

**USDA Forest Service Research & Development**

**Code of Scientific Ethics**

**July 20, 2000**

## Contents

Preamble to Code of Scientific Ethics.....	1
Forest Service Research & Development Code of Scientific Ethics.....	3
Supporting Materials for the Code of Scientific Ethics.....	9
Handling Allegations of Scientific Misconduct.....	11
Equivalency Table.....	12
Research Integrity Panel Policy on Research Misconduct.....	13

## **Preamble to Code of Scientific Ethics**

### **The Code**

This code has been developed by a committee of scientists in USDA Forest Service Research & Development (FS R&D) after feedback from colleagues and extensive research on science ethics. The code is based on the Code of Scientific Ethics of the USDA Agricultural Research Service<sup>1</sup>, but has been modified for application to the FS R&D organization by a team of Forest Service employees.<sup>2</sup> The Code is a tool for self-regulation.

In late 1998, responding to a request from the Forest Products Laboratory Partnership Council, senior executives of FS R&D asked a team of agency employees to gather existing official statements and documents concerning the ethical conduct of scientific research and development within the Forest Service. The objective was to raise the level of awareness within FS R&D about scientific ethics and to help diminish the likelihood that future breaches of scientific ethics would occur. A corollary was to help educate collaborators and clients about ethics expectations, so they too could avoid potential problems.

The purpose of this Code is to describe ethical conduct in scientific research and development activities. The Code applies specifically to the conduct of scientific investigation and reporting. It does not replace any law or regulation pertaining to employee ethics and conduct issues that are not unique to the conduct of scientific research and development. Administrative rules and laws pertaining to such things as falsification of government documents, sexual harassment, civil rights, gifts, nepotism, disclosure of financial interest, conflict of interest, or outside employment are neither altered nor diminished in importance by the existence of this Code.

The Code should help encourage ethical conduct in science as a fundamental theme in FS R&D activities. The intent of the Code is to foster a genuine commitment to fairness, accuracy, and integrity in the conduct of scientific research and development by establishing a clear understanding of expectations regarding scientific ethics. All individuals should feel that they are adequately protected from potential exploitation via unethical practices.

### **Where Does the Code Apply?**

The code applies to researchers, developers, support staff, and research and development administrators within FS R&D, and to individuals who participate as scientists in the agency's mission, including scientists outside the agency when they conduct work funded by the Forest Service.

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<sup>1</sup> See the ARS website, <http://www.ars.usda.gov/afm/hrd/hrdhomepage/ethics/ethicscode.htm>

<sup>2</sup> Marcia Patton-Mallory (RMRS, Committee Chair), Charles Carll (NFFE), Richard Cline (WO), Mark Dietenberger (FPL), Sue Ferguson (PNW), Kay Franzeb (SRS), Rolfe Leary (NC, retired), Sandy Liebhold (NE), Marion Page (PSW), Peggy St. Peter and Karen Wagley (WO-HR), and Joseph Wunderle (IITF).

**FOREST SERVICE RESEARCH & 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 significant contributions 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.

## Commentary to Forest Service Research & Development Code of Scientific Ethics

This commentary explains and clarifies the intent of each element in the Code of Scientific Ethics.

- *I dedicate myself to the pursuit, promotion, and advancement of scientific knowledge.*

All civil servants are expected to be fair and honest. Scientists, however, may face ethical challenges that are unique to the conduct and reporting of scientific research. The goal of science is knowledge, and the method of gaining new knowledge is through scientific research and development.

- *I will conduct, manage, judge, and report scientific research honestly, thoroughly, and without conflict of interest.*

Scientific honesty and integrity of Forest Service researchers and developers is 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 the details of their methods are described adequately such that other scientists can reproduce their research results.

This Code element does NOT suggest that using novel investigative approaches, using unusual analysis methods, exclusion of data points that are known to be faulty for identifiable material reasons, or novel interpretation of data constitute unethical behavior. Any data modifications should be fully documented in the research record. When done honestly and diligently, use of unorthodox approaches, analysis methods, and interpretations can result in significant scientific progress. It is a breach of scientific ethics, however, if these practices are used to support a desired conclusion. It is particularly unethical if the representation is made that the novel or unusual practices are in fact standard or the only correct way to have conducted the study, performed analyses, or interpreted the data.

