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**Forest Service Manual 4000 - Research and Development
Chapter 4080 - Research Administration**

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Responsible Staff:

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

4086.13a: Establishes code, caption, and sets forth direction which describes enhanced safeguards against unauthorized access to and transfer of research technology, as recommended in the USDA Office of Inspector General audit 50701-0002-21.

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4081 - Research Scientist Training

(See FSM 6141).

4081.01 - Policy

While a technical education in a particular field does not necessarily qualify one for research, it is essential to anyone undertaking investigative work. Forest Service research scientists should be encouraged to fulfill the requirements for advanced degrees, and under some circumstances, to undertake postdoctoral study.

4081.1 - Facilitating Advanced Training

Incentives to pursue advanced training should be provided by:

1. Permitting employees to use project material for a graduate thesis whenever it is to the advantage of the Government to do so.
2. Transferring an employee to a position where graduate study can be done simultaneously with project work.
3. Adjusting the employee's workweek to make available time for attending class.
4. Sending members of the research staff to specialized courses at Government expense, when justified.
5. Granting annual leave or leave without pay for course work, as needed.
6. Giving priority to the graduate work project in an employee's annual work schedule.

4081.2 - Annual Advanced Training Report

(See FSM 6141; FSH 6109.41, FSPM ch. 410, subch. 9).

4082 - Research Financing

4082.1 - Use of Operating Funds

Research, Protection and Management (P&M), fighting forest fires (FFF), and Forest Road Program (FRP) and Forest Road Maintenance (FRM) funds are available in varying degrees for timber sales, protection, and construction and maintenance of roads and trails in experimental areas (FSM 6511, FSH 6509.11g).

1. Regular Research Funds.
 - a. Responsibility of Station Directors. (FSM 4070).
 - b. Experiment Station Research Programs. (FSM 4070).
2. Funds for Roads and Trails. (FSM 6511, FSH 6509.11g).
3. Funds for Timber Sales. (FSM 6511).
4. Funds for Buildings on Other Improvements. (FSH 6509.11g).
5. Funds for Protection. (FSM 6511, FSH 6509.11g).

4083 - Research Services

4083.1 - Support Services

The policy is to provide adequate support services at each Station and Research Project Location for the proper conduct of the research program. The Assistant Director for Support Services is responsible for providing or facilitating these services.

1. Scientific Support. Scientific support is given by providing: library services to store and retrieve information and to aid in bibliographic searches; publication services to communicate research results in proper form; biometrics or statistical services to ensure appropriate experimental design and the use of efficient statistical and systems models; and engineering services to ensure adequate laboratory facilities.

2. Technical Support. Technical support is given by providing: specialized work areas, such as laboratories, Experimental Forests and Ranges, and repair shops (including their maintenance); trained laboratory and field technicians; computing and data processing services; information dissemination and visual aids; and technical clerical services.

3. Administrative Support. Administrative support is given by providing: personnel services; financial management and legal consulting; and administrative services to ensure effective procurement and supply, and to provide office equipment, transportation facilities, and records management.

4083.2 - Identification

Insects and mites are identified by Station experts or submitted to specialists as indicated in FSM 4083.21. Fungi are identified by Station experts or submitted to the Center for Forest Mycology Research as indicated in FSM 4083.22.

4083.21 - Insects and Mites

Station entomologists may provide limited services for identifying insects collected within Station boundaries. If these experts are unable to provide identifications, the Project Leader should submit the unidentified material to: Taxonomic Services Unit, Insect Identification and Beneficial Insect Introduction Institute (IIBIII), Building 003, Room 1, Beltsville Agricultural Research Center-West, Beltsville, Maryland 20705.

Users of identification services at IIBIII and other institutions should cite the responsible identifier in their publications and reports. If the name of the identifier cannot be given after the name of the taxon, such as in tables or lists, use a footnote or other means of acknowledgment.

The proper format, as appropriate, follows:

Name of identifier, Systematic Entomology Laboratory, Agricultural Research Service, U.S. Department of Agriculture.

Name of identifier, Department of Entomology, Smithsonian Institution.

List cooperating entomologists at other institutions in a similar format.

Send reprints of publications and other documents that contain IIBIII identifications to the Director, IIBIII, and to the identifier.

Organize and prepare shipments according to IIBIII guidelines to help specialists identify specimens more quickly.

Do not send parasitic Hymenoptera that have been reared from unidentified hosts to IIBIII without approval of the Director, IIBIII, unless the hosts are also sent to IIBIII for identification. To decide whether to accept nonreared, host-indefinite, or non-U.S.A.-related parasitic Hymenoptera, the Institute must know the specific nature of the research being conducted and the relationship of that research to the material in question.

Include with each shipment submitted to the IIBIII, Form NER-625, Identifications Request, for each lot. Obtain the forms and instructions, Form NER-625A, from IIBIII. Label the specimens with the following information: specific locality (nearest post office; county; State; section, township, and range, if known); collector's name; date of collection; name of host (host plant for phytophagous insects, host insect for parasites, other host associations, when known); and voucher number (if appropriate).

If available, include 10-20 or more preserved insect specimens of each species sent for identification; when possible, include both sexes. Submit the immature stages of reared adults, if available; if not, even the cast skins of these stages can assist in identification.

Insect shipments require special handling to prevent damage to specimens during shipment. The Bulletin of the Entomological Society of America, Volume 22, Page 130, provides guidelines.

4083.22 - Diseases

Station pathologists may provide limited identification services for diseases and decay fungi from forest trees and range shrubs collected within Station boundaries. If these experts cannot identify the specimens or cultures, the Project Leader should send them for identification or classification to the Center for Forest Mycology Research at the Forest Products Laboratory. If the specimens cannot be identified by mycologists at the Center, the Center Leader will refer the specimens to other taxonomists specializing in particular groups of fungi in other Federal, State, university, or foreign organizations where they have cooperative relationships.

Notify the Center for Forest Mycology Research and obtain approval to send specimens. The Center Leader shall specify how to package the material for shipment to avoid deterioration of the samples.

The shipper shall ensure that no domestic or foreign quarantine laws, or any other laws regulating the movement of such materials, are violated (FSM 4083.23).

Project Leaders should send only specimen material typical of its class, mature, and possessed of all features and characteristics of taxonomic significance. Include descriptive matter with date and place of collection, collector's name, locally assigned number or their identifying symbol, visual dimensions and colors at time of collection, specific host and part thereof on which found, relative abundance, and brief notes on pertinent environmental factors.

Send recently isolated or transferred cultures only. Allow a sufficient period of growth prior to shipment, to verify their freedom from contaminants, and their establishment and active growth on the substrate.

