

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

**Forest Service Manual 4000 - Research and Development
Chapter 4070 - Research Program Formulation and Documentation**

Amendment: 4000-2012-1

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Duration: This amendment is effective until superseded or removed.

Superseded Directive: 4070 (Amendment 4000-2005-4, 11/4/2005); id_4070-2011-1, 01/21/2011

Approved by: Angela V. Coleman, Associate Deputy Chief, R&D

Date approved: January 27, 2012

Responsible Staff:

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

4070: Refers to the term “Research and Development” as “R&D” throughout the chapter.

4070.1: Adds new authority, Government Performance Result Act.

4070.41a: Adds deputy chief reviews to responsibilities.

4070. 41b: Adds specific responsibilities of Research and Development staff directors.

4070.42a: Adds “Science Application” to station directors responsibilities.

4070.42b: Changes caption from “Deputy Station Directors” to “Deputy and Assistant Station Directors.” Recodes to this section direction previously set out in sections 4070.42c, 4070.42d, and 4070.42e.

4070.42c: Removes code and caption “Assistant Station Directors for Research and Development” and recodes direction to section 4070.42b.

4070.42d: Removes code and caption “Assistant Station Directors for Planning and Applications” and recodes direction to section 4070.42b.

4070.42e: Removes code and caption “Assistant Station Directors for Operations” and recodes direction to section 4070.42b.

4070.43: Changes caption from “Project Leaders” to “Project Leaders and Program Managers.” Recodes to this section direction previously set out in section 4070.44.

4070.44: Removes code and caption “Program Mangers” and recodes direction to section 4070.43.

4070.5: Adds definition for terms “Research, Development, and Application (RD&A) Program” and “Strategic Program Areas (SPA)”. Revises the definition for the term “Scientist.”

4071.33: Adds direction for coordination between stations.

4071.34: Establishes code, caption, and sets forth direction for “Coordination with Other Research Programs.”

4071.4: Changes caption from “Coding System for Research Work Units” to “Coding System for Research Work Units and Programs.” Revises organizational abbreviations to reflect current station structure. Revises and clarifies direction for using numerical codes. Removes obsolete direction for staff oversight of research work units.

4072.11: Changes caption from “Purposes” to “Purposes and Standards of Practice.”

4072.12: Recodes to this section direction for environmental analysis considerations previously set out in section 4072.13.

4072.13: Removes caption and direction for “Environmental Analysis Considerations” and recodes direction to section 4072.11.

4072.14 through 4072.14c: Recodes captions and directions to sections 4072.13 through 4072.13c.

4072.2: Adds direction for problem analysis processes.

4072.23: Establishes code, caption “Distribution,” and sets forth direction for distributing a problem analysis.

4072.31: Revises direction throughout the section on the purpose of a study plan.

4072.32: Incorporates id_4070-2011-1 in its entirety.

4073.1: Removes code, caption, and obsolete direction on “Research Program Attainment Reporting.”

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4070.1 - Authority

1. The Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA). The Forest and Rangeland Renewable Resources Research Act of 1978 is the comprehensive statutory authority for planning and conducting ongoing forest and rangeland research and development. This Act requires that the Forest Service describes its upcoming national program of research and development every 5 years.
2. Government Performance Result Act (GPRA). Under the GPRA, Federal agencies are mandated to become specifically results-oriented. They are required to develop long-term strategic plans defining general goals and objectives for their programs, to develop annual performance plans specifying measurable performance goals for all of the program activities in their budgets, and to publish an annual performance report showing actual results compared to each annual performance goal. The annual performance plan goals should show the expected progress toward meeting the long-term goals of the Strategic Plan, and both plans must describe the strategies and various resources needed to meet their goals.

