

South Florida/Caribbean Network

National Park Service
Inventory and Monitoring Division



Standard Operating Procedure CI01

Preparation for Fieldwork—Version 1.1

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Summary

Before each scheduled field event, proper preparation is essential to collecting good data. This SOP provides a list of the items that need to be taken care of before doing fieldwork and includes detailed steps for uploading site/infestation waypoints to a GPS unit, uploading a FileMaker Pro database to an iPad, and uploading an offline ArcGIS Online map to an iPad.

Revision Log

Revision Date	Author	Changes Made	Reason for Change	New Version #
3/20/2020	Robert Shamblin and Judd Patterson	1) Added in procedures related to using an iPad for data collection and a Bad Elf for GPS coordinates. 2) Added in use of previous infestation datasheet and digital maps. 3) Added field equipment to list taken from the Narrative	1) In some cases, the use of an iPad to collect data will be slightly different than recording data on paper datasheets 2) Since we are returning to sites for a second time, we are now tracking previous infestations more closely. 3) This SOP's prep list was missing some items that were included in the Narrative	1.1

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Procedures

Before each scheduled field event, proper preparation is essential to collecting good data. Below is a list of the items that need to be taken care of before field work:

- GPS units are uploaded with all the survey area points (see ‘Preparing GPS Units’ section below). When uploading or downloading waypoints, make sure that the projection settings are set to a datum of NAD83 and a UTM zone of 17N.
- The Bad Elf external Bluetooth receiver is charged and has the GPS logger function enabled so that it can start recording a trackline as soon as it is turned on (see ‘Preparing GPS Units’ section below).
- An iPad (and backup, if available) is charged and loaded with the latest field database. The iPad(s) are also loaded with an offline map that displays the location and sizes of infestations identified in the previous survey (see ‘Preparing an iPad’ section below).
- A battery pack/portable charger and appropriate charging cables are taken in case the iPad or Bad Elf external Bluetooth receiver need recharging. This is particularly critical on occasions when a crew is spending consecutive days out in the field without returning to the office/duty station.
- Print new infestation data sheets (see Appendix A in *SOP CI02 Survey Methods—Version 2.0* [SFCN 2022a]) on all-weather paper in case the iPad does not function properly.
- Previous infestation datasheets (see SOP CI02) that include the infestations identified in the most recent survey year for each location are printed on all-weather paper. The datasheets list the infestation ID number, the species code, infestation size, abundance, and field of view (FOV) information for previous infestations.
- Check for the latest EDDMapS exotic plant listing for the park to be surveyed. This is useful to see if anyone has reported any rare or unusual exotic plants for the park (see SOP CI07 *Reporting—Version 1.1* [SFCN 2022b], section “Import Data from EDDMapS”).
- GPS units, park radios, and an optional camera (as a backup to the iPad) need to be fully charged. Bring charging cables if on a multi-day trip.
- Pencils, vascular plant guide (Wunderlin and Hansen 2011), NPSpecies plant list for park being surveyed, usually in a small action packer to keep everything together.
- Pack mosquito suits, mosquito repellent, rain gear, a substantial lunch, and plenty of water (1 gallon per person per day is a good rule of thumb).
- Vehicles need to be checked to make sure they are in proper running condition and fully fueled for each field day. Vehicle Go/No Go checklists are on the server (Z:\Safety) and in

Appendix A (give priority to the server version as updates will occur there first). The SFCN fleet vehicles and boats are on a regular maintenance schedule with each vehicle assigned to a specific SFCN staff member in charge of that vehicle's maintenance. When boating, a park ranger may be able to assist with motorboat transportation needs based on their availability. For work in Florida Bay near Flamingo, the Flamingo Ranger Station can be called (239-695-3094) for motorboat operator assistance. For work in the western Everglades region, the Gulf Coast Ranger Station can be called (239-695-4217) for motorboat assistance. In case of emergencies, first contact Everglades dispatch (305-242-7740) either by phone or by park radio. Then call the office (305-252-0347) to report the emergency.