4083.23 - Shipment of Living Organisms

Shipment of living organisms is controlled by Federal law, and by State law in some states, to prevent distribution of pests to new areas. The receiver shall obtain the necessary permits and labels and provide them to the shipper. Do not ship living organisms without prior approval and include a shipping permit in every shipment.

Persons expecting to receive living beneficial organisms, plant pests, pathogens, or disease vectors should apply for a permit at least 30 days before the expected shipment date. Obtain

the necessary regulations and forms from the Biological Assessment Support Staff, National Program Planning Staff, Animal and Plant Health Inspection Service, USDA, Federal Building, Room 633, Hyattsville, Maryland 20782, or from State regulatory officials. Ask for Plant Protection and Quarantine Form 526, Application and Permit to Move Live Plant Pests and Noxious Weeds.

The following references provide guidelines on importation and movement of living organisms: (1) Boldt, P.E.; Drea, J.J. packaging and shipping beneficial insects for biological control. Plant Protection Bulletin 28: 64-71; 1980. (2) Klingman, Dayton L.; Coulson, Jack R.; Guidelines for introducing foreign organisms into the United States for the biological control of weeds. Bulletin of Entomological Society of America 29: 55-61: 1983.

Introduction or redistribution of beneficial biological organisms (insects or pathogens) is not now regulated. Forest Service personnel involved in research or use of beneficial biological organisms (insects or pathogens) should document introduction, redistribution, and release of living materials on the following forms: AD-941, Biological Shipment Record-- Foreign/ Overseas Source; AD-942, Biological Shipment Record--Quarantine Facility; AD-943, Biological Shipment Record--Non-quarantine. Contact the Insect Identification and Beneficial Insect Introduction Institute, Beneficial Insect Introduction Laboratory (Biological Control Documentation Center), Beltsville, Maryland 20705, for instructions on their use. Use Form AD-14, Request for Supplies, Forms and/or Publications, to request additional copies of these forms.

4083.3 - Forest Service Tree and Range Plant Name Committee

This Committee sponsors the preparation of checklists of the trees of the United States. The chief duties are to provide uniform usage of common names of forest trees and range plants in the Forest Service.

Questions about common names of trees and range plants, as well as proposed changes, may be submitted to the Chairperson, Tree and Range Plant Name Committee, U.S. Forest Service, Washington, D.C. 20250.

4084 - Extramural Research

This section deals with methods of conducting cooperative forestry research. Research external relations are covered in FSM 1580, relations with research advisory committees in FSM 1350, exchange of plant materials in FSM 3400, and relations with other Forest Service units in FSM 1342. Contracts are covered in FSM 6320. Relations with the International Union of Forest Research Organizations (IUFRO) are explained in FSM 1550. Specific instructions for preparing grants and agreements are found in FSH 1509.11, Grants and Agreements Handbook.

4084.01 - Authority

4084.01a - Basic and Applied Research Act of August 4, 1965

(7 U.S.C. 450i). This law gives authority to make grants and cooperative agreements provided that they are for periods no longer than 5 years and the grantee or cooperator keeps records of project costs for examination and audit (FSM 1580).

Grants and cooperative agreements under this act may be awarded to State agricultural experiment stations, colleges, universities, nonprofit and profit research organizations, businesses, and private individuals.

This act authorizes only entire agreements, rather than open ended agreements (FSM 1580) and the whole amount of these agreements is obligated against the fiscal year appropriation that is current when the agreements are signed. Entire agreements may be for as long as 5 years whereas open-ended agreements are for an indefinite time with fiscal amendments.

4084.01b - Forest and Rangeland Renewable Resources Research Act of 1978

(16 USC 1641-1646). This act repeals the McSweeney-McNary Forest Research Act of 1928.

1. Section 3, Research Grants and Cooperative Agreements. Grants and cooperative agreements made under this section are used for renewable resource research on trees and timber management; forest watershed management and rehabilitation; wildlife, range, and fish habitat; forest recreation; forest products and harvesting; forest and atmospheric sciences; forest insects and diseases; forest inventory and analysis; and renewable resources and economics.

2. Section 5, Competitive Research Grants and Cooperative Agreements. This section authorizes competitive grants and cooperative agreements to governmental, public and private agencies; to institutions, colleges, and universities; and to businesses, organizations, and individuals in the United States and in other countries to further research activities authorized in Section 3, Research Grants and Cooperative Agreements.

3. Section 6(a), Advances. This section authorizes the payment of advances to grantees and cooperators. A letter of credit must be used when criteria of FSH 1509.11, ch. 10, sec. 13 apply. However, Forest Service research negotiates reimbursable agreements unless the grantee or cooperator has a reasonable need for an advance.

4084.02 - Objectives

Objectives of the Forest Service extramural research program are:

1. To stimulate and support non-Federal effort in forestry research.

2. To coordinate Federal and non-Federal forestry research programs for greater efficiency.
3. To facilitate, strengthen, and extend Forest Service research activities.
4. To hasten application of research results.
5. To aid and encourage development of forest industries.
6. To strengthen natural resource management.

4084.03 - Policy

Any research the Forest Service is authorized to conduct may be done by others using financial assistance (grants and cooperative agreements) to the extent that funds are available (FSH 6509.11g). Assistance includes transfer, exchange, use, or sharing of information, materials, equipment, personnel, funds, and facilities and means for disseminating research results (FSM 1633) and getting scientific knowledge into practice. Document all forms of assistance by preparing a formal agreement (FSM 1580 and FSH 1509.11).

4084.03a - Contributions by Cooperators (Cost Sharing)

Cost sharing varies from project to project but, as a minimum, each cooperator must contribute at least 20 percent of the estimated direct costs of the research. For purposes of making estimates, determine total direct costs based on individual elements of the research project. These costs must be allowable and in accordance with the principles of the agreement (FSM 1580) and must not be charged or allocated to another Federally funded grant, agreement, or contract. The Forest Service shall not pay a fee or profit to any cooperator. However, the fee or profit normally expected by the cooperating organization may be applied toward meeting their minimum 20 percent contribution.

4084.04 - Responsibility

Station Directors award and administer extramural research agreements. However, any agreement made in the name of the Secretary of Agriculture must be coordinated through the Office of the Deputy Chief for Research and Development for signatures in the Office of the Secretary.

