake response actions or emergency stabilization only when an analysis shows that planned actions are likely to reduce risks substantially within the first year following the fire and are compatible with land and resource management plans.
3. Employ measures that provide sufficient protection at the least cost while meeting risk management objectives.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

4. Ensure that approved burned-area emergency stabilization measures are expeditiously accomplished before damages or losses are likely to occur and no later than 1 year after containment of the fire.
5. Monitor emergency stabilization measures for up to 3 years to ensure they are functioning as planned and to evaluate if maintenance or retreatment is necessary (sec. 2523.3). Invasive species treatment monitoring may occur for up to 1 year.
6. Maintain, repair, or replace emergency treatments for up to 3 years where failure to do so would result in unacceptable risk to critical values (sec. 2523.1, ex. 01 and 02). Invasive species treatment maintenance beyond the first year must be funded with regular program funds, not BAER funds (sec. 2523.22f).
7. Propose response actions in wilderness only if necessary to protect life or property (inside or outside wilderness), manage unacceptable risks to critical resource values outside wilderness, or to prevent an unnatural loss of the wilderness resource (sec. 2323.43b).
8. Use of BAER funds is not appropriate for non-emergency rehabilitation and restoration or to correct undesirable conditions that existed prior to the fire.

2523.04 - Responsibility

2523.04a - Washington Office, Director of Watershed, Fish, Wildlife, Air, and Rare Plants

The Washington Office, Director of Watershed, Fish, Wildlife, Air, and Rare Plants (WFW) has the responsibility to:

1. Ensure that safety requirements are included in BAER personnel qualifications and in other aspects of the BAER program.
2. Assign specific BAER funding approval authority to the Regional Forester. Established approval authorities will remain in place unless changed through official agency correspondence.
3. Within the required timeframe, take action on requests for BAER funds for emergency stabilization of burned areas for those projects above the Regional Forester's delegated funding authority (sec. 2523.06).
4. Establish guidelines for identifying appropriate emergency stabilization measures.
5. Develop BAER policy and technical training.
6. In conjunction with the Regional Foresters and Research Scientists, identify National (Level III) BAER monitoring needs (sec. 2523.3) and disseminate Level II monitoring results.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

7. Provide program oversight including annual reporting and review of policy implementation. Monitor BAER planned costs and actual expenditures. Conduct periodic reviews to evaluate the consistency of program implementation among Regions and to identify needs for improved coordination and direction and conduct program reviews in coordination with the United States Department of the Interior.
8. Ensure the Forest Service is represented on the interagency BAER coordination group.

2523.04b - Regional Foresters

Regional Foresters have the responsibility to:

1. Emphasize safety in all BAER planning and training activities.
2. Review and take action on burned-area emergency funding requests within their delegated authority and transmit copies of approval information to the Washington Office, Director of WFW, within the required timeframes (sec. 2523.06).
3. Review for appropriateness, make recommendations, and transmit, Burned-Area Reports to the Washington Office, Director of WFW, when funds requested are above the Regional Forester's delegated funding approval authority, within the required timeframes (sec. 2523.06).
4. Provide regional level guidance for all BAER monitoring, identify regional (Level II) effectiveness monitoring needs, and assemble and disseminate Level II monitoring results (sec. 2523.3).
5. Consider granting extensions to the BAER report preparation timeline, if the proposed delay will not adversely affect opportunities to take actions before damage or loss is expected, when requested and justified.
6. Upon receipt from Forest, Grassland, Prairie, and Area Supervisors, transmit final accomplishment reports to the Washington Office, Director of WFW.
7. Provide BAER procedural and technical training consistent with national policy.
8. Monitor regional BAER planned costs and actual expenditures.
9. Conduct program and project reviews to evaluate consistency with National and Regional program direction and to identify needs for improved coordination and direction.

2523.04c - Forest, Grassland, and Prairie Supervisors

Forest, Grassland, and Prairie Supervisors have the responsibility to:

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

1. Identify Forest BAER personnel before the start of each fire season and provide the appropriate fire, safety, and BAER training.
2. Designate a BAER team, staffed appropriately for the fire size and anticipated risks, to perform a BAER assessment on all wildfires larger than 500 acres, and on smaller fires when threats to life and safety, property, or critical natural or cultural resources are likely to exist.
3. Ensure appropriate coordination between the Incident Management Team and the BAER assessment team.
4. Ensure early and continued communication with appropriate Federal, Tribal, State, county, and local emergency response agencies regarding potential threats off National Forest System land and Forest Service authorities.
5. Determine if a burned-area emergency exists, consider action alternatives and recommend actions consistent with BAER policy.
6. Conduct a cost/benefit analysis commensurate with the scope and complexity of the stabilization plan to address whether planned actions will substantially reduce risks and be cost effective.
7. Submit initial and interim forms FS 2500-8, Burned-Area Report and monitoring plan, if applicable, to the Regional Forester within required timeframes (sec. 2523.06).
8. Report project accomplishments and if appropriate, Level II monitoring reports to the Regional Forester within required timeframes (sec. 2523.06).

2523.04d - Forest, Grassland, or Prairie Supervisors and District Rangers

Forest, Grassland, or Prairie, Supervisors and District Rangers have the additional responsibility to:

1. Ensure that safety considerations are the first priority in all BAER activities.
2. Ensure that BAER assessment teams are familiar with the objectives of the applicable land management plan for the area.
3. Promptly implement approved and funded emergency actions before damages or losses are likely to occur. Re-evaluate the continued need to complete any planned actions that were delayed, taking into account watershed recovery and the reduced probability or magnitude of risks.
4. Maintain emergency stabilization measures when necessary to keep them functioning as designed, using monitoring results to justify and plan any necessary follow-up action.

5. Monitor actions to determine if emergency measures have met the planned objectives or need adjustment (sec. 2523.3).
6. Report annual performance measures and monitoring results in applicable reporting systems.

2523.05 - Definitions

The following terms are used in this chapter:

Burned-Area Emergency. A situation when human life or safety, property, or critical natural or cultural resources are at an imminent and unacceptable risk due to post-wildfire related threats.

