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FSM 4000 - RESEARCH AND DEVELOPMENT

CHAPTER 4060 - RESEARCH FACILITIES AND AREAS

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Approved: ANN BARTUSKA
Deputy Chief

Date Approved: 10/28/2005

Posting Instructions: Amendments are numbered consecutively by title and calendar year. Post by document; remove the entire document and replace it with this amendment. Retain this transmittal as the first page(s) of this document. The last amendment to this title was 4000-2005-2 to 4030.

New Document	4060	29 Pages
Superseded Document(s) by Issuance Number and Effective Date	!4060 Contents (Amendment 4000-94-1, 05/04/1994) 4060 (Amendment 4000-94-2, 05/04/1994)	3 Pages 25 Pages

Digest:

4060 - Replaces the term “Research” with “Research and Development”, where appropriate. Replaces the terms “experimental forests and ranges” with “experimental forests, ranges, grasslands, and watersheds.”

4062.03 - Revises the policy statement to simply say that the Forest Service shall establish experimental forests, ranges, grasslands, and watersheds for conducting Research and Development (R&D) that serves as the basis for the management of forests and grasslands.

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Digest--Continued:

4063.04c - Revises caption from “Projects and Forests” to “Field Units.”

4063.05 - Retains only the definitions of Research Natural Area and Special Management Area. Removes obsolete terms and definitions for Biological Diversity, Genetic Diversity, and Exotic Plants and Animals.

4063.1 - Removes the prescription of number of acres as size standards and provides general guidelines on the appropriate size for Research Natural Areas.

4063.2 - Removes the ambiguous requirement for selection that Research Natural Areas be where conflicting uses are minimal.

4063.3 - Removes obsolete standard 8 on pest management and standard 9 on exotic plant and animal life. Clarifies the directive to protect the integrity of the ecological processes (para. 1). Rephrases “Prohibit any form of recreational use” to “Recreational use should be restricted or prohibited” if such use threatens or interferes with the objectives or purposes for which the Research Natural Area is established (para. 5).

4063.33 - Streamlines the requirement in paragraph 3 to require that voucher samples of plants are collected and deposited in a herbarium.

4063.37 - Revises caption from "Monumenting Boundaries" to “Surveying and Monumenting Boundaries” and states requirements where a Research Natural Area boundary is on a Forest Service property line that adjoins a non-Forest Service ownership.

4063.41 - Updates entire section by providing a streamlined and current standard practice for the establishment of record content.

4063.42 - Clarifies guidelines on the assembly, approval, and filing of record content for Research Natural Areas to avoid confusion and ensure consistency.

4063.43 - Updates section by removing obsolete references "Forest Cover Types of the United States and Canada" (former para. 2), "Potential Natural Vegetation" (former para. 3), and "Checklist of United States Trees (Native and Naturalized)" (former para. 4) and adding Federal Geographic Data Committee publication (new para. 2).

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4060.3 - Policy

Requirements of the Research and Development (R&D) programs govern the selection, development, and maintenance of facilities, equipment, and areas, including offices, laboratories, greenhouses, and experimental forests and ranges. In response to program needs, facilities may be expanded, consolidated with other Forest Service units or other organizations, or disposed of wherever this strengthens the R&D program.

4061 - RESEARCH CONSTRUCTION

See FSM 7310 for direction on Research Construction and planning for Research Construction.

4062 - EXPERIMENTAL FORESTS, RANGES, GRASSLANDS AND WATERSHEDS

4062.01 - Authority

The general provisions of the Organic Administration Act of 1897 (16 USC 551) and the Forest and Rangeland Renewable Resource Research Act of 1978 (16 USC 1643) authorize the Secretary of Agriculture to designate experimental forests and ranges. Under regulations at 7 CFR 2.60(a), the Secretary of Agriculture has delegated this authority to the Chief. Forest Service regulations at 36 CFR 251.23 set forth broad direction for establishing and administering these areas.

4062.02 - Objectives

Experimental forests, ranges, grasslands, and watersheds provide lands for conducting Research and Development that serves as a basis for the management of forests and rangelands.

4062.03 - Policy

The Forest Service shall establish experimental forests, ranges, grasslands and watersheds of sufficient number and size to provide for the Research and Development necessary for the management of land.

4062.04 - Responsibility

1. Chief. The Chief reserves the authority to approve the designation of experimental forests, ranges, grasslands, and watersheds.
2. Regional Foresters. It is the responsibility of the Regional Forester to:

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- a. Review the proposal for establishing experimental forests and ranges, if NFS lands are involved and
 - b. Concur, if appropriate.
3. Station Directors. It is the responsibility of Station Directors to:
- a. Propose the establishment of experimental forests and ranges and changes in boundaries of existing experimental forests and ranges.
 - b. Receive concurrence of the Regional Forester prior to forwarding the proposal to the Chief, if National Forest System (NFS) lands are involved.