To originate an assistance agreement in another's jurisdiction, the originating Station Directors must determine if a master cooperative agreement already exists and, if so, work under it with the Director of the host jurisdiction to negotiate both an agreement and financial arrangements. If no cooperative agreement exists, Directors may contact a proposed recipient directly but must keep the local Director informed. None of this applies to minor arrangements

such as when an institution offers to pay expenses of a Forest Service employee for a talk or similar service or when cooperative testing is done with a company or industry.

4084.05 - Definitions

Terms used in Grants and Cooperative Agreements are defined in FSM 1580.5.

4084.1 - Extramural Research Cooperative Agreements

Cooperators may receive a portion of the total cost of a research project if appropriate definitions and criteria in FSM 1580.5 and 1580.6 are met.

4084.2 - Cooperative Agreements Involving Disposal of Timber and Forage on National Forest System Lands

For procedures, refer to FSH 1509.11.

4084.3 - Cooperation Involving No Exchange of Funds

A Station Director or designate may negotiate and approve non-monetary cooperative research agreements involving the transfer of something of value such as equipment, use of facilities, or personnel. However, all such agreements must support research activities authorized by the Forest and Rangeland Renewable Resources Research Act of 1978 or the Basic and Applied Research Act of August 4, 1965.

4085 - Good Laboratory Practices

Good Laboratory Practices (GLPs) are standards established by the U.S. Food and Drug Administration and the U.S. Environmental Protection Agency to ensure the quality and integrity of studies submitted to these agencies in support of research or marketing permits, including pesticide registration. The GLP standards specify how data are to be collected, stored, and presented in a standardized manner that allows effective auditing and evaluation. The standards do not regulate the experimental design of a study. Only those studies performed with the intention of submitting the data to the U.S. Food and Drug Administration or the U.S. Environmental Protection Agency need to be conducted under GLP standards. See section 11 of FSH 4090.13 for detailed direction on determining whether a study needs to follow GLP standards.

4085.01 - Authority

(FSH 4090.13, sec. 01, 80.1, and 90.1).

1. The Federal Insecticide, Fungicide and Rodenticide Act, as amended (7 United States Code 136a, 136c, 136f, 136q, and 136v(c)); and related regulations in 40 CFR Part 160, and the

Federal Food, Drug, and Cosmetic Act (21 U.S.C. 346a and 348); and related regulations in 40 CFR Part 160 provide standards for pesticide research that is conducted with the intent of submitting the results to the U.S. Environmental Protection Agency in support of research or marketing permits. (These regulations are set forth in their entirety in FSH 4090.13, section 01, exhibit 01.)

2. The Toxic Substances Control Act (15 U.S.C. 2603); and related regulations in 40 CFR Part 792 provide standards for research on chemicals other than pesticides that is conducted with the intent of submitting the results to the U.S. Food and Drug Administration in support of research or marketing permits.

4085.03 - Policy

4085.03a - Studies Involving Pesticides

If there is intent to submit a study involving pesticides to the U.S. Environmental Protection Agency (EPA) in support of research or marketing permits, ensure that the study adheres to the requirements in FSM 2150, 3500, and 4000; FSH 4090.13; and Title 40, Code of Federal Regulations, Part 160.

4085.03b - Studies Not Involving Pesticides

If there is intent to submit a study involving chemicals other than pesticides to the U.S. Food and Drug Administration in support of research or marketing permits, ensure that the study adheres to the requirements in FSM 2150, 3500, and 4000; FSH 4090.13; and Title 40, Code of Federal Regulations, Part 792.

4085.04 - Responsibility

4085.04a - Deputy Chiefs for Research, State and Private Forestry, and the National Forest System

(FSH 4090.13, sec. 04.1, 80.41, and 90.41). It is the responsibility of the Deputy Chiefs for Research, State and Private Forestry, and the National Forest System to assess Good Laboratory Practice compliance in their respective areas through Deputy Chief's reviews (FSM 1410.43b). In addition, it is the responsibility of the Deputy Chief for Research and Development to appoint a manager of the national Quality Assurance Unit (FSH 4090.13, sec. 80.4).

4085.04b - Regional Foresters, Station Directors, Director of the Forest Products Laboratory, and Institute Director

It is the responsibility of the Regional Foresters, Station Directors, the Director of the Forest Products Laboratory, and the Institute Director to:

1. Implement Good Laboratory Practices standards at their level, when required (FSH 4090.13, sec. 04.2 and 90.43), and

2. Appoint a manager for the local Quality Assurance Unit.

4085.04c - Line Officers

(FSH 4090.13, sections 04.3, 20.41, 51.04, 70.41, and 80.43). It is the responsibility of line officers to implement, support, and review Good Laboratory Practice standards under their jurisdictions.

4085.04d - National Quality Assurance Unit Manager

It is the responsibility of the National Quality Assurance Unit manager to:

1. Provide guidance and training to Forest Service personnel involved in Good Laboratory Practice (GLP) studies.
2. Monitor and assess compliance of GLP studies (FSH 4090.13, sec. 04.4, 80.42, and 90.42).
3. Schedule and implement facility inspections and data audits for facilities conducting Good Laboratory Practices research (FSH 4090.13, sec. 91.1).

4085.04e - Study Director

(FSH 4090.13, sec. 04.5, 70.42).

4085.05 - Definitions

(FSH 4090.13, sec. 05).

Good Laboratory Practices. A set of standards established by the U.S. Food and Drug Administration and the U.S. Environmental Protection Agency to ensure the quality and integrity of studies submitted to them in support of research or marketing permits, including pesticide registration.

Marketing Permit. A document from the U.S. Environmental Protection Agency permitting sale of a pesticide.

Pesticide. Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, including those substances or mixture of substances intended for use as a plant regulator, defoliant, or desiccant. This definition includes microbial agents used for biological control but does not include pest management alternatives with pesticide-

like materials, such as pest baits, parasites, predators, traps, trap crops, or the release of sterile males.

Research Permit. A document from the U.S. Environmental Protection Agency granting approval to test a pesticide.

4085.06 - References

(FSH 4090.13, sec. 06).

4086 - Scientific Ethics

Advances in science, engineering, and all fields of research depend on the reliability of the research record. Sustained public trust in the research enterprise also requires confidence in the research record and in the processes involved in its ongoing development. Allegations of research misconduct erode public trust in the reliability of the research record and credibility of research and development results.

4086.01 - Authority

The general provisions of the Forest and Rangeland Renewable Resources Research Act of 1978 (16 U.S.C. 1641-1648) authorize the Secretary of Agriculture to conduct, support, and cooperate in investigations, experiments, tests, and other activities deemed necessary to obtain, analyze, develop, demonstrate, and disseminate scientific information about protecting, managing, and utilizing forest and rangeland renewable resources in rural, suburban, and urban areas. Under regulations at Section 2.60(a) of Title 7 of the Code of Federal Regulations (7 CFR 2.60(a)), the Secretary has delegated this authority to the Chief.