- Inspect and decontaminate (wash with water using hose with a spray nozzle attachment) vehicle for possible seed sources such as caked on mud, plants, and seeds themselves before going into the field. This will prevent the field crew from becoming a vector of exotic plant dispersal.
- Safety gear such as the magnetic strobe light for the truck (place on roof of truck when surveying roads), orange safety vests (wear when walking roads or ORV trails), and a First Aid kit must always be available within the truck.
- 5-gallon (18.9-liter) water cooler with ice water for field crew hydration.
- Personnel need to know how to use the park radios and verify they are charged and ensure that the Radio ID sheet (Appendix A) is within the radio box before leaving the SFCN office.
- If using ATVs, airboat, or motorboat, the appropriate Go/No Go checklist must be followed and is provided on the server (Z:\Safety\) and Appendix A (give preference to the server version as updated will occur there first).
- If an herbicide applicator will be participating, then include:
 - Manual, Control of Non-native Plants in Natural Areas of Florida (Langeland 1997) or another credible source.
 - Training manual, Natural Area Weed Management (Langeland 2001).
 - Appropriate herbicide mixes for park regions being sampled.
 - Appropriate personal protective equipment (PPE) for handling the herbicides and treating infestations. The proper PPE will be stated on the label of the specific herbicide being used but generally this consists of long pants, long sleeved shirt, close-toed shoes, eye protection, and herbicide resistant gloves.
 - Any other equipment required for the safe application of the herbicides that may be used.

- Always check the weather conditions and forecast before leaving the office and use good judgment based upon the mission. Deteriorating weather conditions can be the most dangerous as they can rapidly change a “Go” to a “No-Go” situation.
- The EVER Dispatch Backcountry Float Plan (found on the server at Z:\SAFETY\Float_Plans\20200219_Backcountry-Float Plan_EVER_Dispatch_blank_original.pdf) must be filled out and emailed to Everglades dispatch (sofi_backcountry@nps.gov) the day before a scheduled field event. It will also be necessary to call Everglades dispatch (305-242-7740) the morning of a scheduled field event to ensure that they received the backcountry float plan. As a secondary precaution, the office emergency field sheet must be filled out (provided in Z:\Safety\ and Appendix A [use Z:\Safety\ version]) identifying field members and their cell phone contact numbers, which park and area of the park you will be working, estimated time of return from the field, and time to start calling for help if the field crew does not call in stating they have returned from the field. This is not only posted by the office entrance but a person (typically the program support specialist and/or the community ecologist) must be informed and must agree to be responsible for making sure the field crew has returned.
- It is the responsibility of all personnel to implement Operational Leadership and speak up and act if a situation is felt to be or may become unsafe.

Preparing GPS Units

Uploading Waypoint Shapefiles to Garmin GPS Handheld Unit

Before going out to the field, Garmin GPS handheld units are uploaded with all the survey area/site points as well as the infestations identified in the previous survey year. This allows the field crews to navigate and arrive at the survey locations, including the previous infestations found in those locations. Also, these GPS units function as a backup to collecting coordinates which the iPad/Bad Elf external Bluetooth GPS receiver combination is setup to do.

1. With GPS unit turned on and connected to a computer, open the DNR GPS software program.
2. The GPS unit should be automatically detected by DNR GPS. In the lower left-hand window of the program’s window it should say “Connected.” If it does not say “Connected,” do the following:
 - a. Make sure the GPS unit is turned ON
 - b. In DNR GPS, select GPS > Find GPS
3. Be sure that the correct projection is displaying (NAD83, UTM Zone 17N). If not, select File > Set Projection. In the DNR GPS Properties (Figure 1) window set the datum to NAD83 and the projection to UTM zone 17N.

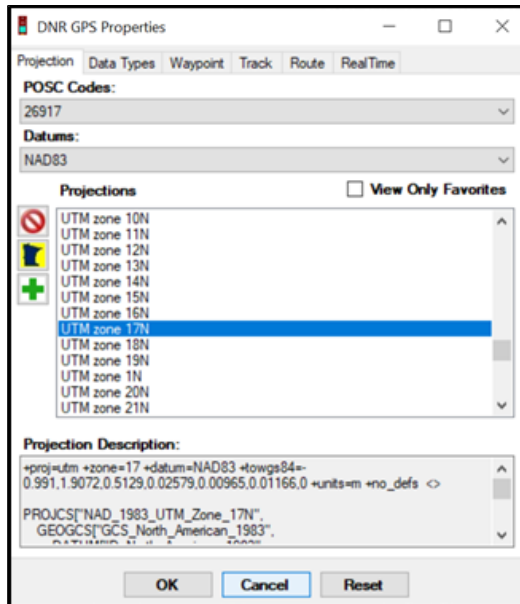


Figure 1. To set the correct projection for the handheld GPS unit use the “Properties” window in the DNR GPS software program.