4062.1 - Establishment Record

An approved establishment record is required for every experimental area. The establishment record and environmental document (FSM 1950), if necessary, may be combined. Indicate whether or not approved regional guides and forest plans include the proposed experimental forest or range. If so, identify. If not, conduct an environmental analysis (FSH 1909.15) and prepare an establishment record in combination with the required environmental document. If a separate environmental analysis is required, the Washington Office review procedure includes review by the Environmental Coordinator. The Station Director transmits the establishment record, which is enclosed in a Form FS-6200-7, Forest Service Manuscript Cover, and signed by appropriate officials, to the Chief.

The Chief's signature on the designation order, which is included in the establishment record, completes the establishment process. The original document is filed in the office of the Deputy Chief for Research and Development. After the Chief signs a designation order establishing an experimental area on National Forest System lands, the appropriate Regional Forester ensures that the designation and any subsequent revision of boundaries approved by the Chief are noted in the regional land status records.

4062.11 - Content of Establishment Record

Establishment records shall contain the following information in the sequence given:

1. Map. Include a map that shows the location, the boundaries, and the ownership status of the proposed experimental area.
2. Photographs or Illustrations. Show typical conditions of the landscape.
3. Text.

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- a. Title. The title should read, "Establishment Record for (Name) Experimental Forest, (Range, Grassland, or Watershed)."
- b. Subtitle. The subtitle should read, "(Name) National Forest," if National Forest System (NFS) land is involved. If NFS land is not involved, the subtitle should give the name of the owner, the location, and the type of use or ownership; for example, "Lands Leased from the X Paper Company in Clay County, Illinois," or "Lands Administered by the Forest Service in Pike County, Mississippi."
- c. Purpose of Establishment.
- d. Area by Cover Types.
- e. Physical and Climatic Conditions.
- f. Description of and Impact Upon Land and Resource Values.
 - (1) Timber.
 - (2) Watershed.
 - (3) Forage.
 - (4) Minerals.
 - (5) Recreation.
 - (6) Water Use.
 - (7) Cultural Values.
 - (8) Other Uses or Values.
- g. Accessibility.
- h. Existing Facilities.
- i. Arrangements for Management, Administration, and Protection.
- j. Recommendation. The entry should read, "Establishment of the (Name) Experimental Forest (Range, Grassland, or Watershed) for the described purposes is recommended by the following:"
- k. Dates and Signatures. The Reporting Officer and the Station Director should sign and date the establishment record.

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If the land is under Forest Service administration, the Forest Supervisor and Regional Forester should also sign and date the establishment record.

4. Designation Order. (FSM 4062.12).

4062.12 - Designation Order

Use the following heading: "An Order establishing (Name) Experimental Forest (Range, Grassland, or Watershed)."

1. If the land has National Forest status, use the following wording:

By virtue of the authority vested in me by 7 CFR 2.60(a) and 36 CFR 251.23, I hereby designate as the (Name) Experimental Forest (Range, Grassland, or Watershed) the lands described in the preceding establishment record prepared by (Name of Reporting Officer) , dated , 20 . These lands shall hereafter be administered as an experimental forest (range, grassland, or watershed), subject to the regulations at 36 CFR 251.23 and instructions issued thereunder.

Chief Date

2. If the land is not administered by the Forest Service, use the following wording:

I hereby designate as the (Name) Experimental Forest (Range, Grassland, or Watershed) the lands described in the preceding establishment record prepared by (Name of Reporting Officer) , dated , 20 . These lands shall hereafter be administered as an experimental area under policies and procedures established by the Forest Service.

Chief Date

3. If the proposed Experimental Forest (Range, Grassland, or Watershed) includes both National Forest System lands and other public or private lands, use the following wording:

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By virtue of the McSweeney-McNary Act of May 22, 1908 (45 Stat. 699), and the authority vested in me by the regulations of the Department of Agriculture at 7 CFR 2.60(a) and 36 CFR 251.23, I hereby designate as the (Name) Experimental Forest (Range, Grassland, or Watershed) the lands described in the preceding establishment record prepared by (Name of Reporting Officer), dated , 20 . These lands shall hereafter be administered as an experimental forest, subject to the regulations at 36 CFR 251.23 and instructions issued thereunder by the Secretary of Agriculture and/or the Chief of the Forest Service.

Chief Date

4062.2 - Withdrawal from Mineral Entry

If it is necessary to withdraw experimental areas from mineral entry, follow the procedures set forth in FSM 2762.

4062.3 - Revision of Boundaries

If the boundaries of experimental areas change, the Station Director submits a designation statement for the Chief's approval. See the following for a sample designation statement that revises the boundaries of an experimental forest (range, grassland, or watershed) on National Forest System land:

Order Revising the Boundaries of the (Name) Experimental Forest (Range, Grassland, or Watershed).

By virtue of the authority vested in me by 7 CFR 2.60(a) and 36 CFR 251.23 of the Regulations of the Secretary of Agriculture, I hereby order that the lands described in the preceding establishment record by (Name of Reporting Officer), dated , 20 , be designated as a part of (or be removed from) the (Name) Experimental Forest (Range, Grassland, or Watershed).