The Executive Office of the President, Office of Science and Technology Policy, issued a Federal Policy on Research Misconduct on December 6, 2000 (65 FR 76260-76264). The policy directs Federal agencies to bring their existing procedures for dealing with research misconduct into conformance with the new policy and to establish new procedures to implement the policy, as needed.

In addition, the U.S. Office of Government Ethics has issued the Standards of Ethical Conduct for Employees of the Executive Branch, at 5 Code of Federal Regulations, Part 2635 and 5 USC 7321-7326 which addresses the standards of conduct as well as principles of ethical conduct and political activities that each employee must adhere to. These authorities are independent from and in addition to this directive.

The authorities for processing allegations of administrative misconduct, including scientific misconduct, are contained in 5 Code of Federal Regulations 752 (Adverse Actions). These authorities have been delegated to the Agency. Officials responsible for exercising these

authorities in processing allegations of scientific misconduct should obtain advice and guidance from an employee relations specialist in the Labor Management and Employee Relations Branch of the Human Resources Management Staff throughout the process.

4086.02 - Objectives

The management objectives to be achieved through compliance with the code of scientific ethics and response to allegations of research misconduct are to:

1. Protect the integrity and credibility of Forest Service research and development activities.
2. Clarify expectations about ethical principles for research and development activities.
3. Set norms of behavior for agency employees and research and development cooperators.
4. Provide a process for handling allegations of research misconduct that protects the rights of both the individual(s) making the allegation and the individual(s) alleged to have committed research misconduct.

4086.04 - Responsibilities

4086.04a - Washington Office

1. Deputy Chief for Research & Development. The Deputy Chief is responsible for defining the expectations and norms of behavior consistent with the Federal policy on research misconduct and establishing a Code of Scientific Ethics that applies to the agency's research and development activities and those of its cooperators. The Deputy Chief also is responsible for appointing an Ethics Panel to analyze the findings of any investigation regarding scientific misconduct by a national headquarters employee and to recommend appropriate action.
2. Staff Director for Human Resources Management. The Staff Director is responsible for developing training on the Code of Scientific Ethics and on the process for handling allegations of research misconduct, for investigating allegations of scientific misconduct made against National Headquarters employees, and for providing general guidance and advice to Stations responding to allegations of scientific misconduct against Station employees and/or research and development cooperators.
3. Staff Director for Science Policy, Planning, Inventory, and Information. The Staff Director is responsible for serving as the scientific advisor to the Human Resources Management Staff on the Code of Scientific Ethics and on the process for handling allegations of scientific misconduct. The Staff Director, or designated alternate, is responsible for providing advice and counsel to the Human Resources Management investigator assigned to respond to

allegations of scientific misconduct against a National Headquarters employee. The Staff Director is also responsible for providing general guidance and advice to Stations on responding to allegations of scientific misconduct against Station employees or research and development cooperators.

4086.04b - Stations

Station Directors are responsible for:

1. Responding to allegations of research misconduct levied against the following:
 - a. Their employees;
 - b. A cooperator who receives funding from one of the Station's research work units programs; and/or
 - c. A Forest Service unit outside the Research & Development Deputy Area when the allegation of misconduct is made by a station employee.
2. Ensuring new employees receive training in scientific ethics as part of orientation activities and that periodic refresher training sessions are conducted for current employees.
3. Ensuring that Research and Development cooperators are made aware of the Federal policy on research misconduct, responsibilities under that policy, and the process available for responding to allegations of misconduct.

4086.04c - Ethics Panel

The Deputy Chief for Research and Development or a Station Director whose employee or collaborator is accused of scientific misconduct may appoint an Ethics Panel after an inquiry and/or investigation determines that there is some substance to the allegation or if management has reasonable suspicion that a specific act of misconduct has occurred. If appointed, an Ethics Panel is responsible for reviewing investigative findings, offering advice regarding the significance of the allegation and findings, and making recommendations for appropriate actions to the Proposing Official.

4086.05 - Definitions

Conflict of Interest. A situation in which an individual's personal interest interferes with the objectivity of actions or judgments. These include situations where actions or judgments are affected by opportunities for career advancement, professional prestige, personal allegiances or animosities, or pecuniary gain.

Duplicative Publication. Publication of findings as original in more than one publication outlet. Prior publication of data should always be referenced in later publications. Simultaneous publication of results, such as in conference proceedings and a journal article, is not duplicative publication if both outlets and the author(s) have mutually agreed to the simultaneous publication of the results.

Ethics Panel. An Ethics Panel consists of six individuals--a panel chair, three researchers, one professional support employee, and a Human Resources Management employee familiar with administrative investigations. The panel chair will be an individual that is not in the line of authority over the person being investigated, usually an Assistant Station Director, Washington Office Staff Director, or person holding an equivalent position. One of the researchers should be a subject matter expert. The professional support employee who serves on a panel is an individual not assigned to a research position but whose work supports one or more researchers. Neither the researchers nor the professional support employee appointed to the panel will be in the line of authority beneath the individual(s) whose conduct is being investigated. To assure independence of the process, at least half the panel members should be selected from outside the research station responding to the inquiry.

Fabrication of research information. Making up data or results and recording or reporting them.

Falsification of research results. Manipulating research materials, equipment, processes, or changing or omitting data or results in such a way that the research is not accurately represented in the research record.

Plagiarism. Plagiarism means the appropriation of another person's ideas, processes, results or words without giving appropriate credit, including those obtained through confidential review of others' research proposals and manuscripts.

Professional Misconduct. Includes, but is not limited to, exploitation of research associates, conferring or denying authorship inappropriately, duplicative publication, misstating one's research credentials, failing to retain significant data for a reasonable period, unauthorized use of data, or failing to publish significant data in a timely manner without reasonable cause.

Proposing Official. The official who prepares the proposal for correction action based on information received from the responsible Human Resources Specialist and the investigator, and the advice and recommendations from the Ethics Panel, if one was appointed.

Research Misconduct. Fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. It does not include honest error or differences of professional or personal opinions.

Research Record. The record of data or results that embody the facts resulting from scientific inquiry, and that includes, but is not limited to, research proposals, study plans, field and laboratory records, progress reports, abstracts, theses and dissertations, oral presentations, internal reports, journal articles, and web sites. The research record exists in a combination of physical and electronic formats.

Scientific Misconduct. Includes both research misconduct and professional misconduct. It does not include instances of honest error, honest differences of opinion, differences in interpretation of scientific data, or disagreements involving experimental design.