4. The survey locations/sites exist as a shapefile on the server. In DNR GPS, select File > Load From > File. In this window navigate to and choose the appropriate shapefile. Also, set the file type (at the bottom right-hand corner) to ESRI Shapefile (2D) (*.shp) so that the file can appear in the “Load From” window.
5. In the Select IDENT Field window (Figure 2), choose a field from the shapefile that will display on the GPS unit as the ident or waypoint name.

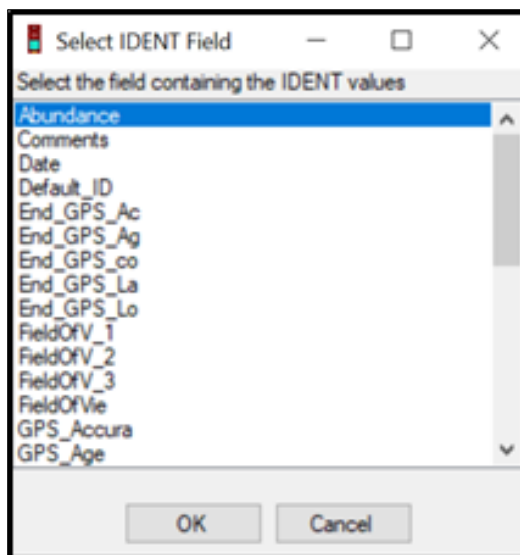


Figure 2. To choose a field from the shapefile that will display on the GPS unit as the ident or waypoint name, use the “Select IDENT Field” window in the DNR GPS software program.

6. A message will display the statement “Load From File(s) Complete.”
7. Back in the main DNR GPS window select Waypoint > Upload.
8. A message will display the statement “Transfer Complete.” Look for the waypoints on the GPS unit and ensure that they appear in their correct geographical coordinates.

Preparing the iPad for Fieldwork

Uploading the FileMaker Pro Database to an iPad

Before a crew goes out to the field the FileMaker Pro database needs to be uploaded to the iPad so that it can be used within the FileMaker Go app. This will allow the FileMaker Go app on the iPad to be used for digital data collection for each infestation.

1. Before beginning, ensure that Apple iTunes is installed on the computer.
2. Connect the iPad to a computer using the Apple specific USB cable.
3. The iTunes window should appear.
4. On the upper left corner of the iTunes window an iPad icon should appear showing that the iPad is connected to the computer (see the red arrow in Figure 3 below). Click on the iPad icon.

