

USDA Agricultural Research Service

Scientific Collections Management and Access Policy

September 2014

Beginning in 2005, the White House's Office of Science and Technology Policy (OSTP) and Office of Management and Budget (OMB) included in its priorities for interagency activity a call to "focus attention on integrated support and planning for the care and use of federally held scientific collections." This call gave rise to the formation of an Interagency Working Group on Scientific Collections (IWGSC) under the Committee of Science of the National Science and Technology Council (NSTC). The IWGSC issued a report entitled, "Scientific Collections: Mission-Critical Infrastructure for Federal Science Agencies," in December 2008 that made recommendations for the improvement of management, accessibility and impact of scientific collections owned by U.S. government departments and agencies.

On October 6, 2010, OSTP issued a memorandum to the heads of executive departments and agencies entitled, "Policy on Scientific Collections," that directed IWGSC to develop plans for: i) budgeting for collections, ii) ensuring best management practices for collections, and iii) making collections more accessible.

On March 20, 2014, OSTP issued a memorandum to the heads of executive departments and agencies entitled, "Improving the Management of and Access to Scientific Collections." In the memorandum, OSTP directed federal agencies that own, maintain or otherwise financially support permanent scientific collections to develop a scientific collections management and access policy.

The following document is a response to the 2014 memorandum. It summarizes the management and access policies for institutional scientific collections owned, maintained, or otherwise financially supported by the Agricultural Research Service (ARS), an agency of the United States Department of Agriculture. These policy requirements were developed with input from NSTC and IWGSC to also comply with the policy memorandum on scientific collections issued by OSTP in 2010 and the America COMPETES Reauthorization Act of 2010.

ARS SCIENTIFIC COLLECTIONS PHILOSOPHY

This document focuses on institutional collections. The ARS policy is that all scientific objects that make up in part or in whole an ARS scientific collection are publicly funded assets and great care and caution should be taken in regards to their care and preservation. As with real and personal property, ARS must exercise reasonable oversight over the inventory and control of scientific objects. These assets are resources obtained and/or produced for the purposes of supporting ARS research and should therefore have been obtained and/or produced as part of an ARS staff member's official duties. As such, barring restrictions of national and/or personal security, these objects are considered publicly owned and are generally in the public domain. ARS regards all scientific objects with the same appreciation as permanent records of research (for example, a laboratory notebook) or government property. Scientific collections are a national and international resource. These objects do not belong to the scientist; instead, for research or institutional collections, the scientist or curator should inform MMS of any major proposed change in acquisition, care, transfer, or de-acquisition/disposal of the collection. While it is not expected that an exhaustible resource asset such as culture specimens collected during an experiment are in effect a permanent collection, it is the policy of ARS that specimens that have achieved reference status as a long-term voucher or that are shared among laboratories for purposes of research must be given consideration as part of a potential institutional

collection which deserves long-term care. Note: If specimens or cultures are used to support research findings, especially in a new publication or technical report, then researchers should deposit representative specimens or cultures on which that research is based in an appropriate ARS institutional or other permanent collection that has the assigned responsibility for long-term maintenance of such essential reference materials. This depends on resources and the availability of an appropriate collection.

Each institutional collection is an integral part of an ARS project that is peer-reviewed every five years and is subject to fiscal management planning through the Annual Resources Management Plan (ARMP) process. Thus, no institutional collection exists independently of ARS research and a Congressional appropriation for research.

DEFINITIONS

SCIENTIFIC COLLECTION

For the purposes of this document, scientific collections are broadly defined as sets of physical objects, living or inanimate, and their supporting records and documentation, which are used in science and resource management and serve as long-term research assets that are preserved, cataloged, and managed by or supported by federal agencies for research, resource management, education, and other uses. These collections are created for the purpose of supporting or doing science or providing germplasm, rather than for their market value as collectibles or their historical, artistic, cultural, or other significance. The focus is on institutional collections. The focus is not on specimens, or parts of specimens used temporarily, that document individual-based observations (e.g., individuals alive or dead from an ecological census wherein data pertaining to each individual is not captured in the study – although, permanently accessioned taxon vouchers are always a recommended practice), or that are considered an exhaustible resource (e.g., a biotic reagent as part of a protocol). However, since all project or working research collections were obtained through public funding, are federal assets, and may be candidates for designation as institutional collections for long-term preservation, they must be cared for by means appropriate as a federal asset. The following criteria differentiate institutional from project collections. Each institutional collection is:

- Subject to a formal accessioning process, including associated documentation and archival material (e.g., notes, photographs and maps);
- Under the authority of scientific collection curators or scientists and housed in facilities devoted to long-term collection storage;
- Inventory validated on a schedule determined by the Agency to ensure accountability of the collection;
- Physically labeled in some way with catalog numbers or other unique identifiers linked to a corresponding record in a database or other record-keeping system;
- Routinely made available to all qualified users, with certain exceptions;
- Made available to qualified parties through formal loan procedures for research, education, or exhibition;
- Preserved long-term, except under certain infrequent conditions which may justify de-accessioning under a set of formal de-accessioning procedures.

SPECIMEN METADATA

Specimen metadata is information that describes a specimen that is part of a scientific collection. Generally, metadata make a specimen uniquely identifiable and more easily searchable. Specimen metadata also often provide important scientific information about the specimen that may have its own research or education value. Examples of specimen metadata include:

- Source specific information (i.e., date of isolation, source, etc.);
- Phenotypic and genotypic scientific information (i.e., toxin producer, serotype, or sequence type);
- Species identification;
- Digital images of macroscopic specimens or cultures of microscopic specimens.

RECORDS AND REGISTRIES

The following are suggested ways to document records. Each institutional collection curator or working collection researcher will need to document collections appropriate to their intended use.

SPECIMEN RECORD

- A specimen record is composed of all metadata for a single specimen in a scientific collection.

SCIENTIFIC COLLECTION DATABASE

- A scientific collection database is a listing or database of all records associated with collection activity including specimens, taxa, accessions, transfers, loans, borrows, inventory, physical location, collection manager(s), and other relevant information.

SCIENTIFIC COLLECTION RECORD

- A record of a scientific collection, or a scientific collection record, is a descriptive guide to a scientific collection.
- The record contains essential information such as the title of the scientific collection, contact information, and the physical location of the specimens. Each scientific collection record is made available to the public via an online registry and points to the location of the associated scientific collection database.

SCIENTIFIC COLLECTION REGISTRY

- A scientific collection registry is defined as an online digital repository that stores and makes publicly available the scientific collection records and, as appropriate, the scientific collections database associated with that record. The Smithsonian Institution has identified GRSciColl (<http://www.GRSciColl.org>) as an appropriate federal scientific collection registry. And the Agency has chosen to adopt GRSciColl as its scientific collections registry to host scientific collection records, with the option to store scientific collection databases.

PURPOSE AND SCOPE

ARS conducts research to develop and transfer solutions to agricultural problems of high national priority and provide information access and dissemination to:

- ensure high-quality, safe food, and other agricultural products;

- assess the nutritional needs of Americans;
- sustain a competitive agricultural economy;
- enhance the natural resource base and the environment; and,
- provide economic opportunities for rural citizens, communities, and society as a whole.

ARS collections are essential to the mission of the Agency. Every day, ARS scientists at locations across the Nation and the World, make use of collections to support their research. The value of this activity is evident. In the Agency's 61-year history, collections have contributed to a number of groundbreaking discoveries and have had a significant societal impact.

- The ARS Culture Collection (NRRL) in Peoria, Illinois, exemplifies this success. With cultures from this collection, USDA scientists undertook research that led to the commercial development of the antibiotic penicillin, which heralded a revolution in the treatment of illnesses and disease, and contributed, in part, to the Allied success in World War II.
- Peoria also commercialized riboflavin (Vitamin B2), dextran and xanthan gum, and developed several databases of gene sequences that allow rapid identification of fungal and bacterial species. The databases are used worldwide to greatly enhance plant food safety and medical research. These remarkable accomplishments showed the breadth of the collection's impact on science and society, and were made possible in part because the fungal and bacterial collections were so well maintained. In addition, this collection facilitates technological innovation by enabling scientists to simultaneously fulfill microbial culture deposition requirements in association with patent applications in the United States and any of the 77 other countries that are contracting parties of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedures, signed on April 28, 1977.
- The USDA Nematode Collection (USDANC) in Beltsville, Maryland, has contributed to the ARS mission in several ways. For example, in 1970, nematode pests threatened the billion-dollar potato economy of the Pacific Northwest. After comparisons of pest specimens with archived specimens at USDANC, scientists determined that the source of the problem was a new nematode species and were able to make recommendations about crop rotations to save the industry. Similarly, in 2000, ARS scientists persuaded Brazilian officials to lift a ban on wheat imports by showing that U.S. wheat exports were free of a quarantined nematode. This saved the wheat industry millions of dollars, and was made possible with the use of ARS' thorough and well-preserved collection of nematodes.
- The scope of ARS collections extends beyond the Agency. A number of current collections predate the formation of ARS, and many are used by scientists around the globe. The National Plant Germplasm System (NPGS), for example, is one of the largest distributors of plant germplasm in the world. NPGS conserves more than 472,000 accessions and annually distributes approximately 120,000 of these to external researchers. NPGS furnishes the raw material for crop improvement worldwide, thereby helping to underpin global food security. NPGS' germplasm collection contributes tremendously to scientific research efforts and provides a valuable service to the scientific community.
- ARS's U.S. Small Grains Collection in Aberdeen, Idaho has been critical to finding an answer to Ug99, which is threatening the world's barley and wheat. Researchers and breeders in ARS and from around the world have been screening the collection for genes to provide new sources of stem rust resistance to what is considered by many experts to be the most serious threat to the world's wheat in the past 50 years.