Burned-Area Rehabilitation. Efforts undertaken within 3 years of a wildfire to repair or improve fire-damaged lands unlikely to recover to management-approved conditions, or to repair or replace minor facilities damaged by fire. Rehabilitation is financed using non-emergency funding. (Wildland Fire Leadership Council, January, 2003).

Burned-Area Restoration. The continuation of rehabilitation activities beyond the initial 3 years or the repair or replacement of major facilities damaged by the fire. Restoration is financed using non-emergency funding. (Wildland Fire Leadership Council, January, 2003).

Emergency Stabilization. Planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life or property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources. Emergency stabilization actions must be taken within 1 year of containment of the fire. (Wildland Fire Leadership Council, January, 2003).

Risk. Potential danger as measured by the probability of damages or losses and the magnitude of the consequences.

Wildfire. An unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, unauthorized, and accidental or human-caused fires), or and prescribed fire that has exceeded prescription parameters or otherwise meet the criteria for conversion to wildfires. (Guidance for Implementation of Federal Wildland Fire Management Policy, February, 2009).

2523.06 - Timeframes

1. Initial requests for BAER funding should be submitted to the Regional Forester within 7 calendar days after total containment of the fire, unless special arrangements have been negotiated (sec. 2521.04b).

2. Regional responses to BAER funding requests (in the form of decisions or referral to Washington Office, Director of WFW) should be completed within 3 business days of receipt.
3. Washington Office responses to BAER funding requests should be completed within 3 business days of receipt.
4. Approved actions should be implemented before damage or loss is likely to occur and no later than 1 year after containment of the fire.
5. Monitoring approved emergency stabilization may occur for up to 3 years (sec. 2523.03).
6. Maintenance, repair, or replacement of eligible emergency stabilization actions may occur for up to 3 years (sec. 2523.03).
7. A final accomplishment report should be submitted within the timeframe established during the project authorization, typically within 18 months of fire containment.
8. Level II and III BAER monitoring reports should be submitted to the Regional Forester annually at the end of each monitoring season.

2523.1 - Burned-Area Emergency Assessment

Burned-Area Emergency Assessments are rapid evaluations conducted to determine if critical values are at risk due to imminent post-fire threats and to develop appropriate actions to manage unacceptable risks. These assessments are not intended to provide a comprehensive evaluation of all fire or suppression damages, to evaluate post-fire damages after they occur, nor to identify long-term rehabilitation or restoration needs.

The assessment process includes the following steps:

1. Critical Value Identification. Identify critical values on National Forest System lands (ex. 01). Consult with Tribes for assistance in identifying sensitive cultural resource values.
2. Threat Identification. Identify potential threats to critical values, the probability of their occurrence, and the magnitude or cost of the potential damages. Threats may be natural or human caused, but must be related to changed conditions caused by the fire.
3. Risk Evaluation and Emergency Determination. Risks are evaluated using the risk assessment matrix (ex. 02) to determine the level of risk to each critical value. Identify unacceptable risks that signify a burned-area emergency exists. Unacceptable risks are associated with risk assessment designations of very high or high. Unacceptable risks may also be associated with intermediate risks if human life or safety is threatened.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

4. Response Action Prescription. When unacceptable risks are identified, prescribe actions that manage the risk either by reducing the probability of occurrence or lessening the anticipated consequences. The following anticipated levels of risk should be used to guide response action decisions:

- a. Very High and High Risk. Response actions should be considered.
- b. Intermediate Risk. Response actions may be needed if human life or safety is affected.
- c. Low and Very Low Risk. Response actions are rarely justified.

5. Response Action Proposals. Develop objectives that address the identified risks and design action plans that meet those objectives. Apply a cost/benefit analysis commensurate with the cost and complexity of planned actions to address whether they are likely to substantially reduce risks and be cost effective. Actions should be evaluated based on their:

- a. Ability to be implemented in a timely manner;
- b. Effectiveness in reducing the risk;
- c. Practical and technical feasibility; and
- d. Cost.

6. Documentation and Funding Request. Complete form FS-2500-8, Burned-Area Report, which provides a summary of the burned area emergency assessment and documents the funding request.

Forest Service Manual 2500 – Watershed And Air Management
Chapter 2520 - Watershed Protection and Management
Amendment: 2500-2020-1
Effective date: June 25, 2020
2523.1 – Exhibit 01

Critical Values to be Considered During Burned-Area Emergency Response

CRITICAL VALUES
HUMAN LIFE AND SAFETY
Human life and safety on National Forest System (NFS) lands.
PROPERTY
Buildings, water systems, utility systems, road and trail prisms, dams, wells or other significant Forest Service-owned investments on NFS lands.
NATURAL RESOURCES
Water used for municipal, domestic, hydropower, or agricultural supply or waters with special Federal or State designations on NFS lands.
Soil productivity and hydrologic function on NFS lands.
Critical habitat or suitable occupied habitat for federally listed threatened or endangered terrestrial, aquatic animal, or plant species on NFS lands.
Native or naturalized communities on NFS lands where invasive species or noxious weeds are absent or present in only minor amounts.
CULTURAL AND HERITAGE RESOURCES
Cultural resources which are listed on or potentially eligible for the National Register of Historic Places, Traditional Cultural Properties, or Indian Sacred Sites on NFS lands.

Forest Service Manual 2500 – Watershed And Air Management
 Chapter 2520 - Watershed Protection and Management
 Amendment: 2500-2020-1
 Effective date: June 25, 2020
 2523.1 - Exhibit 02

BAER Risk Assessment

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
RISK			
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

Probability of Damage or Loss: The following descriptions provide a framework to estimate the relative probability that damage or loss would occur within 1 to 3 years (depending on the resource):

- Very likely. Nearly certain occurrence (90% - 100%)
- Likely. Likely occurrence (50% - 89%)
- Possible. Possible occurrence (10% - 49%)
- Unlikely. Unlikely occurrence (0% - 9%)

Magnitude of Consequences:

- Major. Loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources.
- Moderate. Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects.
- Minor. Property damage is limited in economic value and/or to few investments; damage to critical natural or cultural resources resulting in minimal, recoverable or localized effects.