Chief Date

The Deputy Chief for Research and Development ensures that the signed designation statement is filed with the original designation order as part of the establishment record.

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4062.4 - Disestablishment

When it is no longer possible to justify retention of an experimental forest (range, grassland, or watershed), the Station Director prepares for the Chief's consideration a proposal to terminate the designation. A disestablishment record shall:

1. Refer to the original establishment record.
2. Report the use that has been made of the area.
 - a. Summarize the research work.
 - b. Report the physical developments.
3. State reasons for the termination and the rationale used in the decision process.
4. Include a plan for disposal of the area.
5. Present the disestablishment recommendation.
6. Ensure the document contains the following date and signature blocks:

Submitted: _____
Title (Reporting Officer) (Date)

Recommended: _____
Director, _____ Station (Date)

Concurred: _____
Regional Forester, Region__ (Date)

(If none of the land is administered by the National Forest System, concurrence by the Regional Forester is not needed and the concurrence block may be omitted.)

Approved: _____
Chief (Date)

The Deputy Chief for Research and Development ensures that the original signed copy is filed with the original establishment record. The Regional Forester ensures that regional lands status records reflect the disestablishment.

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4062.5 - Management

Develop adequate resource management plans for each experimental area. At a minimum, management plans must include natural resource guidelines to protect experimental areas from activities that would reduce their Research and Development value. Study plans may provide specific direction for the management of experimental areas (FSM 4051.21f).

4062.6 - Administration and Use

4062.61 - Timber Cutting

1. Timber Sales on Experimental Areas on National Forest System Lands (FSM 2403 and FSM 2463).
2. Timber Sales on Other Federal Lands. Bids are mandatory for all timber sales that are under Forest Service jurisdiction and that exceed \$500 in appraised value (FSM 2406). All authorities and policies concerning disposal of timber on National Forests, except the Knutson-Vandenberg (K-V) Act, apply to other federal lands under the administration of the Forest Service.
3. Timber Disposal on Leased Lands. Ensure that the terms of the governing lease or cooperative agreement include the terms and arrangements for disposal of timber on leased lands.
4. Disposal of Timber and Forage by Cooperative Agreement. For procedures to dispose of timber on National Forest System land by cooperative agreement, see FSH 1509.11.

4062.62 - Cultural Practices

Research projects may use cash deposits that were made in conjunction with timber sales for maintaining the Forest including such purposes as erosion control and slash disposal. Use Knutson-Vandenberg (K-V) funds only in accordance with direction set forth in FSM 2477. Work that is strictly investigative in nature must not be charged to these deposit accounts, however.

4062.63 - Grazing

Charging a grazing fee for the use of forage on experimental ranges with National Forest status is optional. For research purposes, forage on National Forest System lands can be disposed of by a forage harvest permit. Issue written permits to provide for the temporary use of experimental ranges for grazing to avoid claims of dependency that may be construed eventually as a preference.

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For grazing experiments that are conducted on other than National Forest System lands, use cooperative agreements that specify provisions to ensure that the grazing extent and intensity are consistent with the experimental designs.

4062.64 - Special Uses

On National Forest System lands, the Station Director has sole authority to authorize special uses including recreational activities on those experimental forests and ranges administered by the Director. The Director shall authorize only those special uses that are compatible with a particular Research and Development program on the experimental area in question. See FSM 2704.35 for authority to issue special use permits and FSM 2715 for the fee policy.

4063 - RESEARCH NATURAL AREAS

Research Natural Areas are part of a national network of ecological areas designated in perpetuity for research and education and/or to maintain biological diversity on National Forest System lands. Research Natural Areas are principally for nonmanipulative research, observation, and study. They also may assist in implementing provisions of special acts, such as the Endangered Species Act of 1973 and the monitoring provisions of the National Forest Management Act of 1976.

4063.01 - Authority

The general provisions of the Organic Administration Act of 1897 (16 U.S.C. 551) authorize the Secretary of Agriculture to designate Research Natural Areas. Under regulations at 7 CFR 2.60 (a), the Secretary has delegated this authority to the Chief, who, pursuant to 36 CFR 251.23, selects and establishes Research Natural Areas as part of the continuing land and resource management planning process for National Forest System lands (36 CFR 219.25 and FSM 1922).

4063.02 - Objectives

The objectives of establishing Research Natural Areas are to:

1. Maintain a wide spectrum of high quality representative areas that represent the major forms of variability found in forest, shrubland, grassland, alpine, and natural situations that have scientific interest and importance that, in combination, form a national network of ecological areas for research, education, and maintenance of biological diversity.
2. Preserve and maintain genetic diversity, including threatened, endangered, and sensitive species.
3. Protect against human-caused environmental disruptions.

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4. Serve as reference areas for the study of natural ecological processes including disturbance.
5. Provide onsite and extension educational activities.
6. Serve as baseline areas for measuring long-term ecological changes.
7. Serve as control areas for comparing results from manipulative research.
8. Monitor effects of resource management techniques and practices.