It is clear that collections, particularly the Agency's large, institutional collections, play a critical role in supporting both ARS research as well as research conducted by other institutions in North America and

around the world. However, if a collection is not appropriately maintained, significant losses can occur, lowering its value to research.

ARS shares the objectives of transparency and maximizing public access to ARS scientific collections, where feasible and appropriate. Accordingly, this document establishes policy, responsibilities, and procedures for the management of and access to scientific collections to protect these National resources.

This policy applies to all current and future institutional scientific collections that the Agency owns or manages.

LEGISLATIVE AND REGULATORY REQUIREMENTS AND AUTHORITIES

ARS is the USDA's chief in-house research agency comprising a workforce of approximately 6,000 employees including 2,100 scientists and post doctoral associates representing a wide range of disciplines. ARS has 800 research projects at 90+ locations, including overseas laboratories. The U.S Congress first authorized federally-supported agricultural research in the Department of Agriculture Organic Act of 1862 (7 U.S.C. 2201), establishing what is now the USDA. That statute directed the Commissioner of Agriculture "... to acquire and preserve in his Department all information he can obtain by means of books and correspondence, and by practical and scientific experiments..." ARS refers to this statute in ensuring protection of all of its scientific collections.

Additionally, ARS maintains the National Plant Germplasm System (NPGS), a network of federal plant genebanks, which operates under authority derived from, *inter alia*, 7 U.S.C. 2201, 2204, 3125a, 3291, 5841 and 5924.

In 1990, the U.S. Congress passed legislation (P.L. 101-624) that authorized establishment of a National Genetic Resources Program (NGRP) to acquire, characterize, preserve, document, and distribute germplasm of all life forms (i.e., plant, animal, microbial, insect, and aquatic species) important for food and agricultural production. ARS was assigned the primary role of coordinating and administering the NGRP. In addition, the 1990 legislation directed establishment of a National Genetic Resources Advisory Committee (NGRAC) to respond to the important issues of the nation related to conserving and utilizing genetic resources for food and agriculture.

At Peoria, ARS has an additional authority (7 USC 7641), as part of the 1985 Farm Bill, to administer a program of fees for the deposit and distribution of microbial patent cultures in support of international treaties. This authority is in support of the Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedures, signed on April 28, 1977.

Note: REE P&P 601.2-ARS Transfer of Biological Agents and Related Information to Non-USDA Locations or Individuals

Additional authorities include:

- Agricultural Research Act of 1935 (7 U.S.C. 427)
- Research and Marketing Act of 1946 (Pub. L. 79-733), as amended (7 U.S.C. 427, 1621 note)
- Food and Agriculture Act of 1977 (Pub. L. 95-113), as amended (7 U.S.C. 1281 note)