4070.2 - Objectives

In formulating and documenting the Forest Service Research and Development (R&D) program, the objectives are to:

1. Ensure coordination of R&D activities at the field unit level, both within and among individual field units, to meet regional and national goals and objectives.
2. Provide adequate information for reviewers and decision makers to make recommendations and decisions to approve or disapprove programs of work for field units.
3. Provide an adequate written record of Forest Service R&D accomplishments to meet current information needs, and for use in conducting program and activity reviews and other evaluations of R&D program activities, costs, and benefits.

4070.3 - Policy

In formulating and documenting the R&D program, the Forest Service shall:

1. Ensure that the annual R&D program planning and budgeting recommendations are consistent with the national program of forest and rangeland R&D set forth in the U.S. Department of Agriculture (USDA), the Forest Service, and the Forest Service R&D strategic plans, all of which respond to goals in the Forest and Rangeland Renewable Resources Planning Act, the Government Performance Result Act, and program planning direction from the Deputy Chief for R&D.

2. Emphasize evaluation of anticipated R&D accomplishments, costs, and benefits and integrate the findings of such evaluation into annual and long-term R&D program planning and implementation.
3. Coordinate forest and rangeland R&D among stations and with other agencies and organizations to solve forest and rangeland problems of regional and national importance and eliminate duplication and redundancy.
4. Make R&D results available promptly; provide necessary interpretations and assistance in the application of these results to achieve effective management, use, and protection of all forest and rangeland resources.

4070.4 - Responsibility

4070.41 - Washington Office

4070.41a - Deputy Chief for Research and Development

In carrying out the broad authority delegated by the Chief of the Forest Service (FSM 1230), the Washington Office, Deputy Chief for R&D has the responsibility to:

1. Provide R&D program planning direction,
2. Conduct Deputy Chief's reviews of research stations,
3. Review station plans and proposals, with respect to the overall R&D national program,
4. Ensure that Forest Service R&D plans are coordinated with the broad goals of the USDA and are consistent with the Agency's strategic plan,
5. Establish additional program direction, as needed, and
6. Recommend the annual R&D program of work and budget to the Chief.

4070.41b - Research and Development Staff Directors

The R&D staff directors shall:

1. Provide advice to the Deputy Chief for R&D and station directors on program development; resource needs, including budgets, staffing, and facilities needs; technical support; and provide oversight for Forest Service R&D programs (FSM 1235).
2. Review station program charters and research work unit descriptions (RWUDs) and recommend to the station directors approval of charter descriptions.

3. Create national syntheses of the aggregate programs across individual field units and evaluating the adequacy of the totality of the field unit work in broad program areas to solving mission-critical problems. Where gaps are identified, propose adjustments to specific field units to better focus the combined efforts of field units to fill the gaps.
4. Communicate program objectives and accomplishments to internal and external stakeholders and report to the Deputy Chief and station directors comments on program accomplishments and unmet needs.
5. Represent and promote national and field level R&D activities range of interests and partners, especially at the regional and national levels.

4070.42 - Stations

4070.42a - Station Directors

Station directors' responsibilities are to:

1. Assist with coordinating Deputy Chief's review of stations;
2. Plan, conduct, coordinate, and evaluate R&D programs at each station, the Forest Products Laboratory, and the International Institute of Tropical Forestry; and
3. Ensure that R&D results are published as scientific articles and agency reports (FSM 1236.2); and
4. Ensure the application of science.

4070.42b - Deputy and Assistant Station Directors

Deputy and assistant station directors share the delegated responsibilities (except where specifically excluded) of the station director. The number of deputy and assistant station directors may vary among stations, as will the assignment of responsibilities to each deputy and assistant station director. Collectively, deputy and assistant station directors' responsibilities are to:

1. Administer assigned programs;
2. Plan, oversee, and evaluate assigned programs (FSM 1236.2);
3. Provide advice and conduct special assignments for station directors;
4. Develop, evaluate, and plan R&D programs, as well as conduct activities to assist users in applying R&D results (FSM 1236.2);

5. Provide the needed administrative and technical support to develop and document all business programs of a station (FSM 1236.2); and
6. Represent and promote station R&D activities and science/policy issues to a broad range of interest and partners.