2523.2 - Emergency Response Actions

Emergency response actions are response actions necessary to control the immediate impacts of a post-wildfire emergency and are subject to the provisions in 36 CFR 220.4 b(1) regarding National Environment Policy Act requirements. Response actions may be administrative or physical stabilization actions. They are normally short-term or temporary measures that generally do not require maintenance or can be discontinued after objectives have been met. When scheduling emergency response actions, those that protect life and safety should have highest priority.

When potential hazards to life or safety on NFS lands are identified, notification of hazardous or unsafe conditions should accompany any other contemplated actions. For potential flooding or other threats that may continue downstream of NFS lands, coordinate and cooperate with the appropriate response agencies.

1. Emergency Response Strategy. Observe the following order in prescribing BAER action strategies:
 - a. Natural recovery. In situations where no burned-area emergency exists or where practical or effective measures are not feasible, rely on natural recovery. Hazard notification to National Forest users may be appropriate in conjunction with this strategy.
 - b. Administrative closures. In situations where a burned-area emergency exists and it is possible to restrict access to protect life and safety, or where valid uses will significantly interfere with emergency stabilization objectives or delay critical recovery, administrative closures should be the first consideration. Other measures should only be considered in these situations where administrative closures are not possible or are not effective.
 - c. Other measures. For other emergency situations, demonstrated effective measures should be applied to manage unacceptable risks to human life, property, and critical natural, cultural and heritage resources.
2. Response Action Considerations.
 - a. Plant materials. Natural recovery by native species is preferred. When practical, use seeds and plants in burned-area emergency stabilization projects that originate from genetically local sources of native species. When native materials are not available or suitable, give preference to non-native species that meet the stabilization objectives, are non-persistent, and are not likely to spread beyond the treated area (FSM 2070).

Comply with FSM 2081, Executive Order 13112, and applicable State noxious weed prevention requirements in setting standards for seed, straw, and other plant materials.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

- b. Administrative closures. When administrative closures are justified as an emergency response, BAER funding is appropriate for implementing the minimum action necessary to reduce risk to an acceptable level, including preparing closure orders, posting the closed area, and public notification.
- c. Facility replacement. Replacement of destroyed or damaged minor facilities, such as signs or guardrails, is an appropriate measure when the loss of those facilities causes a human safety risk and there are no other protection options.
- d. Consultation. Consult with other Federal agencies, Tribal governments, and State and local governmental entities as appropriate to ensure that emergency response actions are compatible with the Endangered Species Act, National Historic Preservation Act, Clean Water Act, and other laws as applicable. Initiate any necessary supporting processes prior to ground-disturbing actions and only within areas considered for treatment.
- e. Wilderness. Response actions in wilderness may be appropriate if there is an unacceptable risk to the wilderness resource or if conducting emergency stabilization in wilderness would provide the best option for protection of life, property, or other critical resources outside of wilderness (FSM 2323.43). Non-structural prevention and stabilization is always preferred over structural measures. See FSM 2326 for guidance on the use of motorized equipment in wilderness.
- f. Invasive species. BAER funds may be used for invasive species detection surveys and, if warranted, invasive species rapid response actions within the first year following the fire. Invasive species detection, monitoring, treatment, re-treatment, or maintenance beyond the first year must be funded with other program appropriations. See FSM 2900 for direction on invasive species management.

2523.3 - Monitoring

There are two kinds of BAER monitoring:

1. Implementation, and
2. Effectiveness.

Implementation monitoring is done to verify that the response action was implemented as planned and to document the actual cost of the measure. The cost for BAER implementation monitoring should be included as part of the planned implementation cost for each measure and is not requested separately on form FS 2500-8.

Effectiveness monitoring is done to determine if actions are functioning as planned and are sufficiently meeting response objectives. There are three levels of BAER effectiveness monitoring.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

1. Level I monitoring is the most common type of BAER monitoring and is conducted to determine if an implemented action is meeting its site-specific objective or if there is a need for follow-up or re-treatment. Level I monitoring usually uses qualitative techniques, is relatively brief in duration, and is intended only for a specific project.
2. Level II monitoring collects information to confirm overall effectiveness of certain regionally important response action in meeting BAER objectives. Level II monitoring utilizes more quantitative methodologies designed to address specific issues.
3. Level III monitoring collects information important at a national scale. Level III monitoring uses rigorous sampling designs, protocols, and analysis techniques to determine whether specific response actions are functioning as intended in meeting BAER objectives, and whether the techniques are suitable for application elsewhere. The need for this level of monitoring is identified and coordinated nationally.

Any planned effectiveness monitoring costs should be identified separately on form FS 2500-8 and must include a monitoring plan containing:

1. Monitoring questions;
2. Measurable indicators;
3. Data collection techniques consistent with appropriate protocols;
4. Analysis, evaluation, and reporting techniques; and
5. Monitoring report timeframes.

Funding for monitoring beyond the first year of a wildfire is contingent upon submission of a monitoring report with results demonstrating that further monitoring is warranted.

2523.4 - Suppression-Damaged Areas

Rehabilitation of suppression-caused damage is the responsibility of the fire incident commander and is charged to the incident. Suppression rehabilitation assessment, design, and implementation, including those delayed due to seasonal considerations, are charged to the incident (FSH 6509.11g, sec. 51.34).

2523.5 - Use of Funds

Comply with the Service-wide Appropriation Use Handbook (FSH 6509.11g) and the following direction in determining the appropriate use of emergency fire suppression funds for burned area emergency stabilization based on jurisdiction of the burned lands.

2523.51 - National Forest System Lands

Following are the appropriate activities and limitations for use of BAER funding on National Forest System lands:

1. Salaries, travel, and expenses of personnel assigned to BAER teams, as well as costs associated with implementation, maintenance, and monitoring of approved response actions should be financed from an assigned BAER incident job code.
2. BAER funds may be used for monitoring, maintenance, repair, replacement, or removal of implemented emergency stabilization measures for up to 3 years post-fire, when appropriate (sec. 2523.22f). Submit an interim report to justify and request funding for eligible activities.
3. Prescribed fires do not qualify for BAER assessment or emergency response actions unless they have been converted to wildfires. In those cases, BAER action activities may occur only on the wildfire portion of the fire.
4. Any emergency stabilization or other emergency action not implemented within the required time frame (sec. 2523.06) and non-emergency rehabilitation or restoration must be financed using non-BAER funds.