- Food Security Act of 1985 (Pub. L. 99-198) (7 U.S.C. 3101 note)
- Food, Agriculture, Conservation, and Trade Act of 1990 (Pub. L. 101-624) (7 U.S.C. 1421 note)
- Federal Agriculture Improvement and Reform Act of 1996 (Pub. L. 104-127)
- Agriculture Research, Extension, and Education Reform Act of 1998 (Pub. L. 105-185)
- Farm Security and Rural Investment Act of 2002 (Pub. L. 107-171)
- Purposes of Agricultural Research, Extension, and Education (Pub. L. 104-127, Title VIII, Sec. 901, Apr. 4, 1996, 110 Stat. 1156)
- Freedom of Information Act (5 U.S.C 552)
- Privacy Act (5 U.S.C. 552a)
- Trade Secrets Act (18 U.S.C. 1905)
- Copyright Act (17 U.S.C. 101 *inter alia*)
- Federal Acquisition Regulations System, Solicitation Provisions and Contract Clauses (48 C.F.R. Part 52)
- Federal Accounting Standards Advisory Board (FASAB) (FASAB, 2005)
- Government Performance and Results Act (GPRA) of 1993 (P.L. 103-62)
- Executive Order 12862 of 1993 on Customer Service Standards
- America COMPETES Reauthorization Act of 2010 (Pub. L. No. 111-358), Section 104 requires the OSTP Director to “develop policies for the management and use of federal scientific collections to improve the quality, organization, access, including online access, and long-term preservation of such collections for the benefit of the scientific enterprise.”
- Office of Science and Technology Policy, Memorandum for the Heads of Executive Departments and Agencies, Policy on Scientific collections (October 6, 2010)
- Office of Science and Technology Policy, Memorandum for the Heads of Executive Departments and Agencies, Improving the Management of and Access to Scientific Collections (March 20, 2014)

RESPONSIBILITIES: ORGANIZATIONAL COMPONENTS AND AGENCY OFFICIALS THAT SUPPORT AND IMPLEMENT COLLECTIONS POLICY IN ARS

ARS is a research-based agency, so all scientific collections are utilized to support research, collaborate with the research community worldwide, and to archive and preserve scientific objects crucial to the support of the current and future research community. All of the research projects, and therefore the collections that support those research projects, are aligned into 17 National Programs grouped into four program areas: Animal Production and Protection; Crop Production and Protection; Natural Resources and Sustainable Agricultural Systems; and, Nutrition, Food Safety, and Quality. Each of the four program areas is managed by a Deputy Administrator, and each program is led by a team of National Program Leaders (NPLs). Currently, about 20 NPLs are responsible for planning and

developing research strategies to address critical issues affecting American agriculture. Collectively, this forms the Office of National Programs (ONP).

ARS leadership formulated the present concept of ONP as a result of a desire to update the Agency's approach to interdisciplinary, nationally collaborative research in order to remain on the leading edge of agricultural research. In 1993, two federal policy and regulatory requirements provided increased impetus for this development: the Government Performance and Results Act (GPRA), requiring all federal institutions to be accountable to Congress and U.S. taxpayers, and an Executive Order to increase customer service standards. The Agricultural Research, Extension, and Education Reform Act of 1998 demanded further accountability, mandating the establishment of procedures to perform scientific peer reviews of all research projects conducted by ARS.

To plan, implement, coordinate, and account for its research, ARS utilizes its Matrix Management System (MMS). MMS is composed of vertical (line) management organized by geographic Areas, horizontal (staff) management organized by research programs (ONP), and also includes other functions (budgeting, information technology, technology transfer, security), and business processes (administrative and financial management). The role of ONP in MMS is to provide program direction, relevance, and coordination. The role of line management is to manage project resources and assure project research quality. The Administrator and the executive leadership team (Administrator's Council) of ARS provide leadership to MMS in accordance with the ARS Strategic Plan, National Program Actions Plans, and established operating policies.

ONP coordinates a 5-year program management cycle that includes the activities by which ARS conducts its research, ensuring effective and efficient program and project management. In order to be successful, programs and projects must meet goals in three areas: Relevance, Quality (Prospective and Retrospective), and Performance. In order to demonstrate that ARS research is of the highest quality and to meet the requirements of the Government Performance and Review Act, the Agency prescribes five actions: Program Planning and Priority Setting, Scientific Merit Peer Review [including an outside peer panel review organized by the Office of Scientific Quality Review (OSQR)], Project Implementation, Project Coordination, and Program Assessment. Since ARS scientific collections support research programs, they are included as an integral part of the 5-year program planning cycle. This includes scientific collections that support ongoing or newly proposed research programs or projects. The planning and management of all scientific collections whether extant or proposed must be considered during all phases of the development, management, and assessment of the 5-year program cycle and ultimate authority and accountability for ARS scientific collections is determined via MMS. MMS is responsible for implementing this policy on scientific collections across all ARS research programs. All decisions as to the maintenance, accessioning, and de-accessioning of ARS scientific collections should be considered a modification of a research program and therefore under the guidance of MMS. For institutional collections, curators have authority to make such decisions; however, major decisions on accessioning, care, and de-accessioning of entire collections or major subsets of collections are brought to the attention of the appropriate Area Office leadership and ONP, including the ARS Scientific Collections Committee (ASCC).