*Conflict of interest*<sup>3</sup> can be defined as a situation in which an individual's personal interest interferes with the objectivity of his/her actions or judgments. Some instances of conflict of interest occur when personal financial interests affect an individual's action, but these situations are uncommon among Forest Service scientists (also Office of Governmental Ethics rules for financial disclosure generally prohibit scientists from participation in studies or programs where they have a financial conflict of interest). More common instances of conflict of interest in Forest Service R&D activities occur when actions or judgments are affected by opportunities for

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<sup>3</sup> Resnick, D.B. 1998. Conflict of interest in science. *Perspectives on Science* 6(4):381-408

career advancement, professional prestige, and personal allegiances or animosities.

Scientists are expected to interact with other Forest Service scientists, university researchers, commercial enterprises, trade associations, and public interest groups. A scientist's interpretation of research results, recommendations to others, and review of other scientists' works or proposals has the potential to be influenced by these individuals or entities. Furthermore, a scientist'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 scientist or those of the scientist's colleagues). Even when the scientist believes he/she is acting objectively, circumstances may exist where others may perceive there is a conflict of interest. In these cases scientists are advised that they should document these relationships and make an honest effort to act in an objective fashion.

The agency policy regarding financial conflict of interest as a federal employee (5 CFR 2635, Standards of Conduct for Employees of the Executive Branch) is outside of the scope of this code.

- *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.*

Forest Service personnel are expected to prevent abuse of resources used in the conduct of scientific research. A guideline for determining abuse is whether damage to the public interest (by damage to the resource) outweighs the public benefit in terms of useful knowledge gained.

Animals used for research purposes are public resources. Furthermore, an historical precedent exists in the United States that cruel treatment of human beings or animals is considered to be damaging to the public interest, (even though public consensus on what constitutes cruel treatment does not always occur). Forest Service employees are expected to obey any public laws concerning humane treatment of research animals. While the primary existing law and federal regulation (P.L. 99-198 and 9 C.F.R. 3) apply to treatment of laboratory animals, most Forest Service research involves animals in the wild. The committee recognizes that few if any statutory regulations or guidelines exist concerning humane treatment of animals in the wild. Development of guidelines that apply specifically to wild animals is beyond the scope of this code. Researchers must be aware of and abide by any consensus guidelines promulgated by professional societies for humane treatment of wild animals involved in research studies.

- *I will not willfully hinder the research of others nor engage in dishonesty, fraud, deceit, misrepresentation, or other professional misconduct.*

The 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 other scientists to perform their

work, or failure to provide information that other scientists need to duplicate research or verify its accuracy. (Also see discussion under the second Code element on conflict of interest.)

Scientific staff are expected to allow others access to research resources that have been entrusted to them, unless doing so would compromise the scientific validity of 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. Therefore, this Code does not attempt to provide specific guidelines for making such determination. However, denying other researchers access to research resources or data from published studies primarily for the purpose of enhancing one's own position of importance is unethical.

- *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.*

Scientific research is a contest of ideas and the newest concepts that are not part of a current paradigm can result in serious conflict. Open and honest debate is essential for the advancement of science.

The peer-review process is an important step in the conduct of scientific research and should be free of personal and professional jealousies, competitions, and disagreements, and conflicts of interest (see detailed discussion under other code items). Reviewer comments on publications in progress should be focused on their logical and scientific validity, rather than the personal feelings of the reviewer or past or current interactions between the reviewer and the author.

All authors should try to avoid putting reviewers in a position where personal or professional relationships might influence the reviewer's ability to provide an honest review. Use of a single- or double-blind peer review process may help in these situations.

It is sometimes necessary that certain scientific reviews are conducted anonymously and the identity of the reviewers be kept confidential. In order for other reviewers to express their views honestly and without fear of repercussion or retaliation, each participant in the review process should respect the confidential nature of the review process and not identify themselves or other reviewers.

- *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.*

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. It is unethical to omit citations of a scientist's work because of personal disagreements when their ideas have influenced a manuscript.