4063.03 - Policy

Research Natural Areas may be used only for Research and Development, study, observation, monitoring, and those educational activities that do not modify the conditions for which the Research Natural Area was established.

The selection and establishment of Research Natural Areas within the National Forest System primarily emerges from continuing land and resource management planning and associated environmental analyses (FSM 1920 and FSM 1950). Forest plans shall include analysis of, and recommendations for, the establishment of proposed Research Natural Areas. Where proposals to establish Research Natural Areas arise outside of the forest planning process, the affected Forest Supervisor shall prepare, as part of an establishment record (FSM 4063), a forest plan amendment in accordance with land management planning regulations (36 CFR 219.10(f) and FSM 1922.5) and environmental analysis policy and procedures (FSM 1950 and FSH 1909.15).

Unless catastrophic circumstances significantly alter the conditions for which a Research Natural Area was originally created such that it no longer may serve that function, the designation of a Research Natural Area shall be in perpetuity.

The Forest Service shall cooperate with universities, private and professional organizations, and State and other public agencies to establish and maintain a national network of Research Natural Areas primarily on federally administered lands, as well as on lands under other ownerships.

Funding of all on-the-ground resource protection and management activities on Research Natural Areas within the National Forest System shall come from funds appropriated and allocated for the National Forest System. For obtaining appropriated Forest Pest Management Funds when necessary, see FSM 3400.

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4063.04 - Responsibility

4063.04a - Washington Office

1. Chief. The Chief reserves the authority to determine what important forest, aquatic, and range types are needed for a national network of Research Natural Areas (36 CFR 251.23), and to maintain quality among the Regions and Stations in the establishment and management of Research Natural Areas through oversight and common standards.

2. Deputy Chiefs. The Deputy Chief for Research and Development and the Deputy Chief for National Forest System have the responsibility to review the Research Natural Area program. As part of their review, the Deputy Chiefs are responsible for identifying important forest and range types needed for the national network of Research Natural Areas and recommending approval of these types to the Chief.

3. Responsible Staff Director. The Washington Office, Director of Vegetation Management and Protection Research Staff is responsible for maintaining a national record of all Research Natural Areas.

4063.04b - Field Units

1. Regional Foresters and Station Directors.

a. Approve New Research Natural Areas. It is the responsibility of Regional Foresters, with the concurrence of Station Directors, to approve all new Research Natural Areas and to sign the implementing designation order. This authority may not be redelegated.

b. Establish a Regional Research Natural Area Committee. It is the responsibility of Regional Foresters and Station Directors to establish a Regional Research Natural Area Committee (para. 2) to determine needs for Research Natural Areas within each Region and each National Forest and, with assistance from this committee, to prepare an establishment record for each recommended Research Natural Area (FSM 4063.41). In consultation with Forest Supervisors and District Rangers, Station Directors have authority to approve all management plans and to oversee and coordinate approved research on all Research Natural Areas, except for those Research Natural Areas in congressionally designated areas (FSM 4063.05).

c. Concur on Issuance of Mineral Leases. The authority to concur in issuance of mineral leases including access to Research Natural Areas on National Forest System lands is reserved to the Regional Forester, in consultation with and with the concurrence of the Station Director.

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- d. Approve Management Plans and Oversee and Coordinate Research on Research Natural Areas in Congressionally Designated Areas. The authority to approve management plans and to oversee and coordinate approved research on Research Natural Areas in congressionally designated areas (FSM 4063.05) rests with Regional Foresters (FSM 2323.04c). In exercising this authority, they have the responsibility to coordinate plans for research with Station Directors. The Regional Forester, with the concurrence of the appropriate Station Director, has the responsibility to prepare recommendations to the Chief for any proposed Federal mineral, oil, and gas leases on Research Natural Areas that are acquired land (FSM 2820) and on any oil and gas lease on National Forest System lands created from the public domain.
 - e. Approve Plans for Temporary Gauging Stations and Instrument Shelters. Only the Station Director, after consultation with the Forest Supervisor (para. 4), has the responsibility to approve plans for temporary gauging stations and instrument shelters (FSM 4063.31).
 - f. Establish and Maintain a System for Archiving Data and Reports from Research Natural Areas. The Station Director has the responsibility to establish and maintain a system for archiving data and reports from Research Natural Areas in a manner that facilitates the exchange and transfer of information among Stations, scientists, and the National Forest System.
2. Regional Research Natural Area Committee. This committee is composed of federal employees appointed by the Regional Foresters and Station Directors (para. 1b). It is the responsibility of this committee to identify the need for Research Natural Areas on National Forest System lands and to ensure that prospective areas are identified in the forest planning process. Upon approval of a forest plan and obtaining results of subsequent surveys of the area, the committee recommends to the Regional Forester and Station Director the establishment of Research Natural Areas and assists in the preparation of establishment records.
 3. Research and Development Project Leaders and Program Managers. It is the responsibility of Project Leaders and Program Managers, as appropriate, to coordinate with Forest Supervisors on any planned research activities within, and adjacent to, Research Natural Areas.
 4. Forest Supervisors. It is the responsibility of Forest Supervisors to:
 - a. Execute approved management plans for Research Natural Areas.
 - b. Administer, manage, and protect Research Natural Areas.
 - c. Coordinate. Coordinate with the Station Director or Director's designee to implement needed changes in management or protection.