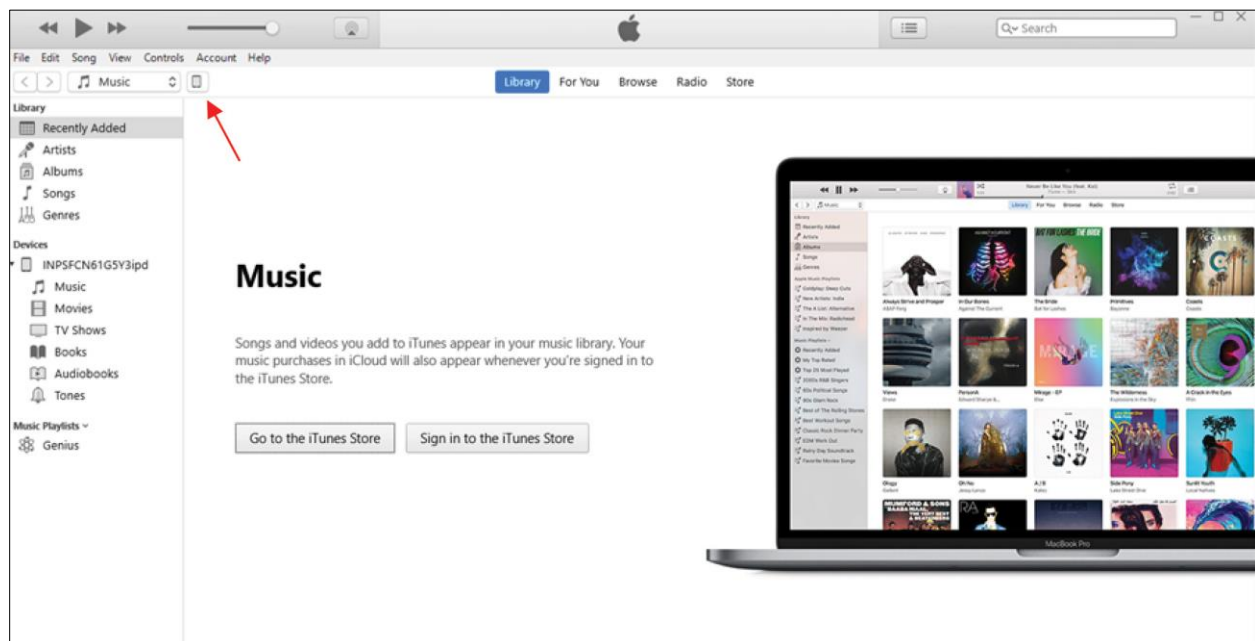


Figure 3. An example of the iTunes home screen on a computer. The red arrow points to the iPad icon showing that it is connected to the computer.

5. Under Settings section click on 'File Sharing' (Figure 4).

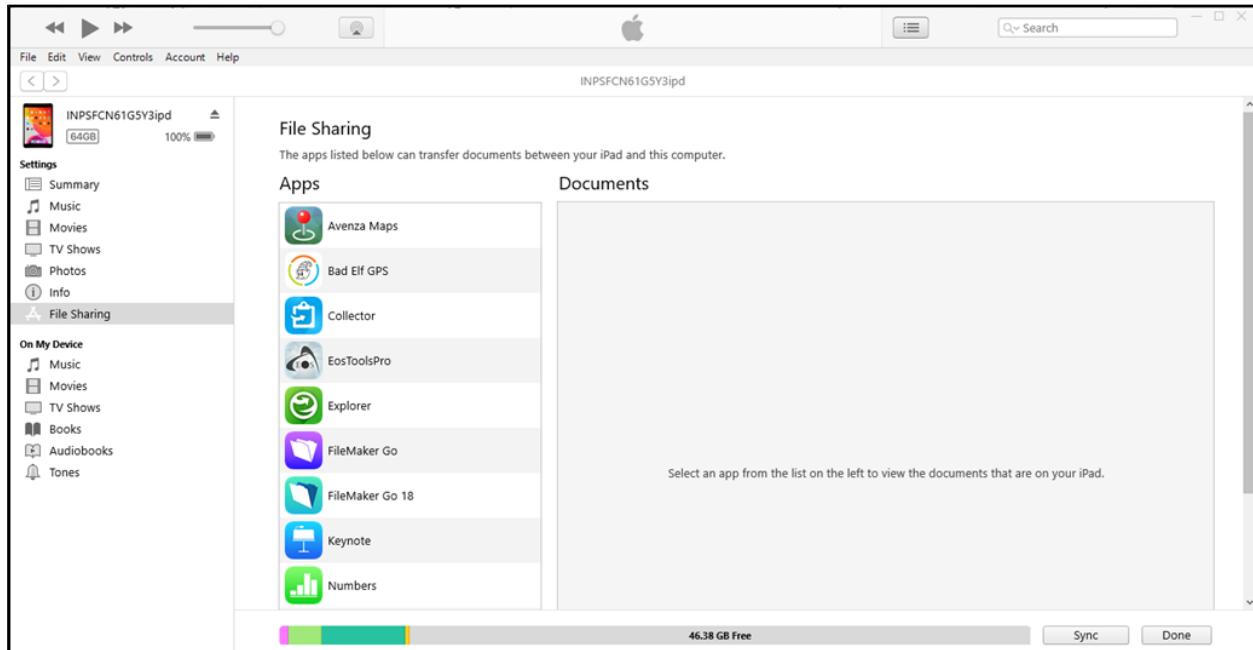


Figure 4. An example of the iTunes File Sharing Screen on a computer. With the iPad connected to the computer it shows all the apps installed on the iPad. Under “Settings” click on “File Sharing” to get to the File Maker Go application.

6. Scroll down to the bottom of the File Sharing page. Under the Apps section there will be a table displaying the different applications installed on the iPad (Figure 4 & 5). Click on the FileMaker Go application in the table.
7. The FileMaker Go Documents window adjacent to the Apps table will now display fmp (FileMaker Pro) files that are currently uploaded to the iPad and have been used for data collection. The files are date stamped.
8. Click on the “Add File” button at the bottom of the Documents window.



