



Suggested Curation Materials and Supplies

General Supplies

Acid-free paper a 25% rag paper with a pH of approximately 7.0; free of acid, lignin, alum and sulfur

Calipers

Pencil “H” or #2 hardness graphite lead pencil

Permanent black ink fade resistant, indelible ink. Acceptable inks are Higgins®, Black Magic® and Pelikan 17 Black. (Note: Sharpies® are not archival).

Pigma pen permanent black ink pen.

Polyethylene zip lock bags avoid bags developed for food storage and home use because of printing inks and dyes.

Tape measure, cloth metric and SAE.

Safety Supplies

Neoprene gloves heavier synthetic gloves for handling fluid preserved specimens as they are resistant to alcohol and formaldehyde

Nitrile gloves synthetic rubber gloves for handling natural history specimens that may have been treated with poisonous chemicals.

Respirator it is the collector’s responsibility to be medically evaluated for respirator use, be fit tested, use appropriate cartridge filters for the activity and be trained in its proper use.

Archives (Project Documentation)

Archival file folders acid-free, lignin-free, buffered folders, letter or legal size.

Archival map folders large, heavy stock buffered folders.

- Do not use buffered folders for blueprints or photographs unless first placed inside a sleeve of unbuffered paper or Mylar® as a barrier.

Archival document storage box made of buffered board and for use with documents placed inside archival file folders; letter or legal size.

Archival record storage box buffered corrugated fiberboard box with separate telescoping lid used to store documents placed inside archival file folders, for projects with larger quantities of associated field records.

Archival photo enclosures

- All materials used to house photographic images must have passed the Photographic Activity Test (PAT).
- Polyethylene photo pages may be used—do not use yellowed polyethylene pages as they may be contaminated with damaging chemicals. Never use PVC photographic pages.
- Alkaline buffered paper enclosures may be used for black-and-white cellulose ester film.
- Use only unbuffered materials for color images (prints, negatives, transparencies and slides).
- Due to the humidity control issues, do not use Polyester (Mylar®) envelopes for photographs.

Entomology Specimens

Stainless steel pins for mounting insects

Insect pinning trays constructed of 0.5” thick cardboard and covered with acid-free white chrome paper. On the inside bottom is a rigid polyethylene foam liner to mount the pinned insects.

Entomology cabinet 51-5/8”H x 21-3/4”W x 22-3/4” D or 84”H x 23”W x 20-7/16” D steel cabinets with a gasket and locking door.

Aluminum Cornell type entomology drawers

NPS entomology specimen labels

For insects preserved in fluids, see Wet Collections on the reverse side.

Plant Specimens

Herbarium specimens should be glued, taped or sewn (or a combination approach) onto the mounting sheets as appropriate for the specimen to ensure that they are adequately mounted.

Note: specimens must be mounted when submitted to the Acadia National Park. Researchers may do this themselves (using approved materials and techniques) or they may have another herbarium mount the specimens for them. **The researcher is responsible for the cost of mounting.**

Herbarium mounting sheets an 11.5”W x 16.5”L sheet of white, acid-free and buffered paper stock.

Herbarium adhesive methylcellulose

Herbarium mounting tape a white cloth tape with water-activated adhesive.

Herbarium folder measuring 16-5/8” L x 12” W (when folded), made of acid-free and buffered heavy-stock paper.

Herbarium fragment folder an acid-free and buffered paper enclosure.

Herbarium cabinet 40”H x 29-1/8”W x 19-1/8”D or 84-1/8”H x 29-18”W x 19-1/8” D steel single-door cabinet with gasket and locking door.

NPS herbarium specimen labels

For plants preserved in fluids, see Wet Collections below.

Mammal Collections

Specimen trays made from buffered, acid-free board.

- Contact with buffered paper can damage pigments in bird and mammal specimens. Line buffered trays with polyethylene sheeting to block direct migration of alkalis to these specimens.
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Wet Collections

Evaporation of preservatives from fluid specimens endangers specimen preservation, increases collection management responsibilities, creates an increased fire hazard in museum storage and threatens the health and safety of curatorial staff. To ensure that all park specimens are appropriately preserved without creating future management problems, **all wet specimens must be submitted in approved containers with approved closures**, as listed below:

- Containers must be screw-top, clear flint glass jars with polyethylene insert and a flexible polypropylene lid. Wide-mouthed jars are preferred.
- Containers should be filled to the neck with the preservative fluid. This reduces the air-to-fluid ratio in the container and allows for immediate detection of evaporative loss of fluid because all containers are filled to a standard height.
- Specimens should not be allowed to protrude above the level of the fluid in the container. Use the largest jar size necessary to ensure that this does not occur.

Jars should be appropriately sized to the specimens they contain. Multiple specimens of the same species may be stored within one jar if:

- Each specimen is individually tagged with the park catalog number.
- Tags, ink and string are chemically resistant.
- An inventory of the specimens is included in each jar.

The fluid preservative used is necessitated by the specimens collected. In general, 70% ethanol (ethyl alcohol) is the preferred preservative. However, 10% buffered formalin is currently the preservative of choice for eggs and larvae of fishes and amphibians. Formalin is also commonly used as a fixative for many types of specimens. **In all cases, the chemicals used for fixation and storage must be documented for each specimen.** It is important to record all fixation and preservation chemicals, processes and exposure times because these may affect future use of the specimen, especially for molecular studies.

Wet Collections continued

General information about fluid preservatives is presented below. Additional questions should be addressed to the Chief of Resource Management.

- Alcohol should be diluted with distilled, purified or deionized water to avoid the formation of precipitates.
- Formaldehyde is not considered a good long-term preservative for most specimens. In addition, it represents significant health and safety issues for collectors, researchers and staff. Use of formaldehyde or formalin should be limited only to those situations when it is required for the preservation of the specimen and ethanol is inappropriate.
- Isopropanol is used as a preservative at concentrations of 45-50%. At this strength it has been shown to cause considerable shrinkage of specimens. Use of isopropanol as a fluid preservative must be justified and approved by the Chief of Resource Management in advance.
- For fish, it has been recommended that specimens fixed at 10% formalin be transferred to 35%, then to 55% and then to the 70% concentration of ethanol storage solution. Note: Use of formalin is not required.
- Methanol is not a good preservative and must not be used.
- Phenols are not good long-term (i.e. greater than 10 years) preservatives and must not be used.
- There are no published reports on the long-term effectiveness of ethylene glycol as either a preservative or an additive and it must not be used.
- Fungal activity is a problem with glycerol solutions and they must not be used.
- **It is the responsibility of the collector to know the hazards associated with fluid preservatives and to ensure safe handling procedures during preparation and transportation of specimens.**

Soil Sample Collections

Soils should be stored in high density polyethylene or polypropylene wide-mouthed plastic bottles with screw caps, 500 or 1,000 ml bottles work well.

Each bottle should be labeled on the exterior with: “National Park Service, Acadia National Park”, Accession Number, Catalog Number, Collector, Collection Date, and appropriate location metadata [horizon (name), depth, sample (where there are more than one specimen per horizon), layer, and jar (where there is more than one jar per specimen)].

For added security an identical label printed on acid free paper or Tyvek should be placed in a polyethylene zip bag and stored inside the jar.