Subject Matter Expert. An employee who has at least 10 years of experience as a researcher with the Forest Service and who can serve as one of the research members of an Ethics Panel, if a panel is appointed.

4086.1 - Forest Service Research and Development Code of Scientific Ethics

The Code of Scientific Ethics established in this section applies to any Forest Service employee who participates in a study funded, in whole or in part, by the Research and Development mission area or who participates in an administrative study that seeks to demonstrate or apply research results in a specific management situation within the National Forest System (FSM 1990), research experimental forests (FSM 4060), or on state or private lands if funded by the Forest Service for research demonstration purposes.

4086.11 - Purpose and Intent

The Code of Scientific Ethics describes ethical conduct expectations and norms of behavior for scientific research and development activities. Rules and regulations pertaining to such matters as falsification of government documents, sexual harassment, civil rights, nepotism, disclosure of financial interests, conflict of interest, outside employment and the prohibitions against certain political activities are independent from and in addition to the Forest Service, Research & Development, Code of Scientific Ethics.

The intent of the code is to encourage ethical conduct in science as a fundamental theme in Forest Service research and development activities. Following the principles enumerated in the code, establishes a clear understanding of expectations regarding scientific ethics and fosters a genuine commitment to fairness, accuracy, and integrity in the conduct of scientific research and development. Exhibit 01 to this section sets out the Forest Service Research and Development Code of Scientific Ethics.

4086.11 - Exhibit 01

Forest Service Research and Development Code of Scientific Ethics

Forest Service Research and Development Code of Scientific Ethics

- I dedicate myself to the pursuit, promotion, and advancement of scientific knowledge.
- I will conduct, manage, judge, and report scientific research honestly, thoroughly, and without conflict of interest.
- I will prevent abuse of all resources entrusted to me and endeavor to treat human and animal subjects humanely, following established guidelines where they are available.
- I will not willfully hinder the research of others nor engage in dishonesty, fraud, deceit, misrepresentation, or other professional misconduct.
- I will welcome constructive criticism of my personal scientific research and offer the same to my colleagues in a manner that fosters mutual respect amid objective scientific debate.
- I will recognize past and present contributors to my research and will neither accept nor assume unauthorized and/or unwarranted credit for another's accomplishments.
- I will claim authorship for a research product only if I am willing to be held responsible for both the interpretation of the data and the conclusions as presented.
- I will claim authorship for a research product only if I have made a major intellectual contribution (as part of conception, design, data collection, data analysis, or interpretation) and made a significant contribution to its preparation (write, review, or edit).
- I will not publish or use original ideas, research data, or unpublished findings of others without written approval.
- I will refrain from duplicative publication of the same research findings as original.
- I will show appropriate diligence toward preserving and maintaining resources, such as data records that are entrusted to me.

(from FS-686, dated August 2000)

4086.12 - Relationship of Professional Activities to Personal Gain

Scientific honesty and integrity of Forest Service researchers and developers are in the public interest and must be placed ahead of personal gain or allegiance to individuals or organizations. Scientists are obligated to be thorough in documenting their work to ensure that details of their methods are described adequately, in such manner that other scientists can reproduce their results.

Researchers are expected to interact with other Forest Service researchers, university researchers, commercial enterprises, trade associations, and public interest groups. A researcher's interpretation of research results, recommendations to others, and review of other researchers' works or proposals, has the potential to be influenced by these individuals or entities. Furthermore, a researcher's personal prestige may depend on the perceived importance of his/her field of investigation and on the scientific community's acceptance of certain theories, paradigms, or data sets from within that field (sometimes those of the individual researcher or those of the researcher's colleagues). Even when a Forest Service researcher believes she or he is acting objectively, circumstances may exist where others may perceive that there is a conflict of interest. In these cases, researchers are advised to document these relationships and to act in an objective fashion.

Research of other scientists may be hindered by actions such as biased review of research proposals or manuscripts submitted for publication, physical disruption of another scientist's experiments, denial of access to resources or data needed by scientists to duplicate research or verify its accuracy. Researchers are expected to allow other researchers access to resources that have been entrusted to them, unless doing so would compromise the scientific validity or their research or substantially interfere with its performance. Reasonable judgments that specific actions would compromise the validity of research or interfere with its performance depend on individual circumstances. Denying other researchers access to research resources or data from published studies, providing biased reviews, or physically disrupting another researcher's experiments for any reason other than responding to an emergency is unethical.

4086.13 - Safeguarding Resources

Forest Service personnel are expected to prevent abuse of resources used in the conduct of scientific research. Animals used for research purposes are public resources. Forest Service employees are expected to obey public laws concerning humane treatment of research animals. While the primary existing law and Federal regulation (Pub.L. 99-198 and 9 CFR part 3) primarily apply to treatment of laboratory animals, most Forest Service research involves animals in the wild. Few statutory regulations or guidelines exist concerning humane treatment of animals in the wild. Researchers should be aware of and abide by any guidelines regarding humane treatment of wild animals in research studies that are promulgated by professional wildlife or scientific societies.

Data and study records are key resources that must be appropriately safeguarded. Researchers have the responsibility for presenting and maintaining information so that other researchers can reproduce their work and/or evaluate its validity. A researcher should be prepared to accurately and briefly describe methodology in manuscripts and to provide additional details on request. Likewise, researchers should maintain raw data for reasonable periods (at least 5 years) after publication of results, and if another researcher asks for the data set or a subset to evaluate its validity, provide it promptly.

The study file is the permanent possession of the unit to which the researcher or developer is assigned. When an employee departs the unit to take another job or through retirement, arrangements may be made by the former supervisor for the employee/retiree to take with her/him **duplicates** of some or all of the information contained in the study file. Original documents must always remain with the Forest Service.

Research staff should not modify, dismantle, or discard research materials, plots, or apparatuses of other researchers with few exceptions: permission was granted by the other researchers; the resources were abandoned; or the items pose an imminent safety hazard. Data gathered by others should also be treated with respect and should not be discarded unless it is objectively judged as having no scientific validity. Determination of scientific validity should not be made without consulting the individuals who gathered it. Inquiry concerning whether research resources have been abandoned is a necessary professional courtesy.