- *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.*

This Code element concerns what is often termed “responsible authorship.” It is intended to discourage claims by an individual of rights to authorship and associated benefits without a willingness to accept professional responsibility tied to authorship. It is also intended to assure that individuals who have made a substantial intellectual contribution to a study are appropriately recognized.

Manuscripts with multiple authors reflect the creative inputs of all the authors. With complex studies, individual authors may not be able to ascertain the accuracy of every detail of the work conducted by their co-authors. In these situations, individual authors are not expected to be responsible for every technical detail of the work performed by co-authors but should be able to fully explain and defend the manuscript’s major conclusions. Co-authors are jointly responsible for all statements made in manuscripts.

- *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 significant contributions to its preparation (write, review, or edit).*

This Code element addresses the topic of “honorary authorship.” Individuals within the Forest Service organization have sometimes demanded or claimed authorship on research manuscripts to which they made no intellectual contribution. This practice is not acceptable.

“Honorary authorship” instigated by a junior scientist who adds the name of an established scientist to a manuscript prepared by the junior scientist to help ease the manuscript through the peer review process is also unacceptable. Scientists should not add the name of any person to a manuscript byline unless the person made an intellectual contribution to the manuscript.

Scientists 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. Claiming authorship on manuscripts to which an individual provided no intellectual contribution is dishonest and therefore unacceptable. However, recognition for these important roles in facilitating research and development should be included in the individual’s position description. For positions under the Research Grade Evaluation Guide, include the information under Factor I—The Research Assignment or Factor IV.B.—Professional Activities and Recognition or Factor IV.C.—Scientific Accomplishments and Contributions, or Factor IV.E.—Other Significant Information, as appropriate. For positions under Part III – Experimental Development of the Equipment Development Grade Evaluation Guide, include the



information under Factor 1—Nature of the Assignment or Factor IV – Qualifications and Contributions, as appropriate.

Intellectual contributions in data collection means not merely collecting data following a standard, recognized protocol, but entails developing the process by which data are collected or validated.

- *I will not publish or use original ideas, research data, or unpublished findings of others without written approval.*

This Code element addresses plagiarism and theft of ideas, data, or unpublished findings. It seeks to protect the intellectual efforts of scientists. Permanent damage to the scientific record can occur once the stolen intellectual property is published. It may be impossible to correct the record to properly identify the true source of the information once published.

The scientist who prepares a draft manuscript or submits a research proposal retains the exclusive intellectual property right to the ideas described in the manuscript or proposal. Scientists who act as reviewers of the manuscript or research proposal may not use those ideas in their own research or development activities until the manuscript is published or until the author of the proposal gives permission. The only certain way to obtain official permission is in writing. If permission is granted, there may be stipulations on how the ideas or information may be used. Those stipulations must be followed and appropriate credit given.

Supervisors have sometimes presented in papers or at meetings intermediate data or results of work by scientists they supervise. This should only be done with the subordinate scientist's permission and knowledge and with full credit given.

Special situations are created by the untimely death, permanent disability, or changes of employment (e.g., to a non-research position) of a researcher or developer with work in progress. In most cases, it is ethical for supervisors or colleagues to assure that the unpublished ideas, data, and/or findings are made available to the public. The scientist originating the ideas, data, and/or findings should be clearly identified through co-authorship. Senior authorship by a deceased or disabled scientist may be appropriate, and determined in the same way as for active scientists.

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

- *I will refrain from duplicative publication of the same research findings as original.*

This item addresses the practice of repetitive publication of the same research or identical manuscripts in different outlets for the primary purpose of increasing the number of publications a scientist can list in Factor IV.D.—Disseminating Research Results, of their Position

Description. 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, publication of the same research study in different venues with different styles, emphasis, scope, and/or tailored to their specific interests, is appropriate and ethical. Also, during the execution of a study, data of different types may be collected, and publication of all the data or analyses in a single article may not be feasible if manuscript length limitations are to be met. It is therefore NOT the intent that any scientist be accused of misconduct merely because he/she published more than one manuscript based on the same research study. However, earlier publications should be referenced in subsequent publications wherever possible. What is intended by this Code element is discouraging the publication of substantially the same manuscript in multiple outlets.

