Texas Master Naturalist
Seed Collections for Conservation
February 8, 2022

Most people don’t think of seeds as living creatures, but that is exactly what they are! Humans have been collecting and saving seeds for thousands of years, and it’s vitally important that we as Texans utilize this timeless skill to help protect our nature heritage. Join TPWD Botanist Anna Strong, along with Minnette Marr (Lady Bird Johnson Wildflower Center Conservation Botanist) and Andrew McNeil-Marshall (former Arborist for LBJWC) as we learn about the best practices of creating seed and living collections for conservation purposes.

https://www.youtube.com/watch?v=57GqC7-mU0Qs

Seeds collected for conservation are used…

- In research to better understand the species
- As a safeguard against extinction
- To determine germination/propagation protocols

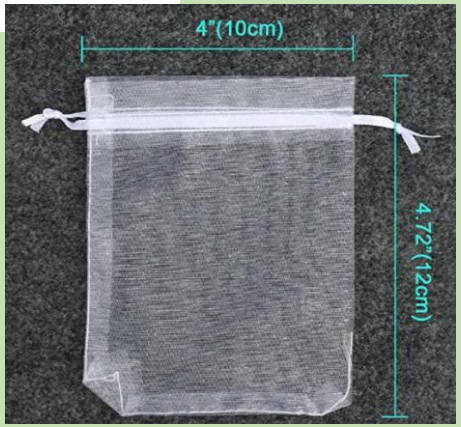
Keep in mind before starting a seed collection:

Know....	Which will indicate....
Seed life-span (ie, desiccation-tolerant or desiccation-sensitive)	If seeds can be put in long-term storage (ie, a seed bank)
Flowering season and (if possible) fruiting season	Go time!
Time to seed maturity	How long the collection might take (days, weeks)
Seeds per fruit	# of fruit/seeds to collect
Seed viability	# of fruit/seeds to collect
Seed dispersal type. Passive? Explosive?	Collection method/supplies
Fruit/seed size	Bag size
Fruit type: dry or fleshy	Seed processing methods and time required

Suggested “beginner” equipment

Adapted from Millennium Seed Bank Technical Information Sheets - Seed Collecting Techniques

Beginner supplies
Organza bags/brown paper lunch bags/coin envelopes (#1, etc)
Pocket knife with scissors
Field identification guides/floras of Texas
Hand lens (x10 or x20 magnification)
Location – GPS, phone, etc
Gloves
Herbarium press, cardboard, paper
Field data recording sheets
First aid kit



http://brahmsonline.kew.org/Content/Projects/msbp/resources/Training/03-Collecting-techniques.pdf

Equipment for Processing Collections in Home Seed Lab

Adapted from Millennium Seed Bank Technical Information Sheets - Post-Harvest Handling of Seeds

http://brahmsonline.kew.org/Content/Projects/msbp/resources/Training/04-Post-harvest-handling.pdf

Item	Purpose	Example
Surface	for seeds to dry on	screen, paper plate, paper coffee filter
Air-tight container	prevents moisture re-absorption	food storage container (rigid or flexible)
Breathable bag	to store seeds	cotton drawstring bag, organza bag, tea filter bag
Optional: Desiccant	*to remove excess moisture from seeds*	*silica gel or dried rice*
Optional: Postage scale	*to determine if seeds are losing or gaining water from surroundings*	

Processing Common Plant Collections to Share at the Next Chapter Meeting

1) After removing non-seed debris, spread seeds out in a single layer on a screen.
2) Place screen in a shady place with good ventilation during the day.
3) Place screen in an airtight container at night. If you do not have an airtight container that is larger than the screen, transfer the seeds to a breathable bag and place bag in an airtight container.
4) Repeat this process each day until the seeds are dry. The number of days will depend on the size of seed, the local weather conditions, and the relative humidity in your home seed lab.

Processing Common Plant Seed Collections to Share at Future Chapter Meeting

5) Follow steps 1 – 4.
6) After the seeds have dried to ambient conditions, use a desiccant in the bottom of your airtight container to remove additional moisture from the seeds.
   a. Five units of dried rice for one unit of seed, or
   b. One unit of silica gel for one unit of seed
7) If the desiccant absorbs moisture from the seeds, replace the moist desiccant with dry desiccant.
8) Repeat this process until the desiccant and seeds reach equilibrium. Usually, desiccant will need to be replaced two or three times.
9) Store seed in airtight container over dry desiccant until you share them.
10) If you have not shared them within a year, consider redistributing them at the collecting site.

Rare plant seed collections

Send seed collections from **rare** plants to Wildflower Center for processing. Please contact Minnette before you collect seeds.

If possible, Minnette will help with:

- collect seeds
- complete associated paperwork
- transport collection to the Wildflower Center

LBJWC will offer a class on seed collections of rare and common species on March 19, 10am. Register here when it is posted:

https://www.wildflower.org/events/2022-03/

Resources

Millennium Seed Bank Technical Information Sheets on seed conservation practices (start with 2-4):

http://brahmsonline.kew.org/msbp/Training/Resources

Rare plants – Center for Plant Conservation Best Conservation Practices, Conventional Seed Banking:

https://saveplants.org/best-practices/conventional-seed-banking-support-species-survival-wild/

Living collections of rare plants – Center for Plant Conservation Best Conservation Practices, Field Genebanks or Inter Situ Collections:

https://saveplants.org/best-practices/guidelines-field-genebanks-or-inter-situ-collections/

Center for Plant Conservation Best Conservation Practices:

https://saveplants.org/best-practices/why-conserve-rare-plants/

Rare Plants of Texas:

https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/tcap/sgcn.phtml

https://tpwd.texas.gov/gis/rtest/

Federal and State Listed Species in Texas:

https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/listed-species/plants/

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