4070.43 - Project Leaders and Program Managers

Project leaders and program managers are appointed by station directors, with the advice of staff directors. They direct and evaluate research and development activities based on research work unit descriptions (RWUDs) or program charters (PCs) and are responsible for program or project formulation and documentation. Responsibilities are to:

1. Plan the R&D programs and activities within the unit or program,
2. Approve study plans included in each problem area,
3. Conduct approved research and development activities of the unit or program, and
4. Prepare or oversee preparation of manuscripts and other forms of technology transfer that documents results of R&D conducted by the unit or program including appropriate peer review (FSM 1236.2).

4070.5 - Definitions

Extramural Research. Research completed by non-Forest Service scientists with funds provided under cooperative agreements, grants, or contracts (FSM 1580).

Operating Titles. The names used to give recognition to the area of specialization or to identify the level or relationship of an employee's position in the organizational structure. Examples include: research silviculturist, research economist, or project leader.

Research Work Unit or R&D Program. The basic entity for planning, conducting, and reporting research and development activities.

Research, Development, and Application (RD&A) Program. A specific organizational entity designed to facilitate implementation of research results and emphasize the development of applied research and application of research results, technology and predictive models in operational programs. Partners outside of research generally provide funding for the operational aspects of the program.

Scientist. The incumbent of a research position, grade GS-11 or above in a professional series defined by the Office of Personnel Management (OPM) classification standards, and by 4-factor position descriptions as described in the OPM Research Grade Evaluation Guide. As used herein, “scientist” refers to “research scientist”.

Station. Forest Service geographic region of responsibility for conducting R&D. The Forest Products Laboratory and the International Institute of Tropical Forestry are considered stations.

Strategic Program Area (SPA). A logical grouping of related scientific disciplines and/or initiatives that comprises an area of significant strategic importance for research and development.

4071 - Research and Development Program Formulation

The Forest Service formulates its R&D program within the framework of authority, Congressional appropriations, U.S. Department of Agriculture regulations, and interdepartmental and intradepartmental coordinating mechanisms at national and regional levels.

4071.1 - National Research and Development Program

The Washington Office, Deputy Chief for Research and Development, proposes the long-range national R&D program and coordinates planning of the program with input from the Resources Planning Act Assessments; Chief’s advice; the U.S. Department of Agriculture’s R&D goals and targets; needs of user groups; and other Federal and State agencies, universities, industry, and the private sector. Program formulation at the national level results in the Deputy Chief’s recommendation for annual budgets and appropriations for forest and rangeland R&D.

4071.2 - Station Research and Development Programs

Research programs and work units are the basic problem-solving elements of station R&D programs. Stations meet changing R&D needs and priorities by establishing new research programs or work units and discontinuing old units and programs, or revising them, in response to station program review recommendations and with concurrence of the Deputy Chief for R&D.

4071.3 - Program Coordination

4071.31 - Departmental Coordination

The Deputy Chief ensures coordination of the R&D program with other U.S. Department of Agriculture organizations.

4071.32 - Interdepartmental Coordination

Research and Development (R&D) line and staff officers are responsible for coordinating R&D efforts with other Federal departments and agencies (FSM 4070.4).

4071.33 - Coordination Between Stations

Boundaries of Forest Service stations provide working territories for program formulation, administration, and coordination and for facility planning and management. Stations communicate as needed when the circumstances of an R&D activity warrant collaboration across stations' boundaries or suggest R&D on a multi-station scale. For certain regional or national issues, providing effective program leadership and coordination across station boundaries or with multiple national or regional stakeholders, may require creating a specific research program responsibility for a trans-boundary issue or a national research program.

4071.34 - Coordination with Other Research Programs

Forest and rangelands research is also conducted by universities, non-governmental organizations, and industrial firms, both in the United States and in other countries. Research and Development line and staff officers are responsible for coordinating R&D efforts with other research programs.