4086.13a - Unauthorized Access to and Transfer of Research Technology

The Forest Service hosts visiting scientists to conduct research at its laboratories and must work to protect this research and technology from threats, including foreign Governments seeking to benefit inappropriately from the findings of this research. Hosting units, particularly research laboratories, are required to follow established controls to prevent the unauthorized access to, and transfer of, any research data and technology to foreign countries by ensuring that visiting non-Forest Service scientists' access to facilities and equipment is removed and that key access is terminated at the conclusion of their service. Hosting units must collect all Forest Service-issued keys and equipment and document its collection on an official offboarding checklist developed and maintained by HRM and retained for a period of six years before it is discarded, per FSM 6230 (Records Creation, Maintenance, and Disposition).

4086.14 - Responsible Authorship

Scientific knowledge is cumulative and is built on the contributions of many scientists over many years. Recognition often takes the form of credits in a publication through an acknowledgement, citation, or co-authorship. Therefore, researchers must appropriately credit another researcher's work when it has influenced a manuscript.

Individuals shall not claim rights to authorship and its associated benefits without having made a substantial intellectual contribution to the research or being willing to accept the professional responsibilities tied to authorship. Manuscripts with multiple authors reflect the creative inputs of all the authors. In complex studies, individual authors may not be able to ascertain the accuracy of every detail of the work conducted by their coauthors. In these situations, individual authors are not expected to be responsible for every technical detail of the work performed by coauthors but should be able to fully explain and defend the manuscript's major conclusions.

Researchers may serve important roles as facilitators of research and development studies by providing administrative support, by attracting and directing financial support, or by virtue of their reputation or position facilitating cooperative relationships with other research institutions. None of these roles constitutes an intellectual contribution to the published research worthy of claiming authorship. Likewise, a junior scientist should not add the name of an established scientist to a manuscript prepared by the junior scientist to help ease a manuscript or grant proposal through the peer review process. Researchers whose names are listed as coauthors of manuscripts or proposals must have made a substantial intellectual contribution to the research and significant contributions to the preparation of the report.

An author shall not engage in the practice of publishing the same research or identical manuscripts in different outlets for the primary purpose of increasing the number of publications attributed to the researcher. This does not suggest that it is inappropriate to publish more than one manuscript based on a single piece of research. In some cases, the same research may be of interest to separate audiences having different technical specialties or to journals having different readerships. In order to make the information readily available to these different audiences, the responsible author will prepare different manuscripts whose style, emphasis, and/or scope are tailored to the specific interests of the different audiences. Also, during the execution of a study, data of different types may be collected. Often, it is infeasible to report all the data or analyses performed during a given study in a single publication outlet because of limitations on the length of manuscripts. Preparing a sequence of manuscripts that each report on a major segment of the data is ethical, even if some of the data are included in more than one manuscript for clarity. However, other publications in the sequence should be cross-referenced and earlier publications should be referenced in subsequent publications wherever possible.

4086.15 - Protecting Intellectual Property Rights

Theft of ideas is plagiarism of no less importance than theft of data, unpublished findings, or quoting text without appropriate citation. Permanent damage to the research record can occur once stolen intellectual property is published; once this occurs it may be impossible to correct the record to properly identify the true source.

Scientists who act as reviewers of the manuscript or proposal may not use those ideas in their own research or development activities until the ideas are revealed to the public via publication or until the author of the manuscript or proposal grants. The only certain way to obtain official permission is in writing. If permission is granted, stipulations may prescribe how the ideas or information may be used and how credit shall be given. Failing to follow those stipulations may constitute research misconduct.

Research supervisors occasionally make oral presentations at meetings of intermediate data or results of work by scientists they supervise. This should only be done with the subordinate's written permission and knowledge and with full credit given.

4086.15a - Public Disclosure of a New Discovery

Patents and licenses are formal mechanisms for protecting the intellectual property rights of researchers. New discoveries made by Forest Service, Research and Development employees may be patentable, and if a patent is issued and licensed, employees share in royalty payments.

The first public disclosure of a new discovery is a key event for the purpose of granting a patent. Public disclosure may be through a journal article or an event far less formal, such as oral remarks at a conference. The initial public disclosure has important and different impacts for obtaining a patent in the United States compared to a patent in a foreign country. For a patent in the United States, the initial public disclosure initiates a one-year period in which the patent application must be filed. If a patent application is not filed within one year of the initial public disclosure of the new discovery, the ability to obtain a patent on the discovery in the United States is lost forever. For a patent in a foreign country, the patent application must be filed **before** the initial public disclosure. Once a new discovery is publicly disclosed; very few foreign countries will issue a patent on a new discovery. Researchers should consult the Forest Service Patent Advisor before the initial public disclosure to determine if a new discovery is potentially patentable and protect the intellectual property rights inherent in the discovery.

Disclosure of another individual's new discovery triggers unalterable processes pertaining to domestic and foreign patent rights. Deliberate disclosure of someone else's new discovery before they are prepared to do so is unethical; it may be construed as an intentional violation of the person's intellectual property rights. Federal government contractual obligations may also be violated with a premature disclosure.

Inadvertent disclosure of a new discovery will trigger the one-year window for applying for a patent in the United States and also will very likely render it impossible to patent the discovery overseas. The most likely cause of inadvertent disclosure is when making oral remarks at a meeting. It is especially important that all the researchers involved in cooperative research project understand the statutes and regulations regarding initial public disclosure and take steps to avoid talking about potentially patentable results before a patent application is filed. Further, where cooperative research is conducted under the auspices of a Cooperative Research and Development Agreement (CRADA), there may be stipulations in the CRADA that prohibit initial public disclosure of results without the written concurrence of all the parties to the agreement. Inadvertent disclosure may not only eliminate foreign patent rights, it may subject the individual(s) making the disclosure to legal action for violating the CRADA stipulations.

4086.15b - Respecting Intellectual Property Rights in Special Situations

Special situations are created by the untimely death, permanent disability, or changes in employment of a researcher (for example, to a non-research position or retirement) who still has work in progress. In most cases, supervisors or colleagues may take steps to make the unpublished ideas, data, and/or findings available to the public. In doing so, the researcher who originated the ideas, data, and/or findings should be clearly identified through co-authorship. Senior authorship by a deceased or incapacitated scientist may be appropriate and determined in the same way as for active scientists. This should not be confused with ghostwriting--writing for and giving credit of authorship to another person who hires him/her to do so--which is unacceptable for a researcher.

Speeches and papers that are not scientific papers or presentations are outside the scope of this directive. For example, researchers or developers may occasionally write speeches for agency officials on programmatic or policy issues, functioning as anonymous authors.

