

THE UNIVERSITY OF ARIZONA  
**CAMPUS ARBORETUM TREE COLLECTIONS POLICY**

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## **INTRODUCTION**

### **Boundaries of the University of Arizona Campus Arboretum**

The University of Arizona Campus Arboretum comprises all landscaped greenspaces on the main campus in Tucson, AZ where the University has developed facilities. Main campus boundaries on the west are limited by Euclid Avenue, on the east by Campbell Avenue, on the south by North Sixth Street, and on the north by Mabel Avenue, east to Cherry Avenue and inclusive of portions of the Health Sciences areas to the northeast as far north as Elm Street. These boundaries are subject to change based on the redevelopment of Campus Planning Boundaries. All plantings on these University of Arizona properties adjacent to UA buildings, and/or defining University open space, in Pima County, Arizona, may be considered as a part of the University of Arizona Campus Arboretum.

### **Purpose of UA Campus Arboretum Tree Collections Policy**

The Purpose of the Tree Collections Policy is to provide guidance relating to the foundational woody species of the main campus landscapes for those in University Facilities Services charged with planning, constructing and maintaining the arboretum living collections. The policy directs how planning and management of landscape assets is to be accomplished so as to best support university mission and better convey our collective integrity as responsible stewards. Specifically, it directs collection development to prioritize acquisition of long-lived, highly resilient species that are adapted to climatic conditions, able to best support academic uses, and which otherwise optimize the use of campus green space and promote efficiency in the management of the living facilities. In so directing, the policy lays out criteria, processes and responsibilities necessary to realize the Campus Arboretum's mission.

The primary collections of the University of Arizona Campus Arboretum include the living plants within the main campus boundary. Additionally, secondary collections including digital assets, conservatory and natural history collections exist. The latter, referring specifically to the pressed voucher specimens housed at the University of Arizona Herbarium (ARIZ), a unit mandated by the State of Arizona. The above-cited purposes of the policy govern the Campus Arboretum's collections of living plants.

### **Responsibility for Review and Implementation of the Policy**

The Collections Committee will be responsible for providing guidance on plant acquisitions which are congruent with the criteria set up in the collections policy, and for setting priorities for collections development. As collections development occurs within a dynamic environment, guidance on acquisitions will occur on an ongoing basis, with a formal annual review of specific collections priorities and plans taking place as noted below.

Periodic review and recommendations for revision of this Policy shall be initiated by the Campus Arboretum Advisory Board and carried out by the Collections Committee. The Collections Committee shall meet for this purpose at least once every year, and as needed at the call of its Chair.

The administration of the Policy is the responsibility of the Director, and the implementation of the Policy is the responsibility of University Facilities Services.

## **ARBORETUM ROLES WITHIN THE UNIVERSITY CONTEXT**

### **The Campus Arboretum Mission**

The Mission of the Campus Arboretum at The University of Arizona is to promote conservation and stewardship of urban trees through research, education, and outreach. As such, the arboretum provides leadership in curation decisions and guidance in expansion of the living collection, ensuring plant selections for campus optimize potential application in research, education and outreach missions of the university.

### **Relationship to University Mission and Operational Units**

The arboretum also provides advocacy for appropriate planning, design, and management practices. The former providing context and defining constraints to development within its urban Sonoran Desert setting, and the latter mitigating threats posed by the conditions of its embedded location on main campus and reducing consumption of financial and human capital while maximizing benefit to people, profit and planet. Additionally, while academic, environmental, economic factors are primary drivers of Campus Arboretum activities, preservation of historic landscapes, succession planning, and aesthetic consideration are tightly coupled to the fulfillment of the arboretum's mission and require the arboretum's active engagement. In these roles, collectively, the Campus Arboretum ensures the campus landscapes are informed by science, optimize fulfillment of university missions and reflect a quality of stewardship commensurate with our status as a Land Grant Institution and location in the Sonoran Desert.

## **PLANT RECORD SYSTEM**

The UA Campus Arboretum is committed to the maintenance of accurate, up-to-date, and pertinent records on its accessioned living collections.