4071.4 - Coding System for Research Work Units and Programs

Research work units and R&D programs must be identified by alphanumeric designations consisting of organizational abbreviations and numerical codes.

1. Organizational Abbreviations. See the following list of organizational abbreviations of stations for their research work units and R&D programs:

- a. FPL. Forest Products Laboratory.
- b. IITF. International Institute of Tropical Forestry.
- c. NRS. Northern Research Station.
- d. PNW. Pacific Northwest Research Station.
- e. PSW. Pacific Southwest Research Station.
- f. RMRS. Rocky Mountain Research Station.
- g. SRS. Southern Research Station.

2. Numerical Codes. Numerical codes must be 2 to 4 digit codes at the discretion of the station. Numerical codes should be chosen to facilitate electronic searches and summarization and avoid confusion.

4072 - Research and Development Program Documentation

Research and Development (R&D) problems are specific questions or statements of situations or conditions, raised for inquiry and solution. Units shall define R&D problems they plan to solve within a specified period of time and document them in a research work unit description or program charter. In the R&D problem-selection process, the feasibility of conducting research on the various problems the unit could address must be weighed. Consideration must be given to the state of existing knowledge and urgency of the problem weighed against such factors as relevant R&D underway by other scientists, probable success in finding solutions within the specified period, opportunities for technology transfer and application, and available resources.

4072.04 - Responsibility

The responsibilities for R&D documentation are assigned as described in exhibit 01 and represent typical situations.

4072.01 - Exhibit 01

Responsibilities for R&D Documentation

Situation	FSM Ref.	Responsible Officer	Action
National R&D Program	FSM 4071.1	Deputy Chief for R&D	Prepares
		Chief	Approves
Research Work Unit Description	FSM 4072.1	Project Leader	Prepares
		Assistant Station Director for R&D	Recommends
		Designated Washington Office Staff Director	Recommends
		Station Director	Approves
		Deputy Chief for R&D	Concurs
R&D Program or Science Area Charter	FSM 4072.1	Program Manager or Asst. Station Director for R&D	Prepares
		Program Manager or Asst. Station Director for R&D	Recommends
		Designated Washington Office Staff Director	Recommends
		Station Director	Approves
		Deputy Chief for R&D	Concurs
Optional Problem Analysis	FSM 4072.2	Scientist, Project Leader, or Program Manager	Prepares
		Program Manager or Asst. Station Director for R&D	Approves
Study Plan	FSM 4072.3	Scientist	Prepares
		Project Leader or Program Manager	Approves
		Asst. Station Director for R&D or Deputy Director	Approves if outside scope of RWUD, Program Charter, or Problem Analysis

4072.1 - Research Work Unit Descriptions and Program Charters

4072.11 - Purposes and Standards of Practice

A research work unit description (RWUD) or program charter (PC) is a concise summary of a program's or unit's mission, the problems to be addressed and the reasons for their selection, the proposed approach, planned accomplishments, and staffing and funding needs. They may include one or more "mission problems" where long-term studies are proposed. RWUDs and PCs are dynamic program guides; periodic reviews focus the R&D on high-priority problems and determine if the R&D activity should continue or be terminated.

The assistant station director for R&D or program manager directs the preparation of, or prepares, an RWUD or PC. The assistant station director or program manager and appropriate Washington Office, R&D staff directors should reach agreement on the unit's mission and on the specific problems to be addressed before completing the RWUD or PC. The preferred practice is to engage potential or actual users of the R&D as well as outside scientists in the discussions about future direction. Various formal and informal mechanisms, such as station program reviews, provide recommendations that are used to help Washington Office staffs and the stations reach agreement on priorities and direction of the R&D effort and ensure that the R&D is still needed to address the identified problems.

Research, Development, and Application (RD&A) programs may be established by the Washington Office as well as by stations, and may be located wherever they are deemed appropriate and approved. Washington Office, RD&As are proposed by one or more staff directors and approved by the Deputy Chief for R&D.