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The authority to approve mining plans of operations is reserved to the Forest Supervisor in consultation with, and concurrence of, the Station Director.

5. District Rangers. District Rangers are responsible for direct administration, protection, and, in accordance with approved forest plans and/or project prescriptions, management of established Research Natural Areas.

4063.05 - Definitions

Research Natural Area. As defined by the Federal Committee on Ecological Reserves (FSM 4063.43, para.1):

A physical or biological unit in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural physical and biological processes to prevail without human intervention. However, under unusual circumstances, deliberate manipulation may be utilized to maintain the unique feature that the Research Natural Area was established to protect.

Special Management Areas. Certain lands within the National Forest System designated administratively or by Congress for special management consideration. Examples of administratively designated areas include Archeological Areas, Historical Areas, Geological Areas, Scenic Areas, National Recreation Trails, and Research Natural Areas. Examples of Congressional designations include Wilderness, National Primitive Areas, National Recreation Areas, National Scenic-Research Areas, National Scenic Trails, and National Historic Trails.

4063.1 - Size Standards

Research Natural Areas must be large enough to provide essentially unmodified conditions within their interiors which are necessary in accordance with the objectives stated in the establishment record (FSM 4063.02), and to protect the ecological processes, features, and/or qualities for which the Research Natural Areas were established. Landscape-scale Research Natural Areas that incorporate several ecosystem elements are ideal, where feasible.

4063.2 - Selection

Whenever possible, select proposed areas that show no evidence of major disturbances by humans, such as livestock grazing or timber cutting, for the past 50 years. Where possible, select entire small drainages because they maintain interrelationships of terrestrial and aquatic systems. These are particularly valuable as baseline areas for Research and Development and monitoring because they are easier to delineate and protect on the ground.

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In the selection of representative areas, a pristine condition is the goal. However, when candidate areas in a pristine condition are unavailable, then areas that reflect the pristine condition as closely as possible may be selected.

In certain geographic regions and in certain community types, it may be impossible to find candidate areas not containing exotic plant or animal life. Under these circumstances, the best available area that qualifies in all other respects should be chosen.

Failure to withdraw an area from mineral entry should not be viewed as a deterrent to selection and establishment of a desirable Research Natural Area (FSM 4063.35).

4063.21 - Mapping and Recordation

Ensure that the boundaries of Research Natural Areas are clearly identifiable in the field and in the establishment record. Accurately depict boundaries ideally with a surveyor's legal description on maps that are used for Forest Service Research and Development and administrative purposes. All Research Natural Area boundaries should be accurately depicted in the land status record system (FSM 5590) to guarantee that Forest staffs are aware of their locations.

4063.3 - Protection and Management Standards

Standards for protection and management of a Research Natural Area must support and promote the basic objectives and purposes of establishing the area. Ensure that the establishment record clearly states the objectives for establishing the area and identifies the special values for which the area is being recognized (FSM 4063.41). In addition, comply with the standards described in paragraphs 1-7.

1. Ecological Processes. The prime consideration in managing Research Natural Areas is maintenance of natural conditions and processes. To the extent practicable, protect Research Natural Areas against human activities that directly or indirectly modify the integrity of the ecological processes.

2. Logging and Wood Gathering. Do not permit logging or wood gathering activities in Research Natural Areas unless required for restoration of an area to natural conditions.

3. Livestock. In Research Natural Areas where livestock grazing is not part of the management prescription, the Regional Forester and Station Director have the responsibility, as appropriate, to establish a level of acceptable casual or incidental livestock use that can be tolerated and is consistent with the management prescription for the Research Natural Area (4063.04b). Where grazing is needed to establish or maintain vegetative communities, define objectives for grazing.

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4. Exotic Plants and Animal Life. Remove exotic plants or animals to the extent practicable. Where pest management activities are prescribed, they shall be as specific as possible against target organisms and induce minimal impact to other components of the ecosystem. The release of biological control organisms for exotic species control should be carefully considered to avoid the introduction of other exotic species.

5. Recreational Use. Recreational use should be restricted or prohibited if such use threatens or interferes with the objectives or purposes for which the Research Natural Area is established.

6. Special Orders. Where special orders are needed to limit, restrict, or control specific activities such as camping, seasons of use or other uses, that are not compatible with the objectives of the Research Natural Area, the Forest Supervisor issues orders pursuant to 36 CFR Part 261, Subpart B, to protect an area's features. Any such orders shall incorporate the special closure provisions of 36 CFR 261.53. (See FSM 5353 for penalties applicable to violations of orders.)

7. Roads, Trails, Fences, Signs, or Buildings. Do not permit new roads, trails, fences, or signs on an established Research Natural Area unless they contribute to the objectives or to the protection of the area. Boundary fencing is permitted for protection against livestock or excessive human use. Buildings are not permitted. In rare instances, temporary gauging stations and instrument shelters may be desirable. Follow procedures set forth at FSM 4063.31 for authorizing temporary physical improvements.