SPECIFIC ROLES REGARDING COLLECTIONS

AREA OFFICES

- ARS Area Directors are responsible for the management of funds, personnel, and facilities available for the Agency's scientific research, including associated collections, in a specific

multi-state Area. Research Leaders (or other representatives designated by each Area Director) have responsibility for direct oversight of collection management in Research Units.

OFFICE OF NATIONAL PROGRAMS

- The Associate Administrator for the Office of National Programs and ASCC, with Deputy Administrators and National Program Leaders, and with feedback from project scientists and stakeholders, evaluates present and future ARS scientific collections activity needed to support research projects.

ARS SCIENTIFIC COLLECTIONS COMMITTEE (ASCC)

- The Associate Administrator for the Office of National Programs chairs and appoints the members of the ARS Scientific Collections Committee to determine whether a collection meets the criteria specified (page 2) for an institutional collection, provide technical subject matter expertise on best practices, and develop recommendations for actions by Agency leadership to ensure the quality and sustainability of collections as critical components of scientific infrastructure. ASCC has representation from ONP and curators and scientists responsible for collections. The committee convenes as needed, at least once per year.

SCIENTISTS

- Scientists are responsible for knowing and following best practices and standards for specimen-based documentation of their primary research findings and maintaining specimens or parts of specimens in a manner that would support their potential long-term transfer into and curation in an institutional collection. Some may fulfill a role as a collection curator.

COLLECTION CURATORS

- Institutional collections will have a scientific collection curator, often a project Lead Scientist, who is responsible for:
 - Direction and planning of the scientific collection;
 - Establishment of interagency agreements or contracts, if necessary;
 - Establishment, review, submission, and revision of a Scientific Collection Plan, including standard operating protocols (SOPs);
 - Establishment of collecting priorities to guide the development of collections;
 - Control, monitoring, and documentation of all access to and use of collections;
 - Ensuring that the SOPs are stored in designated, accessible but secure locations and available to personnel at all times;
 - Ensuring that personnel review the SOPs, and associated trainings are recorded;
 - Compliance with this policy, SOPs, and the Scientific Collection Plan, and annual reporting on compliance;
 - Delegation of authority and assignment of collection responsibility to the appropriate project staff; and,

- General scientific collection management and reporting.

POLICIES AND PROCEDURES

RESEARCH PROJECT PLAN

ARS recognizes that the scientists accumulating scientific objects are best suited to propose plans for long-term preservation, maintenance, and accessibility of all scientific collections.

Planning for an institutional collection is done as part of developing a research Project Plan during the typical 5-year project cycle, including external peer review coordinated by OSQR. Project Plans and their objectives are developed by ONP in collaboration with curators and other scientists. These plans also receive input from line management.

The scientific collections plan section of the Project Plan provides an overall vision and protocols for the creation, expansion, long-term management, disposal, and accessibility and security of the scientific collection. The collections section of a research Project Plan includes the following topics:

- Accessioning Plan
- Maintenance Plan
- De-accessioning Plan (if needed)
- Access Plan

For some collections, extensive procedures have been established. For example, since 1996 the National Plant Germplasm System (NPGS) has followed the NPGS Manual of Procedures, which is currently undergoing revision. Individual genebanks are also required to develop and adhere to their own genebank-specific Manual of Procedures, tailored to the biological characteristics of the crops that they manage and the needs of the user communities they serve.

Accessioning Plan

ARS acquires specimens by a variety of methods, including transfer and field collecting. The Agency recommends responsible, disciplined acquisition of collections, and the specimens within, through the following principles:

- The acquisition of collections should be relevant to the mission and goals of ARS and individual laboratories;
- There should be clear delegation of collecting authority within laboratories to avoid duplication of efforts and mishandling; and,
- There should be strict adherence to all applicable laws and regulations relating to collections acquisition.

As a general rule, collection items are acquired and accessioned only when there is a good faith intention to retain them in ARS permanently or for the long-term. Institutional scientific collections are retained as long as they continue to serve the mission and objectives of the Agency, and can be properly maintained and used.