4072.12 - Research Work Unit Description and Program Charter Content

In preparing a research work unit description (RWUD) or program charter (PC), provide the following information in the order listed; brevity is important. Form FS-4000-1 is used to prepare the RWUD or PC.

1. Research work unit or R&D program number.
2. Station.
3. Research work unit or R&D program location(s).
4. Research work unit or R&D program title.
5. Project leader or program manager (name, title, and official address).
6. Area of applicability (local, regional, multiregional, national, or international).

7. Estimated duration.

8. Mission. Describe the overall long-range assignment of the research work unit or R&D program.

9. Justification and problem selection. Include in the justification statement a description of the need for the R&D, its relationship to other work, and the potential importance and value of the results when fully developed and applied by users. For each problem, the following questions need to be addressed:

- a. Why is this problem important? What makes it more important than others that could have been selected?
- b. To whom is the problem important?
- c. What net benefit would the clientele and society receive if this problem is solved?
- d. What is the likelihood that the R&D effort would provide a solution to the problem?
- e. Do all the people, facilities, equipment, and funding needed to work on the problem exist?

10. Approach to problem solution. State the approach for each problem in terms that would guide the actual work; provide targets for planned accomplishment of specific segments of the work. Accomplishments should be identified at appropriate points during the time covered by the RWUD or PC and not all clustered at the end of the allotted time.

11. Environmental Considerations. Address in a general way whether the program of research proposed in the RWUD or PC includes research activities that are likely to have a significant effect on the quality of the environment. The study plan is the instrument in which the environmental effects of specific actions will be considered.

12. Staffing Plan. Include a table that shows estimated average scientist-years by problem and year.

13. Costs. Include costs needed per year for each problem, including station overhead.

4072.13 - Review, Approval, and Revision

4072.13a - Review and Approval of Research Work Unit Descriptions and Program Charters

The research work unit description (RWUD) and program charter (PC) must be prepared, reviewed, and approved according to FSM 4072.01, exhibit 01.

The Washington Office, Deputy Chief for R&D, Washington Office, staff directors, and station directors shall maintain files of approved RWUDs and PCs. Original signed copies reside in the Deputy Chief's office and are posted electronically. The Deputy Chief's office provides duplicate signed copies to the stations.

4072.13b - Duration of Research Work Unit Descriptions and Program Charters

Research work unit descriptions are typically approved for a term of up to 5 years although terms from 2 to 10 years are possible. Program charters may be approved for up to 10 years. At the end of the term, the research work unit or program charter is terminated, extended, or rechartered.

4072.13c - Revision of Existing Research Work Unit Descriptions and Program Charters

Revise an existing research work unit description (RWUD) or program charter (PC) whenever a mission, problem, or approach changes significantly during the term of a RWUD or PC, or in response to recommendations of a Deputy Chief's review or a station program review. The assistant station director for R&D or program manager evaluates all RWUDs or PCs periodically for significant changes in assigned problems, financing, personnel, or accomplishment. Minor amendments may be made in ink, but major changes, such as adding or dropping a problem, require revision or a letter to the Washington Office, Deputy Chief for R&D for concurrence. When making a revision, follow the same procedures as required for new descriptions (FSM 4072.1). Assistant station directors for R&D or the program manager should consult with the appropriate Washington Office staff on the revisions, prior to approval by the station director and concurrence by the Deputy Chief for R&D.

4072.2 - Research Problem Analyses

The research problem analysis is a detailed plan for problem solution prepared by the project leader, program manager, or a designated scientist, after approval of unit documentation. Treat problem analyses as dynamic tools for R&D planning, and revise them as priorities and resources change or as the problem changes. Formal problem analyses are optional, but may be required by the project leader or program manager, or assistant station director for R&D. When a problem analysis will not be prepared, the justification and problem selection and approach to problem solution sections of the RWUD or PC (sections 9 and 10) must be longer and more detailed to provide a clearer and more detailed bases for evaluating field unit's

progress towards successful completion of the approved work during mid-cycle and end-of-cycle reviews by station and Washington Office staff.

