



REQUEST FOR DESTRUCTIVE SAMPLING OF HERBARIUM SPECIMENS CALIFORNIA ACADEMY OF SCIENCES CAS/DS HERBARIA

The collections of the CAS/DS herbaria are maintained with the goal of balancing preservation of the integrity of herbarium specimens with utilization for scientific research. We ask that you read this policy statement and return a signed copy of this form to the address indicated below. No destructive sampling is allowed of the CAS or DS specimens until permission is granted to the person institutionally responsible for the receipt of the specimens.

The investigator requesting destructive sampling should have experience with laboratory techniques to ensure a reasonable probability of conducting a successful procedure. To that end, students **MUST** have the signature of their advisor before sampling will be allowed. Although every effort will be made to accommodate researchers, decisions concerning destructive sampling of collections are made on a case-by-case basis.

Permission for removal of material is contingent upon adherence to the following guidelines:

1. The California Academy of Sciences Herbarium allows destructive sampling of its herbarium specimens only in support of studies in systematic botany or related fields. Material from specimens will not be provided for research with potential commercial applications.
2. Material may only be removed from specimens that represent taxa that are not available from the field or from cultivated plants. The destructive sampling of herbarium specimens should be viewed as a compliment to field sampling for cases where field sampling is not possible.
3. Material **may not** be removed from type collections, collections made prior to 1960, specimens of endangered or extinct taxa or from taxa represented by 3 or fewer collections, except on rare occasions and with special permission from a designated curator.
4. If your research involves any taxon listed on any of the CITES Appendices, you may not transport any parts of plants or plant products (e.g., DNA extractions) internationally unless both the shipping and receiving institutions are registered with CITES.
5. Leaf material, pollen, spores, etc. may be removed from specimens only when adequate material is available. Where possible, samples should be taken from the material in fragment packets and/or from obscured portions of the specimen. Specimens with the most abundant leaf, fruit or flower material should be sampled first. Care must be taken not to damage the scientific value of the specimen. For DNA studies, only leaf material may be removed (usually not more than 20 mg), and this leaf material should be from the packet on the specimen if at all possible.
6. Requests for removal of material for DNA studies will be reviewed by a Curator or the Collections Manager. An estimate of the amount of material needed must be submitted, explaining the number of specimens involved and the amount of material to be removed from each specimen. DNA sequence data must be lodged in a publicly accessible database (e.g. GenBank).



7. Pollen can be removed from no more than one flower per sheet, and the sheet must have more than one flower. If possible a whole flower should not be damaged.
8. Material may not be removed from an herbarium sheet for a second time, if the nature of the study is the same (i.e., pollen material for SEM, leaf material for DNA analysis, etc.).
9. Each specimen must be annotated indicating the material removed, the nature of the study, the identification of the specimen, the researcher's name and institutional affiliation, and the date.
10. Material removed for destructive sampling and not used must be returned to a fragment packet on the specimen, or placed in the specimen packet. Left over samples used for DNA extraction should be properly stored and curated and the researcher should provide CAS with the location of the samples and the storage methods used. Material cannot be transferred to any other researcher or party without approval from CAS. CAS reserves the right to request or to sequence any material that was originally obtained from CAS/DS specimens.
11. When SEM photos are made, a print (ca. 7 x 10 cm) must be returned with the specimen. This print must clearly indicate the herbarium (CAS or DS) and the accession number of the sheet from which the material was removed for the SEM photo as well as the magnification.
12. For large or complicated requests for material for DNA extractions or other studies, researchers will be asked to come to the California Academy of Sciences Herbaria, using their own funds, and select specimens for sampling themselves. Specimens will be selected and set aside by the researcher, and removal of material will be made with supervision and approval of appropriate staff. Not only does this reduce the work required of the curatorial staff, but it allows the investigator to make more precise selections.
13. The herbarium of the California Academy of Sciences (CAS) and/or the Dudley Herbarium of Stanford University (DS) must be cited in any resulting publication, depending on whether collections from one or both of these herbaria were used. A copy of any publication citing the use of CAS or DS specimens must be sent to the Collections Manager at Botany Department of the California Academy of Sciences; this should also include GenBank accession number/s.
14. The California Academy of Sciences Herbaria maintain no records on the history of specimen collections such as the methods during collection or subsequent treatment during storage. Materials are supplied with no warranty of any kind including the correct identity of the specimen.



If you agree to accept the materials under the above conditions, please fill out the following form and return a copy of the guidelines and the signed form to:

Collections Manager, Botany Department, California Academy of Sciences, Golden Gate Park,
55 Music Concourse Drive, San Francisco, CA 94118-4599, U.S.A.

Project outline (include project title, what efforts have been made to obtain fresh material, what and how much material will be removed [e.g., one flower, 20 mg leaf material], evidence of well-developed protocols for DNA extraction, where will the sequence data or morphological images be lodged, etc.):

Taxa or list of specimens to be sampled (attach list if necessary):



Name and address of Institution:

Research Investigator:

Printed Name

Signature Date

Major Professor (if the Research Investigator is a graduate student):

Printed Name

Signature Date

Person institutionally responsible for the loan if different from above:

Printed Name

Signature Date