### **Plants to be Accessioned**

All trees and large woody shrubs will be accessioned. When they are healthy enough, and reproductive, all these woody plant specimens will be vouchered with the UA Herbarium. Smaller shrubs, herbaceous perennials, and annuals may or may not be accessioned or vouchered.

### **Responsibility for Records System Upkeep**

The arboretum employs a Registrar of Collections (ROC) responsible for the maintenance of current, thorough and accurate records, the collection of landscape design plans and associated plant lists, the input of these records and the maintenance of the records system. The Registrar of Collections ensures plants are accurately identified and will confer with authorities where questions of current taxonomic classification arise.

The Office of Business Affairs has responsibility for University Facilities Services (UFS) staff who coordinate logistics and supervise construction processes. UFS staff are responsible to provide accurate information pertaining to planned (and actual) installations including planting plans and associated plant lists to the ROC. Additionally, UFS staff will provide information pertaining to the status of an accessioned item (e.g. change of location, damage, death, removal etc.) as needed. The Director of the Arboretum is responsible for the administration and oversight of the plant records system and processes.

### **Timeliness of Records Upkeep**

UFS staff will provide information concerning germplasm installed in the Arboretum's living collections to the ROC within one week after installation is completed. The ROC will enter this

information into the Campus Arboretum's database within four weeks of receipt. New plants installed within larger construction (capital) project should be submitted as an "As Built" list as soon as possible after final walk-through. Changes in the status of an accessioned item (e.g. change of location, damage, death, removal etc.) must be communicated to the ROC immediately who will update the change in the arboretum's plant records system within 4 weeks after the plant status change has taken place.

### **Required Accession Records**

The arboretum records systems will be populated with information pertinent to the items accessioned in the arboretum's collections. This will include taxonomic classification, place of origin, provenance detail, plant source, acquisition and planting dates, and the physical campus location. Data will also be kept with the voucher specimens at the UA Herbarium. Additional information will be kept on specific plants as is needed and practical.

### **Records Validation Processes**

The Arboretum will ensure current taxonomically accepted names are utilized in the records. The Arboretum Director will convene the Collections Committee for the specific purpose of reviewing and updating taxonomic classification and nomenclature on a regular basis, not exceeding five years. The responsibility for this effort will be that of the Collections Committee, under the direction of the Chair, as requested by the Arboretum Director. The Arboretum Director is responsible for validation of field inventories. This will include regular monitoring of plant health and verification of accession status. Plant Health issues identified will be reported through the UFS service request system and changes to accession status will be reported to and noted in the arboretum database by the ROC.

### **PLANT ACQUISITION**

Living plants acquired for campus installations are included in the University of Arizona Campus Arboretum. As such, plant selection should align with the goals and objectives defined by mission statement, described in the Arboretum Roles Within the University Context section of this policy, and according to the selection criteria also delineated in this Policy. New plants to be specified in contracts for new buildings on campus should be vetted through arboretum review to ensure they fall within the Campus Arboretum's selection criteria. In this review process, environmental adaptation, as well as historic, aesthetic, and maintenance requirements will be considered so that plants are only acquired if they align with and enhance the purposes defined in the collections policy. Additionally, guidance from university landscape planning documents and the Planning, Design Review Advisory Committee (PADRAC) will be considered in the review process and will inform the arboretum's Collections Committee recommendations .

### **Selection Criteria**

Plants selected for acquisition, as noted above in the "Purpose of the UA Campus Arboretum Tree Collections Policy" section, assets acquired should emphasize adaptation to arid or semi-arid conditions or serve some other important educational purpose, if otherwise. For the purpose of this Policy, arid and semi-arid regions shall be defined as those receiving annual rainfall of under 250 mm (10 inches) and under 500 mm (20 inches) respectively. Acquisitions should be adapted to the ambient temperature conditions of the site. For practical purposes, this means that specimens should be able to withstand minimum temperatures of -5°C to -8°C (22 to 18°F) for brief periods, when mature, and extended maximum temperatures of 42°C (107.6°F) or more in summer. It is recognized that specific microclimates on the UA Campus may allow use of species

that would otherwise not be adapted to normal weather in Tucson, AZ. In addition to the environmental criteria noted above, additional plant selection criteria to be applied to new acquisitions include:

- *Functional purpose in the landscape.*
- *Educational/interpretive or research potential.*
- *Dominance or importance within a pertinent eco-geographic region.*
- *Economic or ethnobotanic utility.*
- *Ex situ conservation of native and introduced species.*
- *Preservation and perpetuation of collections elements that honor University heritage.*

Acquisitions may be field collected (with proper permits and documentation), salvaged from sites undergoing construction (if properly documented), or come from other botanical institutions, field collectors, commercial sources, or gifts.

### **Initiation and Approval of Acquisitions**

Recommendations for acquisitions of plants into the collections can be initiated by staff, volunteers, persons serving on the Arboretum Advisory Board or Board Committees or interested members of the campus community and the general public. Acquisitions of individual plants are initiated by submitting a **Plant Acquisition Proposal Form to the Collections Committee**. Half of the members of the Collections Committee will constitute a quorum for the purpose of making recommendations concerning accessions. Approval of the species is separate from its actual acquisition.

Where a plant acquisition proposal presents a new species for inclusion in the collection, the Collections Committee will confer with the Advisory Board's New Plants committee before a decision is finalized. Minor acquisitions can be accepted by the Horticulturist/ FM staff person responsible for their care. Records on these species, and a general report to the Collections Committee, will allow evaluation of the specimen and later decision about suitability for future permanent use. Major acquisitions may arrive as part of campus construction project contracts. Where plants are to be introduced into the campus collection through a campus garden project or larger landscape development project, the project should be initiated first with University Facilities Services. UFS will provide guidance to those with projects moving forward for implementation on how to connect with the Campus Arboretum Collections Committee, submit the Plant Acquisitions Proposal Form etc. as described above for single plants. In all cases, project plant lists will be approved by the Collections Committee and/or the Director as part of the UFS led design review process. Upon completion of projects, acquisitions of plants installed as part of capital, large-scale projects are to be submitted as 'as built lists' through UFS. These lists should be submitted to the Registrar of Collections, the Collections Committee or Director as soon as possible after final walk through.

### **Legal and Ethical Aspects of Acquisitions**

The University of Arizona Campus Arboretum is committed to adhering to all laws, regulations, and conventions, be they state, national or international in scope, which govern and regulate the taking and transport of protected taxa.

The Campus Arboretum shall have on file a current copy of the policies and lists of the [Convention on International Trade of Endangered Species \(CITES\)](#). The Campus Arboretum recognizes that

other botanical gardens and arboreta may choose to adhere to those policies in acquisition of living plants, propagules and seeds; our policy will be one of cooperation and respect for those institutions' guidelines.

The Arboretum will not acquire such taxa if any doubt or apprehension exists concerning their origin or method of acquisition. Properly documented donations of protected taxa will be accepted. Where doubt exists as to origin of an individual specimen offered as gift, purchased commodity, or donation, appropriate authorities will be consulted.

The University of Arizona Campus Arboretum is committed to adhering to all laws, regulations, and conventions, be they state, national or international in scope, including the [Convention on Biological Diversity \(CBD\)](#), which pertain to sharing of benefits resulting from the acquisition of germplasm; and which govern Plant Breeder's Rights (PBR) and other intellectual property rights.

The University of Arizona Campus Arboretum is committed to adhering to all laws, regulations, and conventions, be they state, national or international in scope, which govern and regulate the acquisition and transport of organisms constituting a known bio-hazard (noxious weeds, invasive species, or pests). The Campus Arboretum recognizes The Arizona Department of Agriculture as the state authority on endangered plant species, plant protection laws and noxious weeds. The Campus Arboretum is committed to taking a pro-active, careful and watchful posture as regards the introduction into the local ecosystem of potentially invasive, aggressive or noxious ecosystem weeds, as well as any diseased or infested individuals. Additionally, in the process of curating the collection, periodic reports of problem plant species will be reported to the planning and facilities units to consider for removal or future replacement need in succession plans to be developed or updated.