Figure 5. An example of the iTunes File Sharing screen with the FileMaker Go app selected. The FileMaker Go files (.fmp) stored on the iPad are shown.

9. The “Add” window now appears (Figure 6). Navigate to the file location of the needed .fmp file and click Open. The database has now been uploaded to the iPad.

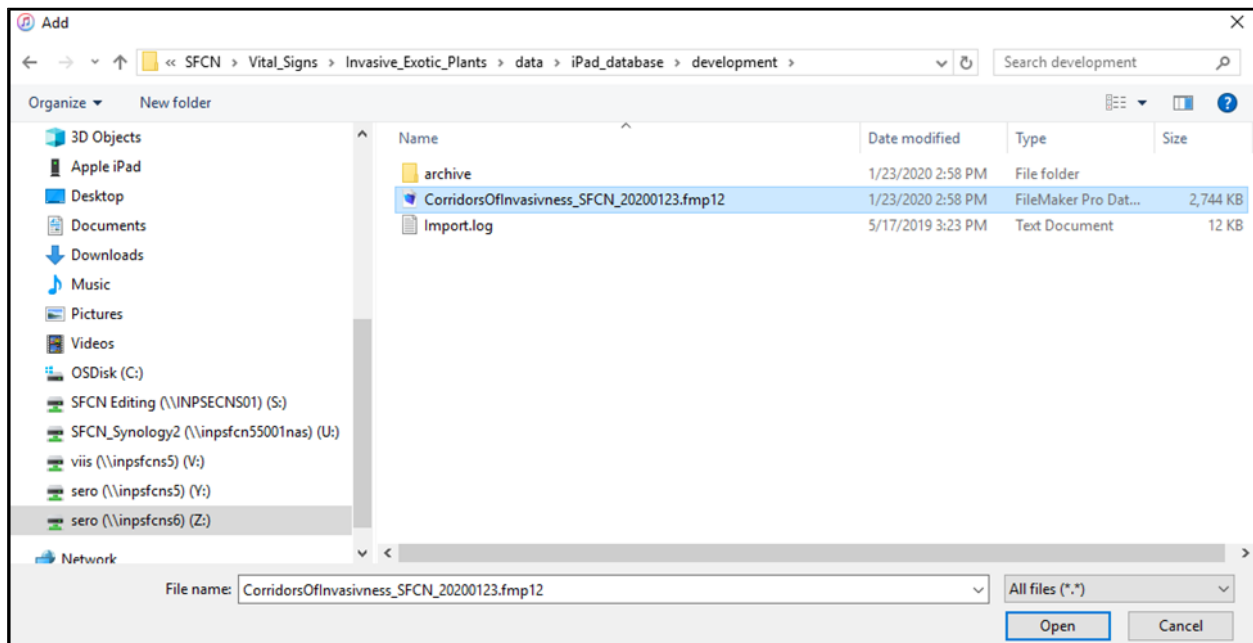


Figure 6. An example of the iTunes Add File window, closely resembling Windows file explorer. The FileMaker Go database needed for the iPad is uploaded from here.

Uploading Offline Map from ArcGIS Online (AGOL) to an iPad.

Before a crew goes out to the field an offline map displaying infestation areas from the previous survey year needs to be uploaded to the iPad. With aerial imagery embedded in the offline map it will provide the field crews a detailed representation of location and size of these previous infestations.

First, a map displaying the infestation areas for the previous year needs to be created on either ArcMap or ArcGIS Pro. The person creating the map must also be signed on to their National Park Service ArcGIS Online (AGOL) account on either ESRI software program. When all the necessary features/shapefiles have been added to the map on either program the map creator needs to save the map, giving it an appropriate name and have it published to ArcGIS Online. Additionally, the map creator logs on to their ArcGIS Online account via a web browser and verifies that the map was published with the result being a web map that is shared to members of the appropriate group. In this particular case, there is a group called ‘SFCN’ in the National Park Service ArcGIS Online organization that is comprised of the network’s office personnel. This allows for any member of the field crew that will handle the iPad to access the map in Collector for ArcGIS and download it for offline use. The following are the next steps to proceed with after the aforementioned is completed:

1. Before beginning, ensure that the Collector for ArcGIS app is installed on the iPad and that it has a data card or is connected to the WiFi. If the iPad does not have Collector for ArcGIS installed download the free app from the Apple App Store.
2. Open the Collector for ArcGIS app (Figure 7 left). In the Sign In screen click on the ‘Sign In with ArcGIS Enterprise’ button (Figure 7 right). When prompted type in the following URL:
<https://nps.maps.arcgis.com>.