- *I will show appropriate diligence toward preserving and maintaining resources, such as data records, that are entrusted to me.*

Scientists have the responsibility of presenting and maintaining information such that other scientists can reproduce their work and/or evaluate its validity. This does not suggest that scientists must provide every detail of their methodology in manuscripts or presentations; editorial constraints often prohibit this. Nevertheless, scientists should accurately, if briefly, describe methodology in manuscripts and be prepared to provide details on request. Likewise, scientists should maintain raw data for reasonable periods after publication.<sup>4</sup> Doing so will permit other scientists to evaluate its validity. What constitutes a reasonable period for maintenance of raw data varies with the scientific discipline, but five years after publication is a minimum. See FSH 6209.11 – Records Management Handbook for retention periods.

Scientific 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; it must not be discarded unless it is objectively judged as having no scientific validity. Determination of scientific validity should not be made without consulting with the individuals responsible for generating it.

Determination that another scientist has abandoned research resources or data must not be casually assumed. Inquiry concerning whether research resources have been abandoned is a necessary professional courtesy.

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<sup>4</sup> Other Forest Service Manual and Handbook Direction on preservation of study documentation (e.g., the study file) exists and should be followed. Examples of documents that should be retained in the study file include the study plan, laboratory notebooks, original data, metadata, and quality assurance/quality control information. These items may be on both paper and electronic media. The study file is the permanent possession of the unit to which the researcher or developer is assigned. When an employee departs to take another job or through retirement, arrangements may be made by the former supervisor for the employee to take with her/him **duplicates** of some/all of the information contained in a study file. Original documents must always remain with the Forest Service.

## Supporting Materials for the Code of Scientific Ethics

The following supporting materials are provided: (1) a set of definitions; (2) a process flow chart; (3) an equivalency table; and (4) a copy of the proposed “Federal Policy on Research Misconduct to Protect the Integrity of the Research Record.”

The process flowchart illustrates how the existing process for handling allegations of administrative misconduct shall be used to handle allegations of scientific misconduct. Although scientific misconduct is a special sub-category of administrative misconduct, the process for responding to allegations of scientific misconduct is the same as the process for administrative misconduct, with two exceptions. First, a senior scientist is appointed early in the process to serve as a consultant to the employee relations specialist and as an assistant to the certified investigator. The role of the senior scientist is to answer questions about the general nature of the scientific method and the ways in which research and development activities in the Forest Service are conducted. Second, if the process reaches the analysis phase, an Ethics Panel is appointed to review findings and make recommendations. More details on the Ethics Panel and the senior scientist are contained in the definitions, below. The equivalency table provides a crosswalk from actions considered to be scientific ethic misconduct to the more general items of administrative misconduct. The numbers in parentheses in the table refer to penalty citations pertinent to each type of action. The proposed “Federal Policy on Research Misconduct to Protect the Integrity of the Research Record” is included here for information only. It was published in the Federal Register (64 FR 198, pp 55722-55725) on October 14, 1999. The Code of Scientific Ethics is consistent philosophically with the proposed policy. After the final Federal policy is issued, the Forest Service Code will be reviewed and modified, if necessary, to assure conformance with the final policy.

### Definitions

Scientific Misconduct. 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.

Research Misconduct.<sup>5</sup> Research misconduct is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.

*Fabrication:* Fabrication is making up results and recording or reporting them.

*Falsification:* Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

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<sup>5</sup> This definition is consistent with the definition contained in the proposed *Federal Policy on Research Misconduct to Protect the Integrity of the Research Record*. If the definition in that document is revised when the final policy document is issued, the definition here will likewise be revised to retain consistency.

*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. 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.