4063.31 - Authorizing Temporary Physical Improvements

In approving plans for temporary gauging stations and instrument shelters (FSM 4063.04b), the Station Director ensures that these plans specifically fix the tenure of the facility, list actions to be taken, assign time limits for completion of actions, and identify parties responsible for returning disturbed areas to a natural condition.

4063.32 - Resource Protection Guidelines

Specific management direction for Research Natural Areas must contain measures to address fire, insect, disease, and animal activity. As a general guide, extinguish as quickly as possible fires that endanger Research Natural Areas using means that would cause minimal damage to the area (FSM 4063.41). Allow natural fires to burn only within a prescription designed to accomplish objectives of the specific natural area. Take no actions against endemic insects, diseases, wild plants, or animals unless the Regional Forester and Station Director deem such action necessary to protect the features for which the Research Natural Area was established or to protect adjacent resources. If exotic plants or animals have been introduced into an established Research Natural Area, the Station Director and the Regional Forester exercise control measures that are in keeping with established management principles and standards to eradicate them, when practical (FSM 4063.3).

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In protecting Research Natural Areas within congressionally designated areas (FSM 4063.05), the management direction for the Research Natural Area must meet statutory mandates (FSM 1920).

Follow the provisions set forth in FSM 2360 where the Research Natural Area is likely to involve cultural resources listed in the National Register of Historic Places.

4063.33 - Scientific and Educational Use

Encourage the use of Research Natural Areas by responsible scientists and educators. Do not authorize educational use of the Research Natural Area if it is probable that such use will cause unacceptable impact on the values for which the Research Natural Area was established.

As with all Research and Development proposals (FSM 4070), all proposals for research in Research Natural Areas must be approved by the Station Director. Scientists interested in using a Research Natural Area must provide the appropriate Station Director with a description of the research activity planned. With respect to non-Forest Service scientists, Station Directors have the authority to approve study plans proposed by non-Forest Service scientists and execute cooperative agreements, where appropriate. The scientist must provide the Station Director and Regional Forester with copies of all data, reports, and publications resulting from the research including theses, dissertations, articles, monographs, and so forth. The final report on the results of the research project shall be submitted to the Forest Service no later than 1 year following completion of the research.

Access to a Research Natural Area by parties external to the Forest Service may be authorized and approved by the District Ranger and shall conform to conditions specified in approved study plans and/or cooperative agreements. For direction on research in wilderness areas, see FSM 2323.

Forest Service scientists shall cooperate in research conducted by non-Forest Service scientists, whenever possible, to keep informed as to the nature and progress of the work and to ensure that Research Natural Area values are maintained. Scientists conducting research on a Research Natural Area must file copies of all research data, reports, and other pertinent documents with the Station, Region, and Forest.

All scientists conducting investigations which involve the collection of flora and/or fauna in a Research Natural Area must, as a condition of approval by the Station Director (or Regional Forester in congressionally designated areas (FSM 4063.05)) to use the area:

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1. Obtain appropriate permits from State and Federal agencies.
2. Control collection of all species carefully, especially those that are endangered, threatened, or rare plants.
3. Collect and deposit voucher samples of plants in a herbarium.

4063.34 - Vegetation Management

Use only tried and reliable vegetation management techniques and then apply them only where the vegetative type would be lost or degraded without management. The criterion is that management practices must provide a closer approximation of the naturally occurring vegetation and the natural processes governing the vegetation than would be possible without management.

The Station Director, with the concurrence of the Forest Supervisor, may authorize management practices that are necessary for invasive weed control or to preserve the vegetation for which the Research Natural Area was created (FSM 4063.3). These practices may include grazing, control of excessive animal populations, or prescribed burning. Take extra care to protect undisturbed ecological climax conditions, such as old-growth forests.

4063.35 - Withdrawal from Mineral Entry

The Regional Forester may ask the Bureau of Land Management to withdraw a Research Natural Area from mineral entry after its establishment in conformance with section 204 of the Federal Land Policy and Management Act of 1976 (90 Stat. 2743, 43 U.S.C. 1701, FSM 2761, and FSM 4063.2).

4063.36 - Mineral, Oil, and Gas Leases

Proposals to offer Federal mineral, oil, and gas leases on Research Natural Areas are evaluated by the Regional Forester, with concurrence of the Station Director, using standards set forth in FSM 2820. The proposal with recommendation is forwarded by the Regional Forester to the Chief for the final decision.

4063.37 - Surveying and Monumenting Boundaries

Where a Research Natural Area boundary is on a Forest Service property line that adjoins a non-Forest Service ownership, this segment of the Research Natural Area boundary should be surveyed and monumented under the direction of the forest land surveyor.

4063.4 - Establishment

Document each recommended Research Natural Area with an establishment record, ecological evaluation, and NEPA environmental assessment (FSM 1950 and FSH 1909.15).