4086.2 - Findings of Scientific Misconduct

A finding of scientific misconduct (research and/or professional misconduct) requires that:

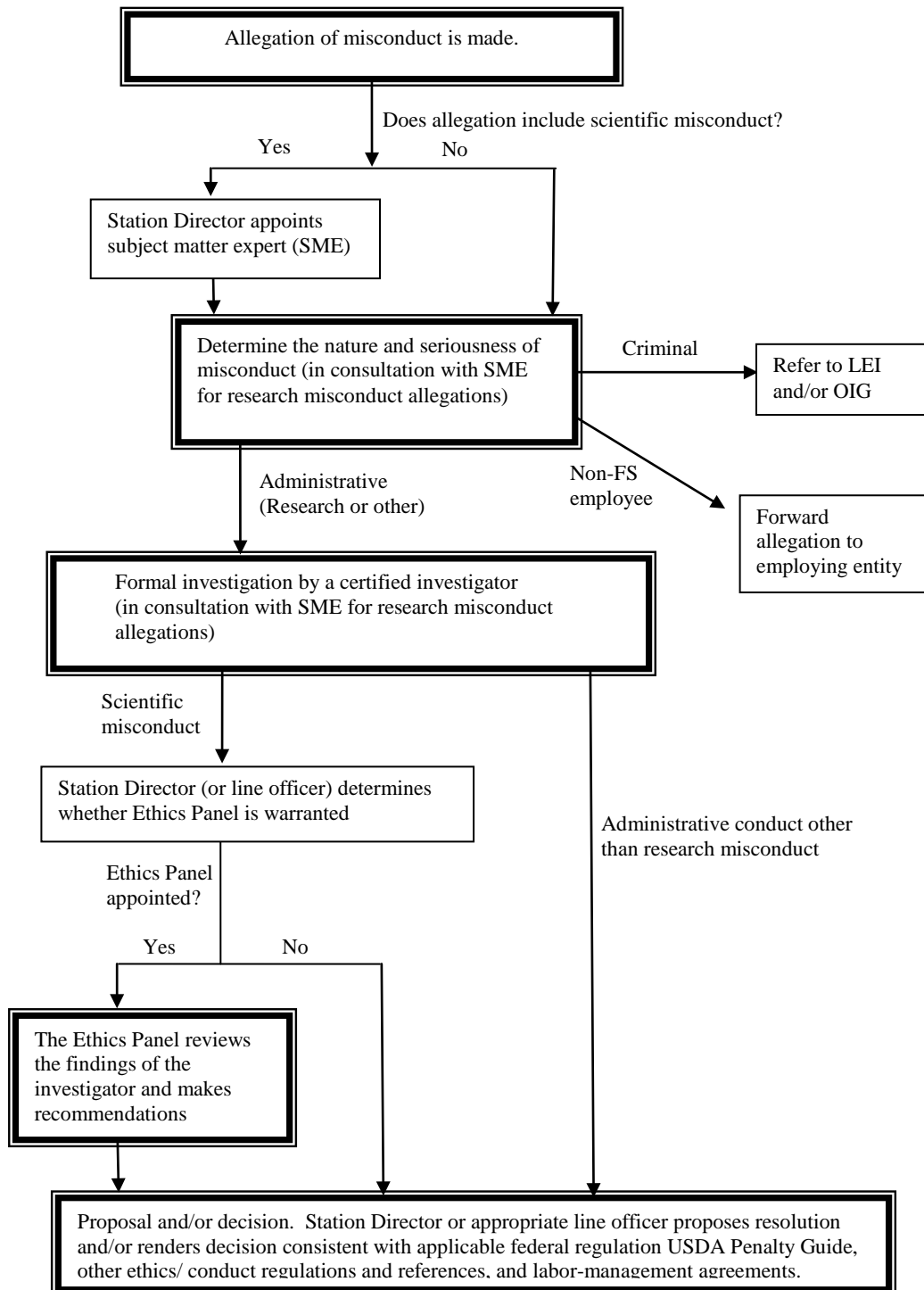
1. There be a significant departure from accepted practices of the relevant research community;
2. The misconduct be committed intentionally, or knowingly, or recklessly; and
3. The allegation be proven by a preponderance of evidence.

4086.3 - Process for Handling Allegations of Scientific Misconduct

Use the 5-step process outlined in FSM 4086.31 to address allegations of scientific misconduct. Exhibit 01 to this section sets out the process. This process derives its authority from 7 Code of Federal Regulations 752 (Adverse Actions) and is consistent with the normal process used to handle other forms of administrative misconduct.

An employee relations specialist will be instrumental in providing advice and guidance to the responsible official. As part of the process, the employee relations specialist will consult with appropriate subject matter experts and the responsible official may decide to convene an Ethics Panel as part of the process. The Station/Director or appropriate line officer will be the deciding official on the resolution of all administrative disciplinary cases including determinations of no misconduct.

4086.3 - Exhibit 01



4086.31 - The Five Step Process

The following 5-step process governs the Forest Service process for handling allegations of scientific misconduct.

1. Report of misconduct. An allegation of scientific misconduct may be made to any Forest Service supervisor or manager. An employee relations specialist should be designated as the initial point of contact for anyone receiving an allegation of misconduct. When an allegation of scientific misconduct has been made, the Station Director will appoint a subject matter expert (as defined in FSM 4806.04) to assist as described below.

2. Determine the Seriousness and Type of Misconduct. The Employee Relations Specialist, in consultation with the subject matter expert, will conduct an initial inquiry into the allegation make one of the following five recommendations:

- a. Determine that the allegation does not justify further investigation.
- b. Determine that the allegation is a criminal matter. Refer the allegation to a Forest Service Law Enforcement Investigator or the USDA Office of the Inspector General for investigation.
- c. Determine that the subject of the allegation is not a Forest Service employee. If so, forward the allegation to the responsible official at the research institution that employs the subject (FSM 4086.33b). Inform the Director of the Station that is funding the research that the allegation has been forwarded to the institution.
- d. Determine that the subject of the allegation is a Forest Service employee and the matter is appropriately handled as an Administrative Misconduct matter that is not a matter of scientific misconduct. Normal administrative procedures are then followed for investigation and discipline per Forest Service, Department of Agriculture, and Office of Personnel Management regulations and union contracts, as applicable.
- e. Determine that the subject of the allegation is a Forest Service employee and the matter is an Administrative Misconduct matter that is best handled as a matter of scientific misconduct. Apply the remaining three steps in the process.

3. Investigation. The fact-finding phase of the formal investigation is conducted by a certified investigator who is assisted by the employee relations specialist and subject matter expert.

4. Analysis. If the Station Director or appropriate line officer deems a panel of scientists is necessary to review the allegations of misconduct, s/he may appoint an Ethics Panel. If a determination is made that an Ethics Panel is not necessary, the administrative misconduct process will be followed.