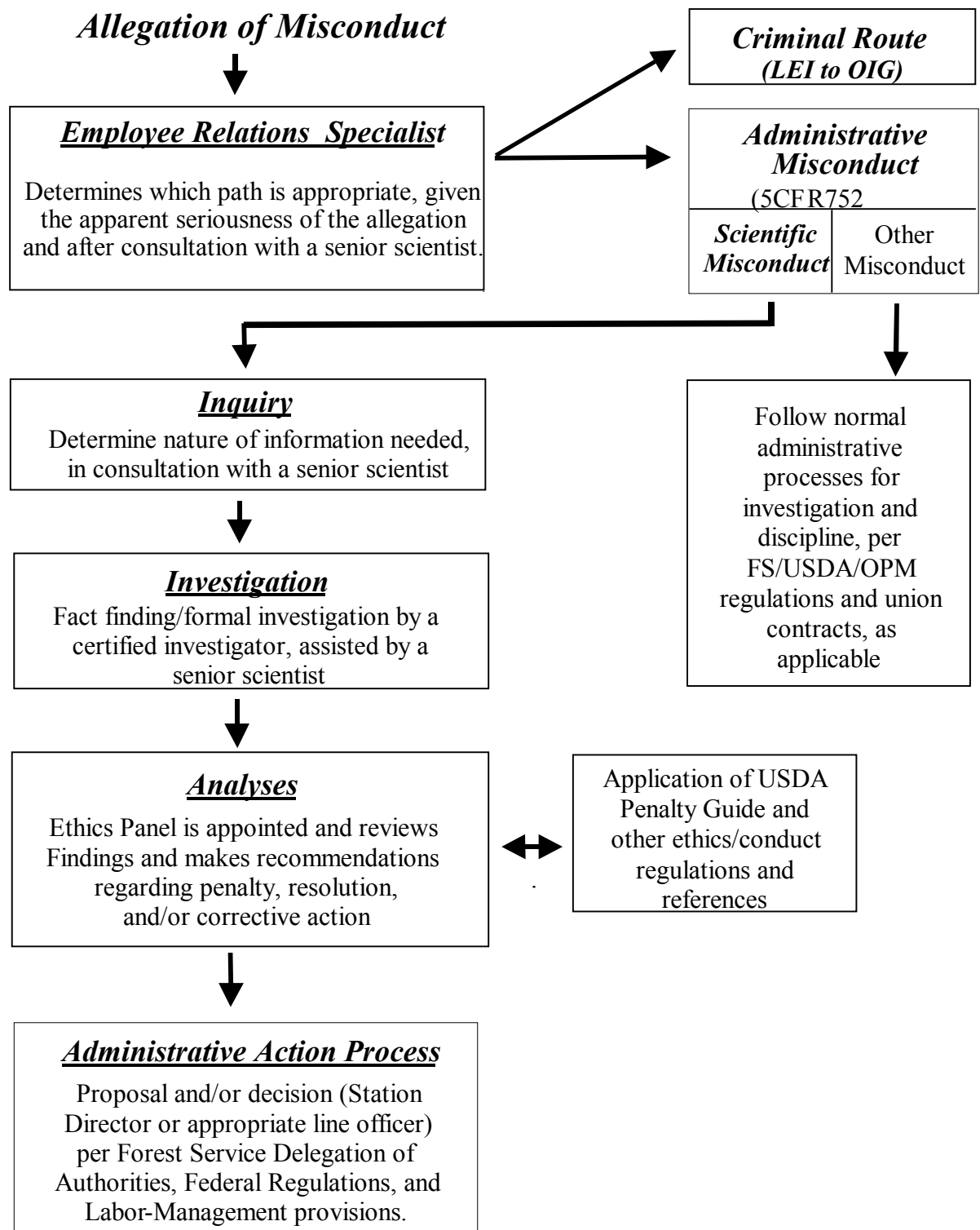
*Duplicative Publication:* Duplicate publication of findings as original in more than one publication outlet. Earlier publication of data should always be referenced in later publications. Dual publications should be mutually agreed to by both outlets (e.g., proceedings and journals).

Ethics Panel: An Ethics Panel participates in the process for handling allegations of scientific misconduct (See the flowchart on page 11). It consists of a Panel Chair, three scientists, one professional support employee, and an individual from Human Resources familiar with administrative investigations. The Ethics Panel Chair will be an individual that is not in the line of authority over the individual being investigated, usually an Assistant Station Director or person holding an equivalent position. The Station Director whose employee or collaborator is accused of scientific misconduct appoints the Ethics Panel after the 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. 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.

Senior Scientist: An individual who has at least 10 years of experience as a researcher with the USDA Forest Service and who will become a member of the Ethics Panel is one is appointed.