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4063.41 - Establishment Record Content

Include all of the following information, in the sequence listed, in an establishment record for a recommended Research Natural Area. Where a particular item does not pertain to the recommended Research Natural Area, enter a brief statement explaining why it does not apply. Do not omit any item or leave the subject area blank. Use English units and then metric equivalents in parentheses throughout the record. Enclose the entire content in Form FS-6200-7, Manuscript Cover.

1. Identification Section. As a minimum, this section must include:
 - a. Title Page. Include the establishment record for (name of RNA) Research Natural Area within (name) National Forest, (county), (State). See FSM 4063.5, exhibit 01 for the format.
 - b. Location Map. A road or forest map showing the location of the RNA with respect to the nearest city and the ranger district office, with recommended access routes to the area.
 - c. Boundary Map. A United States Geological Survey 7 1/2 minute quad map, or a map at a scale approximating 2 inches per mile (32mm/km), showing boundaries and ownership status of the recommended area with roads and trails.
 - d. Legal Description. Government land office, metes and bounds system, or digital boundaries. Include the number of acres and hectares of the entire area. The boundary description should be reviewed and approved by a forest land surveyor and entered into the Forest Service Automated Land and Property Records System.
2. Administrative. Each Research Natural Area to be established must be documented with a signature page and a Designation Order.
 - a. Signature Page. See FSM 4063.5 Exhibit 02 for format.
 - b. Designation Order. This is a separate, written instrument by which the Regional Forester, with concurrence of the Station Director, officially designates an area as a Research Natural Area.

Prepare a Designation Order using the language and format consistent with FSM 1950 and FSH 1909.15 for Research Natural Areas both within and outside of congressionally designated areas.

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Decisions made to establish a Research Natural Area are subject to administrative appeal under Title 36, Code of Federal Regulations, Part 217 (36 CFR Part 217). Publish notice of the decision as required by 36 CFR 217.5.

3. Text.

a. Introduction. Include historical background, uses, and ownership. Identify if the proposed area is within designated wilderness, wild and scenic river, national recreation area, or other congressionally designated areas (FSM 4063.05).

b. Justification Section.

(1) Justification Statement. Explain why the recommended Research Natural Area is worthy of consideration.

(2) Principal Distinguishing Features. Briefly describe the distinguishing features of the Research Natural Area with emphasis on the terrestrial and aquatic communities, geology, flora, and fauna. This modest ecological description should briefly provide information on vegetation type, habitat characteristics, threatened and endangered species, and so forth.

(3) Objectives. State the objectives that are to be achieved with this Research Natural Area. The objectives should be based upon the elements and values that the area contains and should reflect how the Research Natural Area can best serve the objectives listed under FSM 4063.02.

c. Land Management Planning. Indicate whether or not the Research Natural Area was included in the analysis and recommendations section in the Forest Plan (Land and Resources Management Plan). If not, refer to the Forest Plan amendment when making the recommendation.

d. Management Prescription. Identify management prescriptions designed to ensure maintenance of the objectives for which the Research Natural Area is recommended to be established. (Include prescription information from the Forest Plan.)

e. Use or Control of Fire and Grazing. If such practices as prescribed burning and livestock grazing are to be used to maintain ecological conditions, describe those practices and explain their use. Include the prescription for fire in and near the Research Natural Area, the use of prescribed fire, and the control of natural fire. If parts of the Research Natural Area are assigned for eventual prescribed burning, describe these as well as areas assigned for permanent protection from fire. To control fire within Research Natural Areas, use those methods that cause the least disturbance. Normally, do not use methods that employ machinery.

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In developing the prescription for fire, consider the role of natural fire in sustaining or managing the vegetation. The prescribed fire should be conducted to mimic natural conditions.

f. Appendices. Document needed natural diversity elements; include approximate pages from forest plans, regional guides, and environmental impact statements. Include the ecological evaluation (FSM 4063.41, para. 4).

4. Ecological Evaluation.

The ecological evaluation, to be included as an appendix to the establishment record, provides the initial baseline information for the Research Natural Area, serves as a source of data for reports on the Research Natural Area program, provides information to researchers seeking appropriate research program, and provides information to researchers seeking appropriate research sites or projects. At a minimum, the evaluation should include the following:

a. Physical Site Description and Climatic Conditions.

(1) Location (forest, district, and county, by latitude/longitude).

(2) Size in acres/hectares.

(3) Elevation range.

(4) Access to the site.

(5) Climatic data. Obtain temperature and precipitation information from the nearest weather station. Identify the name and location of the station, also. If local climatic conditions vary greatly from the nearest weather station, ensure this is stated, also.

b. Ecological Description.

(1) Eco-region (to the lowest level of detail currently available).

(2) Detailed descriptions and approximate size in acres/hectares of the plant community types on the site, including potential climax types. Use an accepted regional or statewide classification system for the description and include a map of the plant communities using the same classification system. Also, provide descriptions and extent of plant communities following the National Vegetation Classification System published by the National Geographic Data Committee.

(3) Description of the values of the Research Natural Area.