4072.21 - Content

The project leader, program manager, assistant station director for R&D, and appropriate unit scientists, all work together to reach agreement on the contents of the problem analysis, including the identification and scheduling of studies. The problem analysis records an analysis of pertinent literature, other related research, and review by the assistant station director for R&D, program manager, project leader, unit scientists, and others knowledgeable in the subject area.

The problem analysis should include:

1. Precise definition of the problem (literature review).
2. Description of the proposed R&D that includes:
 - a. To whom is the problem important?
 - b. Specific outcomes and outputs.
 - c. What benefits will the clientele and society receive if this problem is solved?
 - d. What is the likelihood that the R&D effort will provide a solution to the problem?
3. Breakdown of the problem into reasonable study components and the expected R&D cost (time and money).
4. Priority for study components.
5. Environmental analysis considerations (FSM 1950 and FSH 1909.15).
6. Identification of cooperating personnel and facilities available and desirable coordination with other R&D units.
7. When applicable, expected implementation costs and returns to research users.
8. Document, as a separate statement in the problem analysis, the rationale for a long-term study that extends beyond the duration of the RWUD.
9. Technology transfer, intellectual property, commercialization plan.
10. Elevate RWUDs and PCs should be outcome driven. NOTE: One approach to a problem analysis is to develop it as a “state-of-knowledge” document and consider it for publication.

4072.22 - Approval

The assistant station director for R&D or the program manager approves the research problem analysis.

4072.23 - Distribution

After a problem analysis is approved, a copy must be sent to the R&D staff director(s) who recommended the RWUD or PC for approval.

4072.3 - Study Plans

Preparing study plans is mandatory. The scientist who performs the R&D activity usually prepares the study plan. The project leader, program manager, or a colleague may assist the scientist. The study plan is the basic documentation of the R&D planned and is generally the decision document for National Environmental Policy Act consideration. A good proposal for funding from outside sources may serve as the scientific portion of the study plan.

4072.31 - Purpose

A study plan serves the following purposes:

1. Requires a scientist to plan studies or experiments thoroughly and to clearly define objectives and methods;
2. Provides a sound bases for statistical or other peer technical and administrative reviews of the methods that will be used;
3. Begins an administrative record for the study;
4. Ensures that passage of time and changes in personnel do not obscure original objectives and proposed methodology nor data collected early in the study; and
5. Documents the environmental analysis process and may be accompanied by a more detailed environmental analysis or biological evaluation, if appropriate (FSM 1950).

4072.32 - Content

A study plan includes a description of the proposed study or experiment; a review of pertinent literature; a statement of the specific objectives; and a description of the field, laboratory, and office methods planned for use in the research and development. The plan should also include a schedule of activities, an estimate of the cost in scientist-years and funds, responsibility for conducting the study, and data archiving plans. The application of results obtained from the study should be considered in the plan, and means of minimizing environmental health and

safety hazards associated with the R&D identified, along with an evaluation of potential environmental effects (FSM 1950 and FSM 2150).

See the following for the preferred outline of a study plan:

1. Title and study number.
2. Problem reference. Indicate to which problem and what aspects of the problem this study applies.
3. Literature. Review pertinent literature and applicable current studies. A review of USDA Current Research Information System (CRIS) for duplicate research, as well as documentation certifying that this review has been completed, is required for all Forest Service R&D research studies prior to approval and funding.
4. Objectives. State immediate objective as questions the R&D is to answer. State the purpose of the study which includes:
 - a. To whom is the study important, and
 - b. What benefits would the clientele and society receive if the study is successful?
5. Methods.
 - a. Describe the study or experiment, including field, laboratory, and office methods.
 - b. Include a description of the experimental design and the proposed data analysis to test hypotheses.
 - c. Give careful consideration to the selection of experimental variables, including time, place, and treatment.
 - d. Consider the sensitivity of the experiment; for example, its size, number of replications, amount of basic data, refinement in measurement needed, and so forth.
 - e. Describe how to measure variables, record and analyze data, and so forth.
 - f. Provide for development of appropriate software for handling and analyzing data during the study and for application of research results by potential users. Methodology must include documenting metadata and handling and storing data according to Forest Service quality standards.