### Process for Handling Allegations of Scientific Misconduct

Use the process for handling allegations of administrative misconduct to handle allegations of scientific misconduct, with modifications as shown below. If at any point in the process, there is a determination of "no misconduct," the case immediately goes to the Station Director or appropriate line officer for a decision to take no further action on the allegation.





**Equivalency Table  
USDA Discipline Guide and Scientific Ethics Code  
(USDA DPM-751, Appendix A)**

<b>Scientific Ethics Misconduct</b>		<b>Administrative Misconduct</b>	<b>Penalty for First Offense</b>	<b>Penalty for Subsequent Offense</b>
Inappropriate authorship	→	False statement, misrepresentation of material facts or documents in connection with official matter.	Letter of reprimand to removal	Removal
		Unauthorized use, removal, or possession of a thing of value belonging to another employee or private citizen.	Letter of reprimand to 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

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## **Addendum for Information Only**

### ***Federal Policy on Research Misconduct To Protect the Integrity of the Research Record***

AGENCY: Office of Science and Technology Policy

ACTION: Request for public comment on proposed Federal policy on research misconduct.

SUMMARY: The Office of Science and Technology Policy (OSTP) proposes a government-wide Federal policy for research misconduct for adoption and implementation by agencies that conduct and support research. The proposed policy addresses behavior that has the potential to affect the integrity of the research record and establishes procedural safeguards for handling allegations of research misconduct. It has been cleared by the National Science and Technology Council (NSTC) and is the result of an extensive interagency development, review, and clearance process initiated in April 1996. This policy notice was developed by OSTP in consultation with the Office of Management and Budget (OMB), and OMB supports the solicitation of comment on the proposed policy and procedures.

The policy consists of a definition of research misconduct and guidelines for handling allegations of research misconduct. Following consideration of public comments received, the agencies will be directed to implement the policy. In some cases, this may require agencies to amend or replace regulations addressing research misconduct that are already in place. In other cases, agencies may implement the policy through administrative mechanisms. An important objective of this policy is to achieve uniformity in research misconduct policies across the agencies of the Federal government. It is intended that agencies will adopt the final Federal research misconduct policy, and therefore potentially affected parties should express their views on the policy in response to this notice.

DATES: The Office of Science and Technology Policy welcomes comments on the proposed policy. To be assured consideration, comments must be postmarked no later than December 13, 1999.

ADDRESSES: Comments should be addressed to Sybil Francis, Office of Science and Technology Policy, Executive Office of the President, Washington, D.C. 20502.

FOR FURTHER INFORMATION CONTACT: Sybil Francis, Office of Science and Technology Policy, Executive Office of the President, Washington, D.C. 20502. Tel: 202-456-6040; Fax: 202-456-6027; e-mail: [sfrancis@ostp.eop.gov](mailto:sfrancis@ostp.eop.gov).

SUPPLEMENTAL INFORMATION: Advances in science and engineering depend on the reliability of the research record, as do the benefits associated with them in areas such as health and national security. Sustained public trust in the scientific enterprise also requires confidence in the research record and in the processes involved in its ongoing development.

It is for these reasons, and in the interest of ensuring uniformity in Federal agency policies addressed to behaviors that might affect the integrity of the research record, that the NSTC initiated discussions regarding the development of a government-wide research misconduct policy in April 1996. Since then, the proposed policy has undergone extensive agency review and clearance at a number of levels. The NSTC's Research Integrity Panel (RIP), comprised of representatives from the major research agencies developed the first draft of the policy. It was tasked by the NSTC to propose a definition of research misconduct and to develop guidelines for responding to allegations of research misconduct. The RIP forwarded its report and recommendations to the NSTC Committee on Science in December 1996, which broadened review of the policy to additional agencies, subjecting it to further analysis. The full NSTC approved the proposed policy in May 1999, clearing the way for this notice of proposed policy. The notice was developed by OSTP in consultation with OMB, and OMB supports the solicitation of comment on the proposed policy and procedures.