### **Donations/Gifts**

All potential acquisitions presented to the Arboretum as gifts are subject to the same policies and selection criteria as outlined for acquisitions in general. Plants that are offered as gifts are initiated by the **Plant Acquisition Proposal Form**. Acquisitions received as gifts are considered unconditional in regard to the eventual disposition of the gift. The Arboretum reserves the right to display or not display, give away, or destroy the acquired gift. Any special situations in which legally binding restrictions or conditions on the disposition of a gift may be deemed appropriate shall be reviewed by the Collections Committee with a quorum present. The resulting recommendation from the Committee shall be made to the Advisory Board of the Arboretum, who may seek estimates regarding gift value.

### **CARE OF THE COLLECTIONS**

The living collections of the UA Campus Arboretum are to be maintained in a ways that maximizes the health and utility of the living assets. Given the ambient conditions of the University of Arizona campus and its many uses, the collection must be protected to the extent possible from environmental stressors including impacts of construction and other activities that alter site conditions where trees are present. Collections of rare or valuable species shall receive priority care. Plants are considered high priority and merit more intensive care and management where they are rare, old, and or located in parts of campus with high public visibility. If an item in the collections is not performing adequately after increased investment in care, it should be considered for de-accessioning.

When construction competes for greenspace, or where high priority trees are compromised by construction processes, pro-active salvage and propagation efforts are valuable in preserving the specimen or its germplasm. Collaboration between the Campus Arboretum and University Facilities is necessary to communicate when trees are exposed to construction impacts. Specifically, trees of great value within the collection should be identified at the design phase of construction project review and where impacts are anticipated, necessary actions should be defined. Where trees will be preserved in place, UFS and the arboretum should review guidance in the **Tree Care Plan** outlining tree protection standards to be implemented. UFS has responsibility to oversee the care of trees in construction zones. Where tree preservation in place is unlikely to adequately protect the specimen, UFS and the arboretum should coordinate in exploring tree salvage or propagation options. The **Plant Germplasm Emergency Salvage Guidelines** should be consulted during these discussions. Drafting and periodic review of a Plant Germplasm Emergency Salvage Guidelines document shall be the responsibility of the Collections Committee.

### **Safeguarding Collections**

The Campus Arboretum is committed to horticulturally safeguarding its living collections according to science-based professional horticultural practices, especially where challenges of the ambient climatic/environmental conditions of the University of Arizona campus impose threats to plant health, appearance, and longevity. The Campus Arboretum has responsibility to safeguard its collections from security threats imposed by the employment of inappropriate horticultural practices, especially where practical implementation of best practices are possible, and where mitigation of public risk from potential tree failure is necessary. In the case of imminent loss of unique or rare germplasm, salvage operations will be initiated as per the **Plant Germplasm Emergency Salvage Guidelines**. Propagation of unique or rare germplasm will be undertaken whenever feasible.

Collections Records shall be safeguarded by means of adequate security provisions and records backup. The Campus Arboretum and University Facilities Services will cooperate in ensuring proper records backup.

### **Transplanting Large Specimens**

The Campus Arboretum Director shall provide advice and make reasonable efforts to evaluate the costs and benefits of transplanting historic, rare or otherwise significant specimens, versus the costs/benefits of retaining such specimens on site. A key element of proper transplantation is choice of proper microhabitat, on which the Collections Committee will advise. The UA Campus Arboretum [Tree Valuation \(September, 2002\) documents](#) give further guidelines and techniques for evaluating the majority of campus trees.

### **DEACCESSIONING AND DISPOSAL**

It is the policy of the University of Arizona Campus Arboretum that its collections be maintained in the public interest. It is realized, though, that at times it may be in the public interest to remove certain materials from the collections. The following policy applies to material owned by and accessioned into the permanent collections of the Campus Arboretum.