2523.52 - Other Federal Lands

When appropriate, coordinate BAER assessment and implementation with other Federal agencies, Tribal governments, and State and local agencies. Clearly identify responsibilities of each entity and fiscal arrangements for coordination, assessment, and implementation.

The interagency agreement between the United States Department of the Interior, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, and the United States Department of Agriculture, Forest Service, effective May 6, 2010, (Forest Service Agreement No. 10-1A-11130206-32) provides the basis for cooperation among the agencies on all aspects of wildland fire management, and governs the financial arrangements for cooperative BAER planning and implementation. Under this agreement, agencies shall not bill each other for emergency stabilization services rendered to the signatory agencies except under certain situations when internal agency funding has been exhausted.

2523.53 - Non-Federal Lands

As appropriate, include consideration of non-Federal intermingled or adjacent, burned lands in burned-area surveys and reports when needed to determine post-fire risks to NFS values. For post-fire risks on non-Federal lands, coordinate with other affected government agencies and tribes to identify shared risk management responsibilities.

When appropriate, inform the non-Federal landowner or Manager of the existence of the Emergency Watershed Protection Program administered by the Natural Resource Conservation

Service. Funds from this program may be used to help finance watershed protection work on State, Tribal and private lands.

Under the Wyden Watershed Restoration and Enhancement Agreement authority (Pub. L. No. 105-277), Forest Service funding may be used to accomplish work on non-NFS lands if the work is essential to protect NFS lands, NFS roads, or safety of NFS visitors. Use of BAER funding to implement emergency stabilization on non-Federal burned lands is appropriate when there is a clear benefit to safety or critical resources on NFS lands, when actions conducted on NFS lands would otherwise not be effective, and when appropriate Wyden authority agreements with the affected landowners are executed. See applicable provisions in FSM 1580 and FSH 1509.11 for specific guidance on provisions under these agreements.

2523.6 - Human Resources

2523.61 - Safety

Health and Safety of BAER personnel and contractors is the highest priority. See FSH 6709.11, Health and Safety Code for General Policy on safety in the field, FSH 5109.17 (Fire and Aviation Qualification Handbook) and *Interagency Standards for Fire and Aviation Operations*, NFES 2724 (Redbook) for fitness, safety training, personal protective equipment, and other safety requirements related to BAER assessment work in uncontrolled fire situations. The Interagency Incident Business Management Handbook (FSH 5109.34) contains direction for work, driving, and rest requirements that apply to BAER personnel. In addition, Supervisors should monitor employees for signs of fatigue and take immediate actions to minimize the effects of acute or cumulative fatigue.

2523.62 - Pay Provisions

The special overtime pay provisions of Public Law No. 106-558 (Fire Fighter Pay Equity Act) apply to employees involved in the preparation and approval of emergency stabilization plans. The overtime provisions apply only during the initial emergency assessment period, until the emergency stabilization plan is submitted for approval (FSH 5109.34, ch. 10, sec. 12.11-2). These overtime pay provisions do not apply to employees involved with BAER implementation or monitoring.

Payment for hazardous duty differentials for BAER personnel must follow the regulations contained in 5 CFR 550, utilizing the established hazard and hardship categories identified in Appendix A of subpart I (5 CFR 550.901-907). The fire-fighting category applies only to personnel directly participating in fighting fires and does not apply to BAER personnel, regardless of the fire containment/control status in the area where the BAER assessment is being performed. Additionally, participation in helicopter or fixed-wing reconnaissance during normal weather and flight conditions does not qualify for hazard pay. If unusual or adverse conditions are present, BAER aerial reconnaissance should be delayed until conditions are safe. If it is determined that an allowable hazardous duty category applies to BAER assessment or implementation work, the determination for pay differential must be authorized in advance by the Forest Supervisor. Required documentation to support this determination includes a job

hazard analysis, citation of the specific hazard involved (5 CFR part 550, Subpart I, Appendix A), names of the affected employees, and nature of the work performed under hazardous duties.

2523.7 - Reporting

A final accomplishment report documenting actions implemented and actual costs must be submitted to the Regional Offices and shared with Washington Office, Director of WFW following the completion of BAER actions (FSM 2523.06). For late-season and/or complex BAER projects, interim accomplishment reports may be required.

BAER monitoring reports should be submitted to the Regional Forester annually at the end of each monitoring season.

Annual performance reporting must be accomplished using the applicable reporting system for each performance measure.

2523.8 - Controls

Periodically conduct BAER program and activity reviews to ensure consistency with applicable policy and program efficiency (FSM 1410).

2523.9 - Coordination Between BAER and Other Post-Fire Recovery Programs

The BAER program addresses only emergency stabilization following wildfires. Other post-wildfire programs address suppression damage, post-fire rehabilitation, restoration and recovery (FSM 2030), and non-fire emergency response.

The BAER program and these programs have different objectives, processes, reports, and timelines. Despite their differences, these programs have similar assessment needs. Every effort should be made to coordinate the BAER program with these other programs to the extent that they overlap, provided that the coordination maintains the integrity and timelines of the BAER program.

2524 - Support

Watershed management support involves the application and integration of scientific and technical soil and water related knowledge into land, resource, and project plans, as well as the implementation of the plans. These services are provided by the soil and water staff, by advice, counsel, and direct involvement in the preparation of goals, objectives, guidelines, standards, and specific management prescriptions designed for individual land, resource, and project plans and activities. See FSM 2530 and FSM 2550, respectively, for additional direction on support for water resource management and soils management.

2524.02 - Objective

The objective of providing watershed management support is to provide soil and water expertise to help implement Forest plans and achieve optimum resource outputs consistent with the improvement, protection, and maintenance of watershed condition.

2524.03 - Policy

1. Identify watershed management support needs in the work planning and budget process.
2. Provide qualified personnel to ensure that decisions involving the use and development of National Forest System lands are made with:
 - a. Understanding of soil and water resource needs, opportunities, capabilities, limitations, and hazards.
 - b. Knowledge of the potential consequences of these decisions on the soil and water resources.
3. Develop and establish procedures and guidelines for providing watershed management support.