6. Application of R&D results.

- a. Discuss anticipated application opportunities and methods for presenting expected results.
- b. Identify needs for maintenance and distribution of software for application by users. Include demonstrations, symposia, workshops, publications, and patents.
- c. Clarify involvement by others, such as State and Private Forestry or Extension Service specialists, and indicate anticipated implementation schedules where possible. See FSM 1320 for guidance on application planning.

7. Safety and health.

- a. Identify safety and health hazards associated with the study and describe ways to deal with them during the study.
- b. Refer to general health and safety guidelines where appropriate and document steps to minimize unique hazards.
- c. Consider both those performing the R&D and others affected by it.
- d. Assign responsibilities to ensure follow-through where appropriate.

8. Environmental analysis considerations (FSM 1950). The study plan is the decision document for the National Environmental Policy Act (NEPA) and should include a statement that the research is not likely to include any major environmental effects and, therefore, is covered by a categorical exclusion, or that additional environmental analysis or biological evaluation is needed, and the record of decision by the project leader is based on this analysis.

9. Personnel assignment, time of completion, and cost. Be specific and inclusive.

10. Appendix.

- a. List detailed instructions covering necessary operations, choice of instruments, location of suitable area or materials, details of plot arrangement, and so forth.
- b. Use the study plan as a guide and a useful tool, not as a fixed design to follow regardless of developments.
- c. Revise study plans when necessary. The scientist documents these revisions in establishment records, progress reports, and/or final reports. Use of such plans greatly expedites work and saves time, effort, and money. Study files should also

contain paper copies or a list of electronic links to publications and oral presentations based on the study.

4072.33 - Review

Scientists submit study plans for review. Reviewers may include potential users, subject area experts, biometricians, application specialists, and safety officers, as appropriate.

4072.34 - Approval

Studies must not begin until the project leader or program manager approves the study plan. In the case of long-term studies that are to exceed the life of the research work unit description (RWUD), the project leader recommends and the assistant station director for R&D approves plans for studies. The assistant station director for R&D or program manager shall also approve study plans that are not listed in either the RWUD or the problem analysis before any work begins on them.

Research work units and R&D programs shall maintain files of approved studies. Assistant station directors for R&D and program managers review study plan files during supervisory reviews, but also may maintain study plan files if needed for effective program administration and coordination.

4072.35 - Establishment Records for Studies

Scientists prepare establishment records to document those studies that require long-term installations or continuity of observation. The record should document the following:

1. The date of establishment of plots or experiments,
2. Locations,
3. Details of treatments applied if different from those in the study plan,
4. Costs, and
5. Significant observations that may facilitate later interpretation and analysis.

The scientist conducting the study prepares the establishment record, which is filed at the research work unit or R&D program location. The scientist then sends copies to the responsible assistant station director for R&D or program manager, and the land manager (for example, regional forester, forest supervisor, and district ranger). When long-term studies involve use of State or private land, prepare a cooperative agreement (FSM 4040) that documents the responsibility of the landowner and the station.

4072.4 - Termination of Research Work Units and R&D Programs

The responsible station director, with concurrence of the Deputy Chief for R&D, may discontinue research work units or R&D programs, for reasons such as lack of funds, duplication of efforts, or when they no longer support the goals and objectives of the agency. Section should also include reasons for termination due to results of review

4073 – Research Program Reporting

Stations shall report annually on each research work unit's or R&D program's accomplishments through the USDA Current Research Information System and the R&D Performance Accountability Reporting, including Research Highlights. Other reports on programs within stations, such as those aimed at informing the public about station accomplishments, may be prepared at the discretion of the station director.