Should an Ethics Panel be requested, a subject matter expert will be one of the three researchers named to the panel. The Ethics Panel reviews the findings of the investigator and makes recommendations to the Station Director or appropriate line officer and the Human Resources Specialist regarding the penalty, resolution, and/or corrective action. To assure the independence of the process, at least half the panel members should be selected from outside the research station responding to the inquiry.

5. Administrative Action Process. The Station Director or appropriate line officer receives the Ethics Panel proposal, reviews it, and decides what action to take, based on Forest Service Delegation of Authorities, Federal regulations, and labor-management provisions.

4086.32 - Guidelines for Fair and Timely Procedures

1. Safeguards for Informants. Safeguards for informants give individuals the confidence that they can bring allegations of scientific misconduct made in good faith to the attention of appropriate authorities or serve as informants to an inquiry or an investigation without suffering retribution. Safeguards include protection against retaliation for informants who make good faith allegations, fair and objective procedures for the examination and resolution of allegations of scientific misconduct, and diligence in protecting the positions and reputations of those persons who make allegations of scientific misconduct in good faith.

2. Safeguards for Subjects of Allegations. Safeguards for subjects of allegations give individuals the confidence that their rights are protected and that the mere filing of an allegation of scientific misconduct against them will not bring their research to a halt or be the basis for other disciplinary or adverse action absent other compelling reasons. Other safeguards include timely written notification of subjects of the allegations regarding substantive allegations made against them; a description of all such allegations; reasonable access to the data and other evidence supporting the allegations; and the opportunity to respond to allegations, the supporting evidence and the proposed findings of scientific misconduct, if any. Safeguards must include:

- a. Objectivity and Expertise. To serve as a Subject Matter Expert and/or as a member of an ethics panel, an individual must be free from conflict of interest and have the appropriate expertise and objectivity. All individuals selected to serve will make every effort to ensure fairness throughout all phases of the process.

b. Timeliness. Reasonable time limits to conduct the inquiry, investigation, analysis, and administrative action process, with allowances for extensions where appropriate provide confidence that the process will be well managed.

c. Confidentiality During the Inquiry, Investigation, and Decision-making Processes. To the extent possible consistent with a fair and thorough investigation and as allowed by law, knowledge about the identity of subjects and informants is limited to those who need to know. Records maintained by the agency during the course of responding to an allegation of scientific misconduct are exempt from disclosure under the Freedom of Information Act to the extent permitted by law and regulation.

4086.33 - Administrative Action Process Options

The administrative actions available depend on whether or not the subject of the allegation is a Forest Service employee or a research cooperator employed by someone else.

4086.33a - Subject of Allegation is a Forest Service Employee

The Ethics Panel applies the USDA Penalty Guide, the equivalency table (ex. 01), and other ethics/conduct regulations and references to develop their recommendations regarding penalty, resolution, and/or corrective action.

4086.33a - Exhibit 01

Equivalency Table

USDA Discipline Guide and Scientific Ethics Code

Scientific Ethics Misconduct		Administrative Misconduct	Penalty for First Offense	Penalty for Subsequent Offense
Inappropriate authorship	→	False statement or misrepresentation of material facts or documents in connection with an official matter. Unauthorized use, removal, or possession of a thing of value belonging to another employee or a private citizen.	Letter of reprimand to removal Letter of reprimand to removal	Removal Removal
Falsification of data	→	False statement, knowingly and willfully making an incorrect entry on an official document, or approving an incorrect official document.	Letter of reprimand to removal	14-day suspension to removal
Conflict of interest in review/comment on manuscripts or proposals	→	Unethical or improper use of official authority or credentials.	Letter of reprimand to removal	Removal
Misrepresentation of credentials and/or accomplishments	→	False statement, misrepresentation, falsification, or concealment of material facts or documents in connection with an official matter, including an investigation.	Letter of reprimand to removal	Removal
Unwarranted credits for another's accomplishments	→	Unauthorized use, removal, or possession of a thing of value belonging to another employee or private citizen.	Letter of reprimand to removal	Removal
Use of another's ideas without approval	→	Unauthorized use, removal, or possession of a thing of value belonging to another employee or private citizen.	Letter of reprimand to removal	Removal

(USDA DPM-751, Appendix A) (This table covers the most common cases and is not all inclusive.)

4086.33b - Subject of Allegation is Not a Forest Service Employee

Although the Forest Service has the ultimate oversight authority for cooperative research funded by the agency, cooperating research institutions bear primary responsibility for prevention and detection of research misconduct and professional misconduct and for the inquiry, investigation, and adjudication of research misconduct alleged to have occurred in association with their own institution. However, at any time the Forest Service may proceed with its own inquiry or investigation. Circumstances when the Forest Service may elect not to defer to the research institution may include, but are not limited to, the following:

1. The Forest Service determines that the institution is not prepared to handle the allegation in a manner consistent with the published Federal policy (65 FR 76260-76264, dated December 6, 2000).
2. Forest Service involvement is needed to protect the public interest, including public health and safety.
3. The allegation involves an entity of sufficiently small size (or an individual) that the entity cannot reasonably conduct the investigation of itself.

After reviewing the record of the investigation, the institution's recommendations to the institution's adjudicating official, and any corrective actions taken by the research institution, the responsible Station Director will take additional oversight or investigative steps, if necessary. Upon completion of the review, the Station Director will take appropriate administrative action in accordance with applicable laws, Forest Service and Department of Agriculture regulations, and policies. When the Station Director has made a final determination, the Director will notify the subject of the allegation of the outcome and inform the research institution regarding the Director's disposition of the case. The Forest Service finding of research misconduct and the Forest Service administrative actions can be appealed pursuant to applicable agency procedures.

4086.33c - When Another Federal Agency is Involved

A lead agency should be designated to coordinate responses to allegations of research misconduct when more than one agency is involved in funding activities relevant to the allegation. The Deputy Chief for Research and Development, or the Deputy Chief's designated official, shall consult with the head of the other agency, or designated official, and mutually agree on which agency should take the lead. Each agency may implement administrative actions in accordance with applicable laws, regulations, policies, or contractual procedures.

4086.33d - When Multiple Forest Service Research Stations Are Involved

A lead Station should be designated by the Deputy Chief for Research and Development to conduct the process for handling the allegation. In the interest of fairness, the Deputy Chief may designate a lead Station that is not one of the Stations funding the research activities in which the allegation of scientific misconduct is alleged to have occurred. In this case, the Ethics panel Chair will report the panel's recommendations directly to all the Station Directors whose employees are involved.