2524.1 - Support Planning

Activities frequently requiring support include land and resource management and project planning by other functions. Services include the preparation of field guides and the training of personnel in other disciplines to a level that should minimize the need for on-site specialist prescriptions in routine situations. Advance planning and control are essential to efficient and effective use of personnel. Coordinated field investigations often require more than one type of expertise. Interdisciplinary teams may be used to provide coordinated and integrated support.

2524.2 - Support Operations

Use existing data to the extent feasible for support needs. Where additional data are required, provide data compatible with past and expected future collection efforts.

Procedures and guidelines developed by individual Regions must, at least, include the following:

1. A timely schedule for providing support services to meet the time frames of each project.
2. Documentation of data collection, analysis, and conclusions, and the criteria used in making interpretations and setting standards.
3. A mechanism for evaluating and documenting the effectiveness of recommendations.

4. Reports that contain soil and water conservation practices needed to maintain and improve watershed condition.
5. Quality control procedures.

2525 - Monitoring

Monitor physical and chemical characteristics of soil and water as a means for assessing watershed condition, and the degree to which planning, management, operation, and maintenance of renewable resources meet established goals and standards (36 CFR part 219). See various authorities addressing monitoring in FSM 2501.

2525.02 - Objectives

The objectives of monitoring are to:

1. Secure data sufficient to assist line officers and resource managers in evaluating the effects of management activities on the soil and water resources,
2. Support changes in management activities to protect soil and water productivity, and
3. Detect pertinent physical, chemical, and biological changes in soil properties, sediment production, and water quantity and quality.

2525.03 - Policy

Watershed monitoring activities must be consistent with direction, criteria, and standards specified in the Forest plan. Design and implement soil and water resource monitoring to evaluate effects of each forest management activity or program on basic soil and water quality and productivity.

2525.04 - Responsibility

2525.04a - Regional Foresters

Regional Foresters have the responsibility to establish Regional guidelines for monitoring of soil and water resources and watershed conditions.

2525.04b - Forest Supervisors

Forest Supervisors have the responsibility to ensure the interdisciplinary development of monitoring plans, before monitoring begins.

2525.1 - Monitoring Plan

The plan should include:

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

1. Clear statements of objectives, including data accuracy requirements, collecting procedures, and analytical standards and procedures.
2. A list of selected projects to be monitored, coordinated with monitoring needs specified in the Forest and project plans.
3. The instrumentation, measurement, analysis, and reporting program.
4. The general time schedule for implementation.
5. Provision for periodic evaluation of the monitoring to determine if parameters measured and frequency of sampling meet planned objectives.
6. A schedule for equipment maintenance.
7. Contingency plans in case of breakdown of instrumentation.
8. Instruction for reporting when data indicate major deviation from standards.
9. Estimated yearly financial requirements.
10. Personnel needs and assignments.
11. Procedures for data storage, analysis, evaluation, and reporting.

2526 - Riparian Area Management

Riparian areas consist of riparian ecosystems, aquatic ecosystems, and wetlands.

2526.02 - Objectives

1. To protect, manage, and improve riparian areas while implementing land and resource management activities.
2. To manage riparian areas in the context of the environment in which they are located, recognizing their unique values.

2526.03 - Policy

1. Manage riparian areas in relation to various legal mandates, including, but not limited to, those associated with floodplains, wetlands, water quality, dredged and fill material, endangered species, wild and scenic rivers, and cultural resources.
2. Manage riparian areas under the principles of multiple-use and sustained-yield, while emphasizing protection and improvement of soil, water, and vegetation, particularly because of their effects upon aquatic and wildlife resources. Give preferential

consideration to riparian-dependent resources when conflicts among land use activities occur.

3. Delineate and evaluate riparian areas prior to implementing any project activity. Determine geographic boundaries of riparian areas by onsite characteristics of water, soil, and vegetation.
4. Give attention to land along all stream channels capable of supporting riparian vegetation (36 CFR 219.27e).
5. Give special attention to land and vegetation for approximately 100 feet from the edges of all perennial streams, lakes, and other bodies of water. This distance shall correspond to at least the recognizable area dominated by the riparian vegetation (36 CFR 219.27e). Give special attention to adjacent terrestrial areas to ensure adequate protection for the riparian-dependent resources.

2526.04 - Responsibility

2526.04a - Associate Deputy Chief for Resources, National Forest System

The Associate Deputy Chief for Resources, National Forest System, has the responsibility to:

1. Provide national policy, objectives, guidelines, and minimum standards for protection and improvement of riparian areas on National Forest System lands.
2. Coordinate Forest Service research programs with riparian area management needs.
3. Coordinate riparian area management direction with that of other Federal agencies at the national level.

2526.04b - Regional Foresters

Regional Foresters have the responsibility to:

1. Ensure that riparian area management is included in the land management planning process.
2. Provide technical standards, guidance, training, and quality control for the management of riparian areas.
3. Provide criteria for monitoring effectiveness of measures implemented for the protection and improvement of riparian areas.
4. Develop more specific criteria as needed to define riparian areas in terms of soil, vegetation, and landforms.

2526.04c - Forest Supervisors

Forest Supervisors have the responsibility to:

1. Inventory riparian areas in the Forest land management planning process.
2. Develop and implement measures to manage and protect riparian areas according to national objectives and Regional standards.
3. Monitor the implementation and effectiveness of management and protection of riparian areas (FSM 1922.6).

2526.05 - Definitions

Aquatic Ecosystems. The stream channel, lake or estuary bed, water, and biotic communities and the habitat features that occur therein.

Perennial Streams. Permanently present surface water. Flows occur throughout the year except possibly during extreme drought or during extreme cold when ice forms.

Riparian Areas. Geographically delineable areas with distinctive resource values and characteristics that are comprised of the aquatic and riparian ecosystems.

Riparian-Dependent Resources. Resources that owe their existence to the riparian area.

Riparian Ecosystems. A transition area between the aquatic ecosystem and the adjacent terrestrial ecosystem; identified by soil characteristics or distinctive vegetation communities that require free or unbound water.

