ABACO MANGROVE SURVEY
Mangrove ecosystems are important coastal habitats. They protect inland areas from storms by breaking waves and capturing sediment. Mangrove creeks also provide excellent habitat for many important species we rely on for food and recreation (e.g., Nassau Grouper, Spiny Lobster, Bonefish). The loss of mangrove ecosystems is detrimental for humans and marine species that rely on them. There are many factors, both abiotic (salinity, hydrology) and biotic (insect grazing, disease) that may contribute to mangrove loss.

We are investigating how plant pathogens may contribute to mangrove loss here on Abaco. This survey will help detect the incidence of plant disease in Red Mangroves across this island.
1) Before you leave make sure you have everything you need. FRIENDS will have prepared bags containing Ziploc bags, flagging tape, permanent marker and a data sheet if you are able to stop by before doing your survey. You will need:

- GPS
- Digital camera (Your cell phone will work)
- 2 Ziploc bags per site
- Permanent marker
- Flagging tape (bright colors preferred)
- Paper
- Pen/pencil

2) Choose a location for your survey. For help choosing a location, visit the survey map on the Abaco Scientist website (http://appliedecology.cals.ncsu.edu/absci/).

3) Record a GPS point OR mark the area on the map
   Lat: _____________________ Long: _____________________

4) Record the date and time you start the survey.
   Date: _____________________ Time: _____________________

5) Take a photo of the site. This should capture multiple trees and show what the site looked like overall. For example:
6) Write down anything you notice about the site. For example, is it located close to the road? Near a development? Is it flooded or is it dry?

_____________________________________________________________________________
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7) Approach several (at least 3/site) Red Mangrove patches and perform a visual survey for disease.

Examples of diseased leaves

8) Record the total number of diseased leaves you see.

☐ 0
☐ 1
☐ 2-10
☐ 11-30
☐ 31-50
☐ <50

9) Tie flagging tape around a tree branch so that it is visible in case we need to return to the site.

10) Take a photograph of what you classified as a healthy leaf.

Photo Taken? Y ☐ N ☐
11) Collect a healthy or non-diseased leaf. Place in a Ziploc bag and label the bag with the date, your name, the GPS point and “healthy”.

![Image of healthy leaf with label](image1)

12) Take a photograph of what you classified as a diseased leaf.

Photo Taken? Y □ N □

13) Collect a diseased leaf. Place in a Ziploc bag and label the bag with the date, your name, the GPS point and “diseased”.

![Image of diseased leaf with label](image2)

14) Were there any dead mangrove trees at the site?

Y □ N □

If yes, approximately how many? __________

15) Record what time you complete the survey.
Time: ________________
16) Before leaving the site, be sure that any leaves collected are stored in a Ziploc bag. We do not want to risk spreading the disease!

17) Upload your information to the Mangrove Survey form on the Abaco Scientist website (http://appliedecology.cals.ncsu.edu/absci/2015/04/mangrove-citizen-scientist-project/). If you are unable, for any reason, to access the Abaco Scientist website email ryann.rossi@gmail.com or call FRIENDS at 242-367-2721.

For more information visit
http://appliedecology.cals.ncsu.edu/absci/
https://www.facebook.com/Abacomangrovesurvey?fref=ts
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