Deaccessioning and disposition of dead or hazardous plants shall be handled in accordance with established University of Arizona procedures. Discussion between Grounds Services and a member of the Arboretum Collections Committee is preferred prior to removal. The final decision

on disposition of dead or hazardous plants lies with Grounds Services, after consultation with representatives of the Campus Arboretum. Where losses occur, a report summarizing lost accessions shall be submitted to the Collections Committee and Registrar of Collections within four weeks of the date of the losses. The report should include the arboretum accession number, photos of the tree, and should ideally also specify trunk caliper, ground cover at the site, and any management details potentially related to the loss (pruning, irrigation, nutrition or construction impacts). Documentation of these additional details are valuable in identifying lessons learned which may inform improved plant selection or management practices that reduce losses in the future. The Campus Arboretum will be responsible for adding details regarding tree losses to the database and generating reports periodically that inform improvements in tree selection and care practices.

Maintaining living plants, especially large woody specimens, requires planning and forethought be given to scheduling and budgeting for consistent appropriate care. Without this, living plants, and trees in particular, may be in poor health or chronic decline without immediately manifesting their state or potential risk to human and physical structures nearby or to the educational value of the collection. Where health, structure and form are compromised, plants in the collection may no longer be good representatives of their species, or lend themselves to horticulture display. In these cases, requests to deaccession living plants, particularly including the disposal or transplant of large older specimens (including any vulnerable to construction projects) will be submitted to the Collections Committee. Requests to deaccession living plants should include detailed justification for the removal. Requests for deaccessioning living plants should be sent to the Campus Arboretum Advisory Board's Collections Committee should be relayed through University Facilities Services. A quorum will be required to confirm decisions regarding any major removal of living plants. The final decision on disposal of individual living plants lies with Grounds Services, after consultation with representatives of the Campus Arboretum and after efforts to demonstrate due diligence in balancing the goals and mission of the Campus Arboretum with the practical constraints necessitating tree removal, deaccessioning, and disposal.

Donor trees or named trees have the added requirement that the donor be contacted. The Campus Arboretum's Donor Policy describes the rights and expectations regarding disposal of old living things which have been adopted by donors. Final decision on whether to dispose of named trees, or donor trees, requires an agreement between the Arboretum Director and a representative of University Facilities Services.

It is important to avoid unreasonable conflict. At times, an public expert's opinion may be sought regarding a valuable or high profile tree.

A. The decision to deaccession an individual plant may be made for the following purposes:

- *To ensure that dead accessions are properly reflected in the Arboretum's record system*
- *To remove plants damaged beyond reasonable recovery that no longer retain collections value.*
- *To record the absence of stolen or missing plants in the collection system*
- *To make reasonable accommodations to UA construction projects or infrastructure changes; after every effort has been made to preserve or transplant accessioned living specimens during planning stages of the project, as noted above*



- *To permit destructive analysis, provided that the information expected to be obtained is deemed to outweigh the value of the specimen and its possible future use*
- *To remove material that is potentially hazardous to other collections or to human health; or which may become invasive and damaging to the environment*
- *To transfer to another arboretum, botanical garden, zoo, museums, or educational or scientific institution, material that is deemed by the Campus Arboretum to be significantly more useful and relevant to the collections and programs of the other institution than to those of the Arboretum*
- *To carry out mutually beneficial exchanges of materials with other arboreta, botanical gardens, zoos, museums, or other educational or scientific institutions*

B. The following restrictions will apply to deaccessioning:

- No transaction will be carried out if it violates state, federal, or other applicable laws, or University of Arizona policy
- All records (including those of the UA Herbarium) will be updated

C. The following principles will govern disposition:

- If a plant is not healthy, it may be destroyed in accordance with health and sanitation regulations.
- Whenever possible, disposition of healthy plants shall be to other arboreta, botanical gardens, zoos, museums, or educational or scientific institutions by exchange of material or services.
- Further, no exchanges or privately arranged sales may be made except to other museums or educational or scientific institutions, unless such sale benefits the species, the Campus Arboretum or another University of Arizona interest.

## **ACCESS TO COLLECTIONS**

The living collections displayed on the University of Arizona campus, as indicated by UA and Campus Arboretum maps and directional signage, are open to the visiting public. Access to the plant collections records and significant requests for information from the collections records shall be referred to the Arboretum Director or Registrar of Collections.