2526.1 - Inventory and Analysis

Provide the following information as needed for land and resource management planning:

1. Riparian-dependent resources.
2. Streamside vegetation and its value as fish and wildlife habitat and its relation to the control of sediment originating on upland areas, to the maintenance of stream temperatures, and to the stability of streambanks and channels.
3. Ground water recharge areas, factors, and conditions.
4. Possibility of reducing or otherwise modifying the risk of flooding.
5. Water quality and the deposition or buffering of potential water pollutants.
6. Fluctuations in water levels, quantities, and timing of flow in relation to habitat of fish, waterfowl, mammals, and aquatic organisms, and to maintenance of phreatophytes and other riparian vegetation.

7. Cumulative effects of management activities.
8. Stream channel conditions.

2526.2 - Monitoring

Apply a monitoring system consistent with the sensitivity of the riparian area and capable of measuring attainment of Forest plan objectives for dependent resources.

2527 - Floodplain Management and Wetland Protection

2527.01 - Authority

Executive Orders 11514, 11988, and 11990, and the general authorities cited in FSM 2501 apply to floodplain management and wetland protection.

2527.02 - Objectives

1. To reduce risk of flood loss.
2. To minimize impacts of floods on human safety, health, and welfare.
3. To minimize destruction, loss, and degradation of wetlands.
4. To preserve and restore the natural and beneficial values of floodplains and wetlands.

2527.03 - Policy

1. Recognize floodplains and wetlands as specific areas.
2. Provide opportunity for early public review of plans or proposals for actions in floodplains.
3. Avoid adverse impacts that may be associated with the occupancy and modification of floodplains and with the destruction, loss, or degradation of wetlands. Avoid filling of land within floodplains and wetlands wherever practicable.
4. Do not permit floodplain development and new construction in wetlands wherever there is a practicable alternative.
5. Promote nonstructural flood protection methods to reduce flood hazard and flood loss.
6. Preserve and, where needed and feasible both economically and technically, enhance the natural and beneficial function and values of wetlands.
7. Provide technical assistance to Federal and State forestry programs.

2527.04 - Responsibility

2527.04a - Associate Deputy Chief for Resources, National Forest System

The Associate Deputy Chief for Resources, National Forest System, has the responsibility to ensure that floodplain management and wetland protection and management considerations are included in all Forest Service activities and programs affecting land use.

2527.04b - Regional Foresters

The Regional Foresters have the responsibility to:

1. Ensure that flood hazards, floodplain and wetland values, and all alternatives that affect a floodplain or that involve new construction in wetlands are fully considered in the Forest Service planning and decisionmaking processes.
2. Coordinate activities and interchange of floodplain and wetlands information with other concerned Federal and State agencies.
3. Ensure that cooperative technical and financial assistance programs include an evaluation of floodplain and wetland values.
4. Ensure that all documents conveying interest in or authorizing use of floodplains and wetlands on National Forest System lands contain restrictions that will reduce the risk of loss and preserve the national and beneficial values served by floodplains and wetlands.

2527.04c - Forest Supervisors

Forest Supervisors have the responsibility to:

1. Analyze proposed actions affecting floodplains or involving new construction in wetlands to assess the specific flood hazards; quantify floodplain or wetland values of the areas; determine the impacts of the proposal on those hazards and values; formulate and evaluate land and resource management options; come up with a practicable alternative action or location; and determine whether the "no action" option is practicable.
2. Modify plans, activities, and designs to minimize impacts of the action and to mitigate its effects on the natural and beneficial values of the floodplain or wetland in all actions where an alternative to an action in or affecting the floodplain or new construction in a wetland is not practicable.
3. Ensure that all practicable and necessary mitigating measures are incorporated in specifications for the proposed action, and that the implementation of the selected action is accomplished in a manner that to the extent practicable, restores and preserves the natural and beneficial values served by floodplains and preserves and enhances the natural and beneficial values of wetlands.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

4. Require flood hazard and wetlands evaluations prior to issuing of licenses, permits, loans, or grants-in-aid, and provide assistance to applicants in obtaining help to make such evaluations in their proposals.
5. Ensure that design, construction, or rehabilitation of Forest Service real property is in accordance with standards and criteria outlined in the National Flood Insurance Program (42 U.S.C. 4001 and following) using flood-proofing measures and structural elevation, where practicable.
6. Provide for the placement of appropriate signs to enhance public awareness of and knowledge about flood hazards.
7. Establish specific management standards and guidelines for floodplains and wetlands as a part of forest planning actions.
8. Cooperate with State and County governments in the development and implementation of appropriate early flood warning and evacuation plans.

2527.05 - Definitions

Action. Any Federal activity including:

- a. Acquiring, managing, and disposing of Federal lands and facilities,
- b. Providing federally undertaken, financed, or assisted construction or improvements, and
- c. Conducting Federal activities and programs affecting land use, including, but not limited to, water and related land and resources planning, regulating, and licensing activities.

Critical Action. Any action for which even a slight chance of flooding would be too great.

Facility. Any human-made or human-placed items other than a structure.

Flood or Flooding. A general or temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland and/or tidal waters, and/or the unusual and rapid accumulation or runoff of surface waters from any source.

Flood Risk. The probability that one or more events will exceed a given flood frequency within a specified period of years.

Floodplain.

- a. Base Floodplain. The lowland and relatively flat areas joining inland and coastal water including the debris cones and flood-prone areas of offshore islands and, at a

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

minimum, that area subject to a 1 percent (100-year recurrence) or greater chance of flooding in any given year.

b. Coastal Floodplain. A flood-prone area adjacent to estuaries or oceans. Flooding in these areas is due primarily to landward flows caused by unusually high tides, storm surges, tsunamis, or a combination of these causes.

c. Lake Shore Floodplain. A flood-prone area adjacent to lakes. Flooding in these areas is due primarily to inflow of water exceeding that of outflow. It may also be due to landward flows of water caused by strong winds, unusually high tides, or a combination of these causes.

Floodway. That portion of the floodplain which is effective in carrying flow, within which this carrying capacity must be preserved and where the flood hazard is generally highest; that is, where flood depths and velocities are the greatest.