Accession Plans provide the following information:

1. Scope of specimens to be potentially included into an institutional collection
2. The estimated yearly growth of the scientific collection

3. Accessioning Protocols
 - a. For transfer of custody of a specimen into the scientific collection
 - b. Procedures used to process, handle, and store the specimen
 - c. For the timely accession of the specimen:
 - a. Standardized descriptive metadata into the record, including, but not limited to:
 1. Accession/voucher number
 2. Physical location
 3. Accession date
 4. Strain or species information
 - b. Insertion of the record into the database/catalog
 - d. Assignment of physical storage space to the specimen
4. Maintenance, Budget, and Access Plans

Maintenance Plan

Each Maintenance Plan should have the following information:

1. General information
 - a. Name, contact information, and operational division for the scientific collection curator
 - b. Purpose of institutional scientific collection
 - c. Date scientific collection was or will be established
 - d. Any applicable statute, regulations, or policy that must be observed during the accession and management of specimens
 - e. Standards for consistent documentation of metadata
 - f. Infrastructure requirements
 - g. Data management plan (machine-readable, open format)
2. Maintenance Protocols
 - a. Procedures used to process, handle, maintain, track, ship, and share specimens
 - b. Procedures used to store specimens in facilities devoted to long-term collection storage, including best practices for the long-term storage of institutional scientific collections
 - c. Procedures used to inventory the collection to ensure accountability of the collection
 - d. Procedures used to physically label specimens in some way with catalog numbers or other unique identifiers linked to the corresponding record in the institutional scientific collection database
 - e. A document to control program and policies for modifying or revising the SOP

De-Accessioning Plan

Prudent institutional scientific collection management includes judicious consideration of appropriate de-accessioning and disposal. The periodic review, evaluation, de-accessioning, and disposal of existing institutional scientific collections is intended to refine and improve the quality and relevance of collections with respect to ARS's mission and purpose.

De-accessioning and disposal occur for a variety of reasons, such as unneeded duplication or redundancy of institutional scientific collection material; an insufficient relationship of collection items to the mission and goals of ARS such that they are judged to be better placed elsewhere; and, use in research that destroys the future use of the specimens.

A lasting archive of ARS research and the data, datasets, and voucher specimen objects that supported the research should be preserved indefinitely as resources allow. The decision to de-accession a specimen should be made only after careful review of the research, resource management, and educational value of a collection. Specimen objects and their associated data that form in part or in whole an ARS scientific collection must go through review by MMS before de-accession, transfer, or disposal. Consideration is given to how research objectives will be met in the absence of the scientific collection, the impact of the unfulfilled objectives of the National Research Program if not met, the financial consequences relating to the loss of the specimens, including potential costs of reacquisition, recollecting, or reproducing the specimen objects in the future, the loss of any potential ARS research products that could be generated from the specimen objects, and the impact on ARS staff and stakeholders at large as a result of reducing or losing access to the specimen objects either temporarily or permanently. For project and institutional collections proposed for de-accession by a laboratory scientist or curator, MMS and ASCC is responsible for making sure that other (non-owner) ARS laboratories will be given an opportunity to accept ownership of the collection, except as otherwise stipulated by authorizing legislation or other restrictions. If, after the review process, ARS determines that the specimen objects forming a scientific collection in part or in whole will not be further supported in any ARS National Research Program, then the priority is to seek another federal institution as a depository. Scientific collection curators should consult with researchers who have used the collection, parties interested in the collection's value for research, resource management, and educational purposes, and other subject matter experts, as needed. A public or private institution may become the depository if a federal institution is unavailable. Permanent destruction of specimen objects that have supported ARS research is the last option after pursuing all other options.

Note: REE P&P 601.2-ARS Transfer of Biological Agents and Related Information to Non-USDA Locations or Individuals.

Collections, or specimens within, may be de-accessioned and destroyed only in accordance with established authority of the designated scientific collection curator and only when consistent with applicable law.

Notification, Review and Approval

A notification of de-accessioning of an entire institutional scientific collection is submitted through the management chain of command, starting with the Research Leader (RL). Once the RL approves the plan, it then proceeds via MMS to ASCC for notification. The Associate Administrator of ONP will also notify the Administrative Council about the impending de-accessioning of an institutional scientific collection.