## **Release of Germplasm from the UA Campus Arboretum**

Release of germplasm shall be subject to the provisions of the CBD under the authorization of the Director. Provision of limited numbers of propagules and other tissue from the living collections may be authorized by the Director provided that the manner of acquisition does not endanger the health or appearance of the chosen plant. Access to the collections for the purpose of obtaining propagules and tissue may be granted to public or private botanical, educational, and horticultural organizations. This is particularly important in the case of taxa that are not practically available elsewhere and for which introduction into the trade is deemed worthy. Availability of propagules and tissue for potential commercialization shall be subject to written agreements approved by the governing authorities of the University of Arizona.

The University of Arizona Campus Arboretum is committed to adhering to all laws, regulations, and conventions, be they state, national or international in scope, which pertain to sharing of benefits resulting from the acquisition of germplasm.

## **Special Access**

Access to the records by persons other than those on the Collections Committee will be grantable by Arboretum staff and will be by appointment. The Director will be made aware in advance, where possible, that members of the general public have been granted special access to the collections or records. Instructions on these processes are provided on the Requisitions Processes page on the Campus Arboretum website.

## **GLOSSARY**

### **Accession**

The act of formally including an item or group of items in a managed collection. Implies a commitment to long-term care and the keeping of records about the accession (see acquisition.)

### **Acquisition**

Physically taking possession of an item which will be included in a managed collection. Installation is a synonym.

### **Ambient temperature**

Temperatures naturally prevailing at the site.

### **Arid land plants**

Referring to plants adapted to water stress, usually by virtue of having evolved in areas with an arid or semi-arid climate.

### **Bio-hazard**

Plants or organisms that are known, or have potential, to become invasive or cause damage to local flora.

### **CBD**

Convention on Biological Diversity.

### **CITES**

Convention on International Trade in Endangered Species.

### **Deaccession**

The act of formally deleting an item from a managed collection.

### **Disposal**

The act of removing a plant, either dead or alive.

### **Ecosystem weed**

An organism not native to the local eco-system, which exhibits the potential to aggressively reproduce, disrupting eco-system processes in a one-way direction thereby displacing indigenous species and lowering system biodiversity.

### **Emergency**

An unforeseen occurrence; a sudden and urgent occasion for action.

### **Germplasm**

The genetic material comprising the fundamental information governing the development of a particular organism and carried in each cell of the organism.

### **Governing authorities**

The Arizona Board of Regents.

### **Known wild origin**

Having specific, reliable knowledge, either firsthand or otherwise, of the geographic location of the original collection site of an acquisition.

### **Major acquisitions**

Whole collections offered for donations, long-lived perennials, and other plants in large numbers to which the Arboretum must make either a major short-term or long-term commitment.

**Minor acquisitions**

Annuals, short-lived perennials, or functional plants, all in relatively small numbers, to which the Arboretum has neither a major short-term nor a long-term commitment.

**Naturalized Plant**

Occurring spontaneously from historically introduced germplasm.

**Primary plant selection criteria**

Criteria by which a given potential acquisition is evaluated as to its appropriateness to the Arboretum's stated goals and objectives as outlined in this Policy.

**Propagules**

Units of germplasm utilized to create new individuals, e.g. seed, cuttings, bulbs, etc.

**Protected taxa**

Taxa listed as rare, threatened or endangered, either by the U.S. Fish and Wildlife Service, the Arizona Department of Agriculture, or by the Botanic Gardens Conservation International.

**Specialty collections**

Plant collections organized along particular thematic lines.

**Sub-collection**

A distinct sub-set of a larger collection.

**Taxonomic classification**

The place in the evolutionary order of organisms (phylogenetic position) to which an organism is assigned by a specialist known as a systematist or a taxonomist.

**Taxonomic collections**

Plant collections organized along systematic (phylogenetic) lines. i.e. arranged by family or genus, e.g. Desert Legume Collection, Cactus and Succulent Collections.