Wetlands. Those areas that are inundated by surface or ground water with a frequency sufficient to support and that, under normal circumstances, do or would support a prevalence of vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

2527.06 - Applicability and Exemptions From Executive Order Requirements

Use the following eight-step decisionmaking process in applying the floodplain management Executive order. The eight steps shall be included in any environmental assessment prepared under the National Environmental Policy Act (NEPA), as follow:

1. Determine whether the proposed action is located in the base floodplain (500-year floodplain for critical actions); or whether it has the potential to affect a floodplain or indirectly support floodplain development. If not, or if an action is of an emergency nature (FSM 2527.06b), requirements of the Executive order will have been satisfied.
2. Notify the public at the earliest possible time of any plan or proposal to undertake, support, or allow an action which would result in the occupancy, modification, or development in a floodplain, and involve the affected and interested public in the decisionmaking process.
3. Identify and evaluate practicable alternatives to locating a proposed action in a floodplain, including alternative sites outside the floodplain, alternative actions serving the same purpose as the proposed action, and the "no action" option.
4. Identify the full range of potential direct or indirect adverse impacts associated with the occupancy or modification of the floodplain and the potential direct and indirect support of floodplain development that could result from the proposed action.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

5. Identify and evaluate mitigating measures that will minimize the potential adverse impacts of the action if avoidance cannot be achieved, and measures that will preserve and restore or enhance the natural and beneficial floodplain values that would be adversely impacted by the action.
6. Reevaluate the proposed action to determine first, if it is still practical, even with the application of appropriate mitigating measures and in light of its exposure to flood hazards and its potential to adversely affect the floodplain and, second, if the alternatives identified in step 3 are practicable in light of information gained in the preceding steps 4 and 5.
7. Prepare and provide the public with a finding and public explanation of any final decision that there is no practicable alternative to locating an action in, or adversely affecting, a floodplain.
8. Provide ongoing review of implementation and post-implementation phases of the proposed action to ensure that all provisions associated with the action, including appropriate mitigating measures as identified in the environmental assessment, are fully implemented.

The numbering of steps 1 through 8 does not firmly require that the steps be followed sequentially. As information is gathered throughout the decisionmaking process and as additional information is needed, reevaluation of lower-numbered steps may be necessary.

2527.06a - Test for Applicability

Analyze the proposed action's potential to result in longer short-term adverse impacts associated with:

1. The occupancy or modification of floodplains.
2. The direct and indirect support of floodplain development.
3. The destruction, loss, or degradation of wetlands.
4. The direct or indirect support of new construction in wetlands.

2527.06b - Exempted Emergency Actions

Assistance for emergency work performed pursuant to sections 305 and 306 of the Disaster Relief Act of 1974 (42 U.S.C. 5145 and 5146) are exempted from the requirements of the Executive orders. This exemption applies to unanticipated emergency situations that require immediate action to prevent or reduce risk to public health or safety or risk of serious property or resource losses.

2527.1 - Identification of Floodplains and Wetlands

Identify the general location of floodplains and wetlands on National Forest System lands during the land and resource management planning process in the delineation and inventory of riparian areas (FSM 2526). Define specific locations during the preliminary phases of project planning for proposed development or new construction within floodplains or wetlands.

2527.2 - Public Notice Requirements

Provide opportunity for public review and comment on all proposed actions involving occupancy, modification, or development in or affecting floodplains or the destruction, loss, degradation of or new construction in or affecting wetlands at the earliest possible time and throughout the decisionmaking process. Upon completion of this process, provide the public with an account of the final decision. Specific procedures for public involvement are in 40 CFR 1507.1, 1502.25, and 1506.6.

2527.3 - Analysis and Evaluation of Proposed Actions and Practicable Alternatives

If it has been determined that a proposal involves an action in or affecting a floodplain or wetland and that the action could result in adverse impacts, analyze and evaluate all practical alternatives. Give special emphasis to the exploration of alternatives that would relocate the proposed action outside of the area, as opposed to simply minimizing the adverse impacts of the proposed action. Consider alternatives to non-structural proposals in or affecting the area. Follow the procedures for analysis, evaluation, and documentation specified in FSH 1909.15, Environmental Policy and Procedures Handbook.

2527.31 - Evaluation Factors

1. Evaluate three types of floodplain impacts:
 - a. Positive and negative,
 - b. Concentrated and dispersed, and
 - c. Short- and long-term.

Assess them in terms of the resource values associated with water, wildlife, aquatic organisms, heritage resources, agriculture, and vegetation.

2. Develop evaluations and decisions in the total land management planning context, considering the public interest in:
 - a. Human health, safety, and welfare;
 - b. Prevention of the loss of property values;
 - c. Maintenance of natural systems;

- d. Economic efficiency; and
- e. Resource needs of Regions and localities.

Evaluate risk characteristics including depth, velocity, and rate of rise of floodwater; location in a floodway or coastal high hazard area; available warning and evacuation time; and special problems, such as flood-related erosion, subsidence, sink-holes, and combination of flood sources.

Follow the specific requirements of Executive orders 11988 and 11990 in preparing the planning criteria to guide the Regional and Forest planning process and management direction concerning floodplains and wetlands.

2527.32 - Data Needs for Floodplain and Wetland Evaluation

Establish the appropriate type, scope, and intensity of study and analysis for any particular area and proposed action through the land and resources management planning process.

2527.33 - Provision for Minimizing Flood Damage

Minimize adverse impacts to improvements within floodplains and wetlands. Avoid new construction or substantial improvement of a structure or facility in a floodway unless it is consistent with the criteria of the National Flood Insurance Program or any more stringent Federal, State, or local floodplain management standards, and unless one of the following conditions exists:

1. It is a functionally dependent use, such as a bridge or culvert.
2. It will facilitate an open space use.
3. It is designed to preserve, restore, or enhance the natural and beneficial resources and uses of the floodplain.

2527.34 - Documentation of Analyses and Evaluations

Prepare documentation of analyses and evaluations for inclusion in the NEPA document or for the planning record.