The proposed policy defines the scope of the Federal government's interest in the accuracy and reliability of the research record and the processes involved in its development. It consists of a definition of research misconduct and establishes basic guidelines for responding to allegations of research misconduct, including procedural safeguards. An important objective of this policy is to achieve uniformity across the Federal agencies in the definition of research misconduct they use and consistency in their processes for responding to allegations of research misconduct. It is expected that the final policy will apply to all research funded by the Federal agencies, including intramural research conducted by the Federal agencies, research conducted or managed by contractors, and research performed at universities. Commentators are invited to express their views on the proposed policy and on the premise that a uniform government-wide policy is a desirable goal.

Following consideration of public comments received, agencies will be directed to implement the policy. In some cases, this may require agencies to amend or replace extant regulations addressing research misconduct. In other cases, agencies may need to put new regulations in place or implement the policy through administrative mechanisms.

The proposed policy addresses behavior subject to administrative action and applies only to research misconduct as defined in the policy. It does not supersede government policies or procedures for addressing other matters, such as the unethical treatment of human research subjects or mistreatment of laboratory animals used in research, nor does it supersede criminal or civil law. It does not limit agency or institutional policies and prerogatives in addressing other forms of misconduct, including those that might occur in the course of conducting research, including the misuse of public funds. Agencies will address these other issues as authorized by law and as appropriate to their missions and objectives.

#### PROPOSED POLICY

The proposed policy consists of the following:

## I. Research Misconduct Defined

*Research<sup>6</sup> misconduct is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.*

- *Fabrication* is making up results and recording or reporting them.
- *Falsification* is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.<sup>7</sup>
- *Plagiarism* is 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.
- Research misconduct does not include honest error or honest differences of opinion.

## II. Findings of Research Misconduct

A finding of research misconduct requires that:

- There be a significant departure from accepted practices of the scientific community for maintaining the integrity of the research record;
- The misconduct be committed intentionally, or knowingly, or in reckless disregard of accepted practices; and
- The allegation be proven by a preponderance of evidence.

## III. Responsibilities of Federal Agencies and Research Institutions<sup>8</sup>

Agencies and research institutions are partners who share responsibility for the integrity of the research process. Federal agencies have ultimate oversight authority for Federally funded research, but research institutions bear primary responsibility for prevention and detection of research misconduct, and for the inquiry, investigation, and adjudication of allegations of research misconduct.

- Agency Policies and Procedures. Agency policies and procedures with regard to both their intramural as well as their extramural programs must conform to those outlined in this document.
- Agency Referral to Research Institution. In most cases, agencies will rely on the researcher's home institution to respond to allegations of research misconduct.
- Agencies will therefore usually direct allegations of research misconduct made directly to them to the appropriate research institution. A Federal agency may elect not to defer to the research institution if it determines the institution is not prepared to handle the allegation

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<sup>6</sup> Research, as defined herein, includes all basic, applied, and demonstration research in all fields of science, engineering, and mathematics.

<sup>7</sup> The research record is defined as the record of data or results that embody the facts resulting from scientific inquiry, and includes, for example, laboratory records, both physical and electronic, research proposals, progress reports, abstracts, theses, oral presentations, internal reports, and journal articles.

<sup>8</sup> This includes all organizations receiving Federal research funds, including, for example, colleges and universities, intramural Federal research laboratories, Federally funded research and development centers, national user facilities, industrial laboratories, or other research institutes. Independent researchers and small research institutions are covered by this policy but it is understood that they may not have the institutional structures in place to meet the full range of responsibilities outlined in this policy. Under such circumstances the agency may elect not to defer the investigation to the small research institution or independent researcher.

in a manner consistent with the definition of research misconduct and procedures outlined herein; if Federal agency involvement is needed to protect the Federal government's or the public's interest, including the necessity to ensure public health and safety; or if the allegation involves an individual or an entity of sufficiently small size that it cannot reasonably conduct the investigation itself. At any time, the Federal agency may proceed with its own inquiry or investigation.