De-accessioning Plans should include:

1. A notice of scientific collection de-accessioning must contain the following information:

- a. Scientific collection curator and contact information
 - b. Itemized list of specimens to be de-accessioned
 - c. The disposition of the collection (e.g., transferred or destroyed)
 - d. Transfer recipient, if applicable
 - e. De-accessioning date
 - f. Date of transfer or destruction
2. A final notification must be sent to the Associate Administrator of ONP once the entire institutional scientific collection has been either transferred or destroyed.
 3. De-accessioning and Disposal Protocol, including:
 - a. Guidelines for the decision to de-accession a specimen
 - b. A procedure for the orderly transfer of specimens to a new collection
 - c. The proper method of disposal of the specimen(s)

Access and Use Plan

Specimens within an ARS scientific collection are the property of the United States Government. ARS will provide reasonable physical access to its institutional scientific collections to qualified researchers, academics, and others as feasible, appropriate, and consistent with Agency mission and pursuant to the scientific collections SOP. Those seeking physical access to the institutional scientific collection must adhere to the procedures outlined in the collection's SOP.

Physical and digital access to the collections must be balanced against human resources, preservation, and security concerns. Scientific collection curators, working with MMS and in consultation with their Research Leader and ONP, will have the discretion to temporarily, or permanently, limit the access to institutional scientific collections and related catalogs, databases, records, and metadata for purposes of:

- Safeguarding individual privacy, confidentiality, trade secrets, copyright, and intellectual property rights;
- Adhering to laws, regulations, treaties, and international or tribal agreements;
- Protecting national security;
- Resource limitations;
- Specimen availability;
- Preservation constraints; or,
- Addressing general security concerns.

Any limits to public access to the institutional scientific collection must be disclosed in the SCP, including:

- Restrictions, and justification, for physical access to the scientific collection; and,
- Redactions, and justification, for the digital access to the scientific collection.

Scientific collection databases, which include all specimen records and metadata, are made available to the public through GRSciColl (<http://www.GRSciColl.org>). A collection curator may also choose to

separately provide public access to the scientific collection database online through an ARS website, provided the scientific collection record in GRSciColl directs users to the location of the online database.

For more than 20 years, extensive information about the USDA/ARS's plant, animal, and microbial genetic resources conserved by its genebanks have been maintained and are publicly accessible online via the Germplasm Resources Information Network (GRIN) at <http://www.ars-grin.gov>.

With few exceptions (e.g., patent or Plant Variety Protection vouchers), the accessions in the NPGS and other ARS genebanks and associated information are in the public domain. Information about the original location where accessions of rare and/or endangered taxa were collected are not accessible to GRIN users. Curators can make that information available to researchers with legitimate needs for those data.

USDA is home to long term public databases for plant genetic and genomic information. A few USDA databases are dedicated to specific crops, e.g. SoyBase (soybean), MaizeGDB (corn), GrainGenes (wheat, barley, and oats). Others host genetic/genomic information for diverse, non-redundant families of plants, e.g. Legume Information System (LIS) and Gramene. The project plans for each database are kept current in consultation with representatives from each research community.

All restrictions on digital access shall be limited to the minimal subset of specific records and metadata as possible, with all other collection content made public. Where possible, redaction of specific metadata should be favored over limiting digital and physical access to the entire specimen or subset of specimens.

Metadata format

When constructing and formatting the institutional scientific collection metadata, scientific collection curators must employ machine-readable and open formats, data standards, and common-core and extensible metadata for all new information creation and collection to facilitate search and discoverability and provide clear public guidance for accessing collections materials, consistent with the Executive Order on Making Open and Machine Readable the New Default for Government Information.

When available and where not limited by law, this policy, or resources, ARS will make freely and easily accessible to the public all digital metadata in the highest available fidelity and resolution, including, but not limited to photographs, videos, and associated records and documentation, that describe or characterize specimens in a scientific collection.

Third-Party Management of Institutional Scientific Collections

Third-party collections are those not owned, but supported, by ARS. For example, ARS partially funds the Tomato Genetic Stock Center at the University of California at Davis and the Ornamental Plant Germplasm Center at The Ohio State University, and their accessions have NPGS numbers, information in GRIN, and are backed-up in the ARS genebank at Ft. Collins. Thus, these collections follow the same guidelines as the ARS genebanks.

To start a new third-party collection and, whenever practicable and appropriate, a scientific collection curator should work with public or private outside entities qualified to manage scientific collections. Those entities must agree to take responsibility for the stewardship and access to institutional scientific collections.