2527.4 - Restrictions

When property in floodplains or Federally owned wetlands or portions of wetlands is proposed for lease, easement, right-of-way, or disposal to non-federal public or private parties:

1. Reference in the conveyance documents those uses that are restricted under identified Federal, State, or local floodplain or wetland regulations; and

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

2. Attach other appropriate restrictions, which have been identified in the environmental analysis, to the use of the properties by the grantee or purchaser and any successors.

Consult with the Office of the General Counsel on special situations where there may be prohibitions by law from withholding a property from conveyance and from attaching any use restrictions in a proposed conveyance of a tract of land or interest therein to non-federal, public, or private parties.

2527.5 - Posting of Past and Probable Flood Heights

Enhance public awareness and knowledge of flood hazards by placing appropriate signs or other means of conspicuous delineation showing the highest past flood level and probable 100-year flood heights in identified flood hazard areas and in public use areas which have suffered flood damage. Place priority on those areas within the National Forest System where the probability of rapid rises of water level (flash floods) is greatest, where flood warning time is minimal, or where critical structures and facilities are involved.

2528 - Emergency Watershed Protection Programs

The Natural Resources Conservation Service (NRCS) has been assigned overall administrative responsibility for this program. Responsibilities of Forest Service officials are in FSM 2528.04-2528.04e.

2528.01 - Authority

The Federal law authorizing watershed rehabilitation following natural disasters is the Agricultural Credit Act of 1978 (FSM 2501.1), also known as the Emergency Conservation Program. Section 403 of this act specifically authorizes a program of assistance for emergency measures needed to safeguard lives and property following natural disasters.

2528.02 - Objective

To respond quickly and effectively to alleviate the effects of natural disasters and reduce the threat to life, public health, and property. For further direction, see FSM 3540.

2528.03 - Policy

Request and use emergency flood prevention when the resources of regular programs are not sufficient to implement emergency measures following natural disasters.

2528.04 - Responsibility

2528.04a - Chief

The Chief has the responsibility for requesting funds from the Secretary of Agriculture for emergency watershed stabilization work.

2528.04b - Director, Cooperative Forestry Staff, Washington Office

The Director, Cooperative Forestry Staff, Washington Office, has the responsibility to:

1. Coordinate Forest Service participation in Emergency Flood Prevention (EFP) programs with the Natural Resources Conservation Service.
2. Review and approve Regional requests for emergency flood prevention funds under section 403 of the Agricultural Credit Act of 1978.

2528.04c - Director, Watershed, Fish, Wildlife, Air, and Rare Plants Management Staff, Washington Office

The Director, Watershed, Fish, Wildlife, Air, and Rare Plants Management Staff, Washington Office, has the responsibility to:

1. Ensure that emergency flood prevention needs on National Forest System lands are properly identified, and the funds requested are properly used.
2. Coordinate National Forest System activities with the Director, Cooperative Forestry Staff, Washington Office.

2528.04d - Regional Foresters

Regional Foresters have the responsibility to review and approve project plans and request emergency funds for rehabilitation following major fires, floods, or other disasters.

2528.04e - Forest Supervisors

Forest Supervisors have the responsibility to conduct surveys, request funds, and install treatments necessary for emergency watershed rehabilitation to prevent onsite and downstream damage following fires and other disasters.

2529 - Natural Disaster and Flood Damage Surveys

2529.02 - Objective

To identify and evaluate damage-producing events causing threat to life or property, site deterioration, or water pollution; and to plan appropriate corrective actions on the affected watersheds.

2529.04 - Responsibility

2529.04a - Regional Foresters

Regional Foresters have the responsibility to:

1. Coordinate flood and other natural disaster surveys with resource planning among National Forests, and with similar efforts of other Federal, State, and area wide agencies.
2. Arrange for obtaining quantitative precipitation forecasts and assisting National Forests with timely flood or high water warnings to expedite damage control activities.

2529.04b - Forest Supervisors

Forest Supervisors have the responsibility to:

1. Investigate all significant disasters promptly, appraise their impacts upon goals and targets, and recommend program adjustments for consideration by the Regional Forester.
2. Analyze environmental impacts.
3. Ensure Forest participation in State and local early flood warning systems.

2529.1 - Reporting Requirements

Because of the variety of conditions and circumstances involved, it is difficult to place time limits for the submission of preliminary, interim, and final reports. The following general procedure should be used as a guideline:

1. All floods or other disasters serious enough to attract public attention and all occurrences of high water that indicate significantly impaired watershed conditions (whether they attract public attention or not), should be reported by any available method to the next higher line officer within 24 hours after the occurrence or discovery.
2. Verbal reports of such natural disasters should be confirmed by a written memorandum within 3 business days after the occurrence or discovery.
3. Inspections should begin immediately and final reports should be sent to the Regional Forester within 30 days after the occurrence or discovery.
4. The Regional Forester shall make final decisions on requests for emergency funds within 40 days after the occurrence or discovery, or sooner if requested by the Washington Office.

2529.2 - Documentation of Natural Disasters

Documentation of natural disasters and flood damage surveys must include:

1. Date of occurrence.
2. Brief description of disaster.
3. Tabulation of damages to improvements and resources by functional areas.
4. Summary of repairs implemented during the emergency phase of the disaster.

Forest Service Manual 2500 – Watershed And Air Management

Chapter 2520 - Watershed Protection and Management

Amendment: 2500-2020-1

Effective date: June 25, 2020

5. Recommendation for corrective action. Identify the type of work needed and possible sources of funding. Consider reprogramming regular funds as well as obtaining funding from outside sources, such as NRCS, Section 403 Emergency Watershed Protection funds for protecting life and property, and Highway Trust Fund (ERFO) funds for repairing roads and trails. Rank corrective measures and dollars needed using the following priority classes:

- a. Extreme - measures needed to reduce immediate threat to life and property, such as protecting existing municipal watershed water supplies, roads, irrigation systems, and campgrounds.
- b. High - measures that are needed to meet Forest Service management objectives or to address situations that would pose a threat to life and property during the next major runoff period, such as removal of debris jams and repair of roads essential access.
- c. Moderate - repairs needed to maintain resource base, such as fish habitat improvement, repair and resurfacing of roads, and streambank stabilization.
- d. Low - damages that are not cost-effective to repair such as large flowing landslides and streambank stabilization where there are no downstream values to protect.