(a) Flora list, by both common and scientific names.

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- (b) Fauna list (those species actually observed), by both common and scientific names.
 - (c) Geology.
 - (d) Soils.
 - (e) Topography.
 - (f) Aquatic/riparian.
 - (g) Rare, threatened, endangered, or sensitive species.
 - (h) List of rare elements and rare plant communities.
- c. Resource Information. Describe in detail known information about the following resources, especially from the vantage of potentially conflicting uses.
- (1) Minerals.
 - (2) Grazing.
 - (3) Plants (including timber and special forest products).
 - (4) Watershed values.
 - (5) Recreation use.
 - (6) Wildlife.
 - (7) Transportation/road system.
- d. Historical Information. Include, in this section, known information regarding the following:
- (1) Research/education use and interest: history of establishment.
 - (2) Cultural/heritage.
 - (3) Disturbance history.
 - (4) Occurrence of exotic species.
- e. Other Information.
- (1) Any permanent research plots and/or photo points.

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(2) Bibliography. Include journal articles or publications that have resulted from study conducted on the site and all literature cited in the report. Cite any important reports which describe the various aspects of the area (flora, fauna, geology, history, soils, and so forth).

(3) Potential research topics.

f. Evaluation of Specific Management Recommendations on the Research Natural Area.

(1) Potential or existing conflicts; principal management issues.

(2) Special management area if the Research Natural Area is within one.

g. Photographs. Photographs may be included. However, ensure that each photograph is clearly labeled. The location of the negative should be noted, also.

4063.42 - Assembly, Approval, and Filing

To avoid confusion and ensure consistency in the assembly, approval, and filing of the establishment record content for a recommended Research Natural Area, follow these guidelines:

1. Assembly. The original and 2 copies of the establishment record for recommended Research Natural Areas should be assembled (Form FS-6200-7). The original must include all original material, including maps and photographs, and a signed signature page (FSM 4063.5, ex. 01). In the completed package, fasten maps and photographs to the left inside of the manuscript cover, attach all other materials on the right side with the signature page on top, and place the designation order on the outside of the manuscript cover.

2. Approval. The designation order, signed and dated by the Regional Forester, with concurrence of the Station Director, indicates approval for the establishment of the recommended Research Natural Area.

3. Filing. Send the original establishment record to the Washington Office Director of the Vegetation Management and Protection Research Staff where it is filed. Ensure that one of the copies, including the signed designation order, is retained by the Regional Forester and the other one by the Station Director. The Regional Forester should also ensure that the designation order is noted in the landownership record at the Regional Office (FSM 5491.24).

The appropriate Station Director or Regional Forester ensures that a copy of the establishment record is sent to the Forest Supervisor, District Ranger, and Research Project Leader, or equivalent, of the recommended Research Natural Area for their permanent files. For Research Natural Areas within wilderness, a copy of the establishment record should be attached to the management direction document for that wilderness.

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4063.43 - References

1. Federal Committee on Ecological Reserves. 1977. A Directory of Research Natural Areas on Federal Lands of the United States of America. Washington, DC: U.S. Department of Agriculture, Forest Service. 280p.

2. Federal Geographic Data Committee. 1997. Vegetation Classification Standard. Vegetation Subcommittee, Federal Geographic Data Committee, Washington, DC. FGDC-STD-005. 60 p.

4063.44 - Revision of Boundaries or Disestablishment

Use the same procedures for revising the boundaries of, or disestablishing, for a Research Natural Area as those used for forest and range experimental areas (FSM 4062.3 and FSM 4062.4).

4063.5 - Exhibits

See the following exhibits for implementing the establishment and management policy of Research Natural Areas:

1. Exhibit 01 - Title Page.
2. Exhibit 02 - Signature Page for Research Natural Area Establishment Record.

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4063.5 - Exhibit 01

TITLE PAGE

Establishment Record for the _____ (Name of Research Natural Area)
Research Natural Area within the _____ (Name)
National Forest, _____, _____. (County) (State)

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4063.5 - Exhibit 02

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

(Name of the) Research Natural Area

(Name of the) National Forest

(Name of the County and State)

The undersigned certify that all applicable land management planning and environmental analysis requirements have been met and that boundaries are clearly identified in accordance with FSM 4063.21, Mapping and Recordation, and FSM 4063.41, Establishment Record Content, in arriving at this recommendation.

Prepared by _____ (<u>Typed name, title, and affiliation of person who prepared the report</u>)	Date _____
Recommended by _____ (<u>Typed name</u>), District Ranger, _____ District	Date _____
Recommended by _____ (<u>Typed name</u>), Forest Supervisor, _____ National Forest	Date _____
Concurrence of _____ (<u>Typed name</u>), Station Director, _____ Station	Date _____

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4064 - LONG-TERM WATERSHED INSTALLATIONS

4064.02 - Objectives

Establish and maintain calibrated watershed installations on National Forest System and other lands to provide long-term data where and when appropriate.

4064.03 - Policy

Station Directors shall share long-term watershed data with cooperators.