- If the outside entity is a federal agency, then the entity's scientific collection's policy applies to the institutional collection. An interagency agreement should be executed and included with a scientific collections plan (if available) and annual report.
- If the outside entity is not a federal agency, and does not have a relevant scientific collections management and access policy, then the institutional scientific collection will be governed by the ARS policy. All Agency grants, contracts, and cooperative agreements that direct an outside non-federal entity to obtain or create an institutional collection must require the entity to comply with the ARS scientific collections policy. The agreement or contract should be included with the scientific collection section of the annual report.

Access Plans include Access and Use Protocols:

1. Detailed instructions for digital access to the scientific collection, including:
 - a. Step by step instructions and timelines for the process of providing digital public access to newly accessioned specimens
 - b. A detailed description of which records or specimen metadata fields are restricted from disclosure and why
 - c. A timeline from accession of a specimen to digital public access
 - d. A detailed description of which records and metadata to be redacted
2. Detailed instructions for physical access to the scientific collection, including:
 - a. Outline procedures to properly aliquot, or parse, bio-specimens to ensure ease of distribution
 - b. A detailed description of which specimens, records, and metadata will not be available for physical access
 - c. Procedures used to respond to and accommodate physical access and loan requests
 - d. A standard timeline to respond to a request

BUDGETING

An institutional collection is part of an ARS base-funded project subject to OSQR review, thus, the collection's budget is part of the overall project budget. Project budgets and their adequacy to support the research, including relevant institutional collections, are subject to yearly review by line management in the Agency's ARMP process.

ANNUAL REPORTING

To maintain proper oversight of the management of institutional scientific collections, the scientific collection curator submits an annual report summarizing the status of the collection as a component of the project annual report. The project annual report is reviewed and approved by the Research Leader of the Management Unit where the institutional collection resides. Subsequent approval by line management and review by program leaders are required per standard ARS policies and procedures for project annual reports. The annual report for a project including an institutional collection must include:

- A link to the catalog in GRSciColl (<http://www.GRSciColl.org>)
- A summary of major changes to the digital or physical public access to the scientific collection;

- The current interagency agreement, memorandum of understanding, or contract with a third party entity responsible with the management of the scientific collection, if applicable;
- A summary of any significant changes in practices, procedures, technology, law, or regulation that impact the collection.

PRACTICES FOR SAFEGUARDING INDIVIDUAL PRIVACY, CONFIDENTIALITY, INTELLECTUAL PROPERTY RIGHTS, AND NATIONAL SECURITY

PRIVACY/CONFIDENTIALITY

In most cases, materials are broadly distributed from ARS collections without privacy or confidentiality restrictions. Nevertheless, certain circumstances require protection of confidential information. Confidentiality Agreements (CA) can be put into place to protect this information. A CA permits parties to exchange confidential information and data. The signatories of a CA agree to not disclose information received from the other party. A Material Transfer Agreement (MTA) is a type of confidentiality agreement that governs the transfer of certain kinds of materials between two organizations. The MTA does not transfer ownership – the materials are merely lent to the receiving organization and the MTA sets forth the conditions of the loan by defining the rights of the provider and recipient with respect to the materials and any derivatives, as well as the purposes to which the material may be put.

INTELLECTUAL PROPERTY

Outcomes of ARS research may require some form of intellectual property (IP) protection in order to attract the investment required to achieve successful utilization or adoption of scientific materials. Most protection of intellectual property in the Federal Government is done through patents. The first consideration in deciding whether or not to seek a patent is if protection will enhance the likelihood that the scientific materials will be utilized or adopted.

BIOSAFETY AND BIOSECURITY

To ensure safety and environmental protection, ARS employees are required to comply with all federal, state, and local regulations regarding the movement of pathogens (human, animal, and plant) within or into the United States, and safeguarding of those pathogens. Pathogens are distributed and transported only under authority of a permit (e.g., from the USDA Animal and Plant Health Inspection Service, the Department of Health and Human Services, or the Department of Commerce, as appropriate) and a Material Transfer Agreement. Permitting agencies specify the level of containment for the pathogen as well as conditions for limiting access to pathogens and final disposal methods for pathogens. Acceptable disposal methods (usually autoclaving) for pathogens received under permit are specified in the permit. This is out of concern for protecting the Agency from liabilities as well as protecting the end-user/requestor from potential harm/infection/contamination/etc. Inventories of pathogens present in ARS are maintained by ARS.

Note: REE P&P 601.2-ARS Transfer of Biological Agents and Related Information to Non-USDA Locations or Individuals