- Multiple Phases of the Investigation. An agency's or research institution's response to an allegation of research misconduct will usually consist of several phases, including an inquiry to determine if the allegation has substance and if an investigation is warranted; and an investigation, the formal examination and evaluation of the relevant facts leading either to dismissal of the case or a recommendation for a finding of research misconduct. If an investigation results in a recommendation for a finding of misconduct, an adjudication phase follows whereby the recommendations are reviewed and appropriate action determined. The subject of the allegation may also appeal a Federal agency finding of research misconduct.
- Separation of Phases. Adjudication decisions are separated organizationally from the agency's or research institution's inquiry and investigation processes. Any appeals process should likewise be separated organizationally from the inquiry or investigation.
- Institutional Notification of the Agency. When research institutions receive allegations of research misconduct, they will notify the relevant responsible agency (or agencies in some cases) of the allegation upon completion of an inquiry, if (1) the allegation involves Federally funded research (or an application for Federal funding) and meets the Federal definition of research misconduct given above, and (2) there is sufficient evidence to proceed to an investigation. Research institutions will keep the agency informed of the progress of the investigation, its outcome, and any actions taken. Upon completion of the investigation, the research institution will forward to the agency a report of the case and recommendations for its disposition.
- Other Reasons to Notify the Agency. At any time during an inquiry or investigation, the institution will notify the Federal agency if public health or safety is at risk; if agency resources or interests are threatened; if research activities should be suspended; if there is reasonable indication of possible violations of civil or criminal law; if Federal action is required to protect the interests of those involved in the investigation; if the research institution believes the inquiry or investigation may be made public prematurely so that appropriate steps can be taken to safeguard evidence and protect the rights of those involved; or if the scientific community or public should be informed.
- Agency Follow-up to Institutional Action. The agency will review the findings and any corrective actions taken by the research institution, take additional investigative steps if necessary, and determine what actions may be required to protect the government's interests. Upon completion of its review, the agency will take appropriate administrative action in accordance with applicable laws or regulations. When the agency has made a final determination and has closed a case, it will notify the subject of the allegation and the involved institution of the disposition of the case.
- When more than one 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. In cases where the sanction is less

than government-wide suspension or debarment, agencies may implement their own administrative actions in accordance with established agency and contractual procedures.

#### **IV. Guidelines for Fair and Timely Procedures**

The following guidelines are provided to assist agencies and research institutions in developing fair and timely procedures for responding to allegations of research misconduct. Implementation of these guidelines should provide safeguards for subjects of allegations as well as for informants. Fair and timely procedures include the following:

- Safeguards for Informants. Safeguards for informants give individuals the confidence that they can bring good faith allegations of research misconduct to the attention of appropriate authorities or serve as informants to an investigation without suffering retribution;
- Safeguards for the Subject of the Allegation. Safeguards for the subjects of allegations give individuals the confidence that their rights are protected and that the mere filing of an allegation of research 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 the subject regarding substantive allegations made against him or her; a description of all such allegations; and the opportunity to respond to allegations and to the evidence and findings upon which they are based.
- Objectivity and Expertise. The selection of individuals to review allegations and conduct investigations who have appropriate expertise and have no unresolved conflicts of interests, helps to ensure fairness throughout all phases of the process;
- Timeliness. Reasonable time limits for the conduct of the inquiry, investigation, adjudication, and appeal phases, with allowances for extensions where appropriate, provide confidence that the process will be well-managed; and
- Confidentiality During Inquiry and Investigation. To the extent possible consistent with a fair 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 research misconduct should be exempt from disclosure under the Freedom of Information Act to the extent permitted by law and regulation.

#### **V. Actions**

- Seriousness of the Misconduct. In deciding what administrative actions are appropriate, the agency should consider the seriousness of the misconduct, including whether the misconduct was intentional or reckless; was an isolated event or part of a pattern; had significant impact on the research record; and had significant impact on other researchers or institutions.
- Administrative Actions. Administrative actions available include, but are not limited to, letters of reprimand; the imposition of special certification or assurance requirements to ensure compliance with applicable regulations or terms of an award; suspension or termination of an active award; or suspension and debarment in accordance with the government-wide rule on nonprocurement suspension and debarment, Subpart 9.4 of the Federal Acquisition Regulation. In the event of suspension or debarment, the information

is made publicly available through the List of Parties Excluded from Federal Procurement and Nonprocurement Programs maintained by the U.S. General Services Administration.

.In Case of Criminal Violations. If the funding agency believes that criminal violations may have occurred, the agency should refer the matter to the appropriate criminal investigative body.