

Suggestions From Hurricane Workshop - 2nd Conference CBGC

1. Disaster Plan

- a. Developing a disaster plan (If you do not have one try to observe other gardens' disaster plans for ideas)
- b. A disaster plan should be created to prepare and recover from any size disaster
- c. The following must be considered in the preparation of a disaster plan:
- d. What are the objectives of the plan? It should focus on the preservation and protection of people, plants and property
- e. What activities will need to take place in preparation of a disaster?
- f. How much time will these activities take?
- g. Scheduling of drills.
- h. Scheduling of routine maintenance of equipment needed after a disaster
- i. Scheduling of pre-checks of buildings/equipment and collections for weak/vulnerable points
- j. What activities will need to take place after the disaster?
- k. Determine priority checklist in an accessible and secure place for whoever makes it back to the garden first after the disaster may begin to work.
- l. Set minimum requirements for priorities

2. Equipment/Supplies

- a. Ensure that you have the equipment you need to recover from a hurricane
 - i. Generator(s)
 - ii. Chainsaws
 - iii. Vehicles
 - iv. Trailers
 - v. Etc.
- b. Service and pre-check critical equipment regularly
- c. Prior to the hurricane store as much equipment, including large equipment such as trucks, riding mowers and other vehicles, indoors
- d. If your garden does not have its own equipment consider organizing use of another organization or government department as part of your disaster plan
- e. Barter for equipment if necessary. Make sure agreements are in place ahead of time eg. Trade wood from felled timber in exchange for saws from wood workers.
- f. Make sure you will have a sufficient supply of potable water
- g. Stock fuel for critical equipment and store safely
- h. Food for employees
- i. Drinking water

3. Personnel/Extra assistance

- a. Key personnel should attend emergency training
- b. Build relationships for volunteer or friends network
 - i. A good volunteer network could provide clean up or financial assistance after a hurricane. Make sure that they are aware of the need for assistance.
- c. Plan who can leave the garden when and who must stay to complete activities before or even during the hurricane
- d. Employees should know how to access the disaster plan which should prioritize salvage activities for those able to return first to the garden
- e. Ensure that during the hurricane season that weather updates are available to all staff
- f.

4. Security

- a. Consider security, theft of plants and other property is a problem after disasters.
- b. Personnel may be required to remain during or immediately after a hurricane in order to deter theft of collections and property

5. Data/Library Resources

- a. Save information in as many different mediums as possible including paper. The paper documents may be handy for accessing info without electricity
- b. Arrange and engage in periodic data transfers with another facility, perhaps another botanic gardens
- c. If you do not have a secure building for data you could make arrangements with another institution for example the public archives department

6. Safety

- a. Key personnel should attend first-aid training for injuries sustained during the disaster and after during clean-up
- b. Make sure you have a well stocked first aid kit, schedule it for regular inventory and re-stock
- c. Look out for hazards after the disaster, clean-up could be dangerous (animal life, chainsaw work)

7. Finances

- a. Build relationships for volunteer or friends network
 - i. A good volunteer network could provide clean up or financial assistance after a hurricane. Make sure that they are aware of the need for assistance.
 - ii. Plan a fundraiser with friends of the garden
- b. Have an agreement with other institutions for assistance, etc. (medical, monetary). Make sure agreements are in place ahead of time.
- c. Hold a post-hurricane fundraiser
- d. Try to have good insurance (keep in mind payment from it could be delayed)
- e. Host hurricane fundraisers to put into a disaster fund
- f. Retain a portion of every entrance fee to put into a disaster fund
- g. Network financial resources for disasters with another institution such as a zoo
- h. Evaluate damage immediately following disaster to present your needs as soon as possible, competition for funds will be tight and people are more willing to give immediately following a disaster

8. Infrastructure

- a. Inspect buildings, equipment and collections for weak/vulnerable points and repair
- b. One building should be hurricane proof for staff who may remain
- c. Storm shutters should be installed
- d. Drains and gutters must be kept clean
- e. Waterproof buildings

9. Living Collections

- a. Prepare nursery - Large plants may survive better if laid down horizontally
- b. Transplant trees at younger age so they can have well developed root systems to weather storms
- c. Cultural management of trees
- d. Keep trees pruned lower to help reduce wind damage
- e. Keep all dry and damaged branches cut
- f. Rare species should be in more than one location (in other bg's)
- g. Identify plants within the collection that are the most valuable and therefore a priority for hurricane protection and post hurricane care
- h. Do not plant very tall trees near to buildings where they can cause damage
- i. In addition to your collection plant some trees in key areas that can survive hurricane conditions, native trees tend to be better survivalists. This may increase your chances of having a better looking bg after the event so that you can open for business sooner. Make use of exotics that do well in hurricanes, e.g. Sea grape and tropical almond
- j. Select sheltered areas for vulnerable trees/plants
- k. Maintain or plant mangroves (coastal gardens)

- l. Double row tree plantings withstand strong winds better than single trees.
They can act as barrier or feature
- m. Plant densely for protection
- n. Maintain a seed bank, consider that power outages could affect a fridge or freezer and place water in gallon jugs at the bottom of freezer.
- o. Not only your botanic garden but your entire area/island/region could have lost significant amounts of native/endemic species. Stockpiles of seeds need to be developed several locations.
- p. Your planting plan should take hurricane force winds and other natural disasters into account

10. Clean-up

- a. Clear walkways first
- b. Determine where trash will go and what will be done with it.
- c. Determine what you can/should salvage

11. New gardens

- a. Assess your location
 - i. Elevation (flooding)
 - ii. Natural drainage, concrete drains, gutters, crossdrains and culverts
 - iii. Past history (has it weathered storms before)
 - iv. Natural vegetation (protection it offers)
 - v. Soil type (loose sandy soil could increase toppling trees)
- b. Physical structures
 - i. Use the best technology and materials for construction, e.g. avoid flat roofs, hip-roofs survive better
 - ii. Shade/Glasshouses – Develop specs on how to and not to build (12 foot rather than longer spaces between uprights, shade cloth should not rest directly on cables)

12. What can we do as a network?

- a. Build database of specialists willing to contribute assistance (technical and mechanical) after disasters
- b. MOU's with other Bgs
- c. Communicate
- d. CBGC secretariat responsible for alerting wider network to affected garden's needs
- e. Checklist of hurricane-resistant plants and include them as part of plan
- f. Caribbean gene bank
- g. Credit union-voluntary contribution of funds
- h. Share disaster plans Gardens without a disaster plan could benefit from seeing existing disaster plans