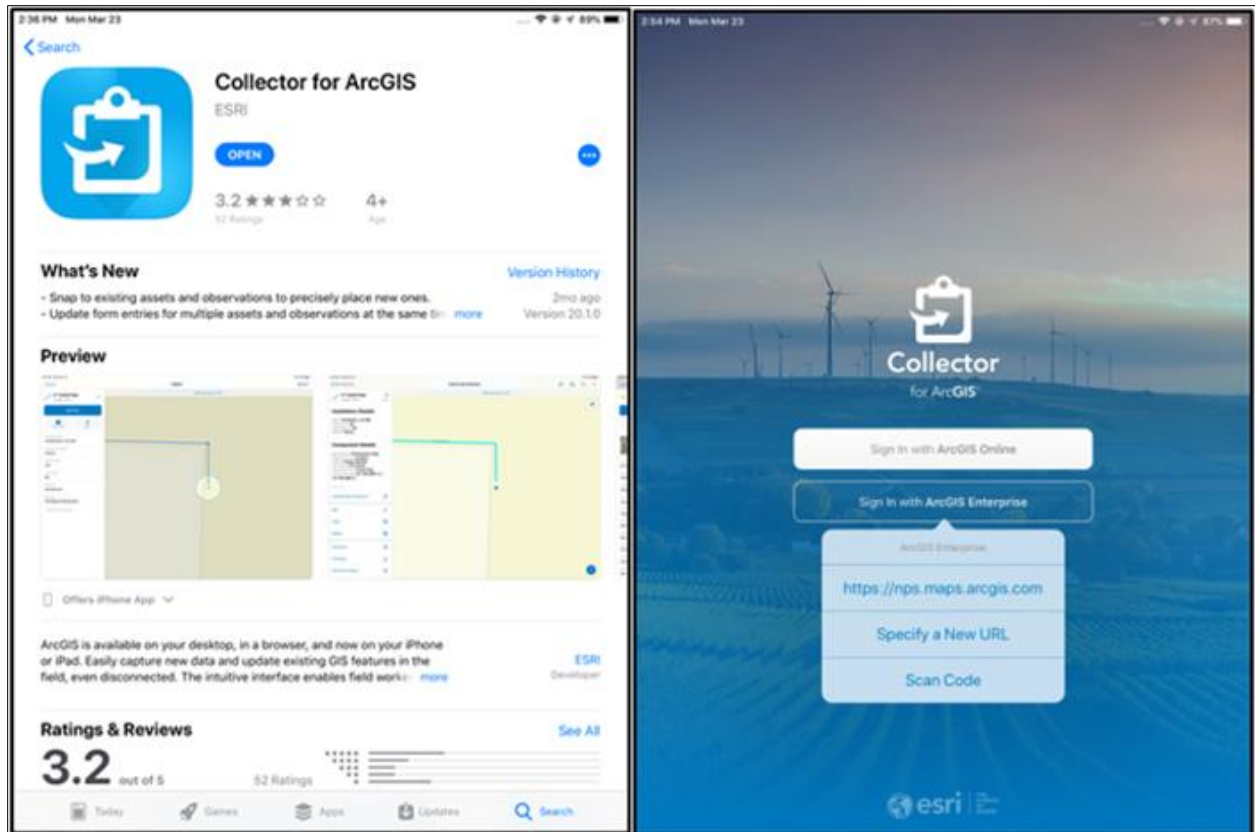


Figure 7. Above on the left is the Apple App Store download window for the Collector for ArcGIS app. Above on the right is the Collector for ArcGIS Sign In screen.

3. On the next screen click on the blue button that says 'National Park Service' underneath the Enterprise Login section (Figure 8 left).
4. On the screen that appears, sign on to the National Park Service ArcGIS Online Enterprise account using your Active Directory (AD) (Figure 8 right) login name and password.

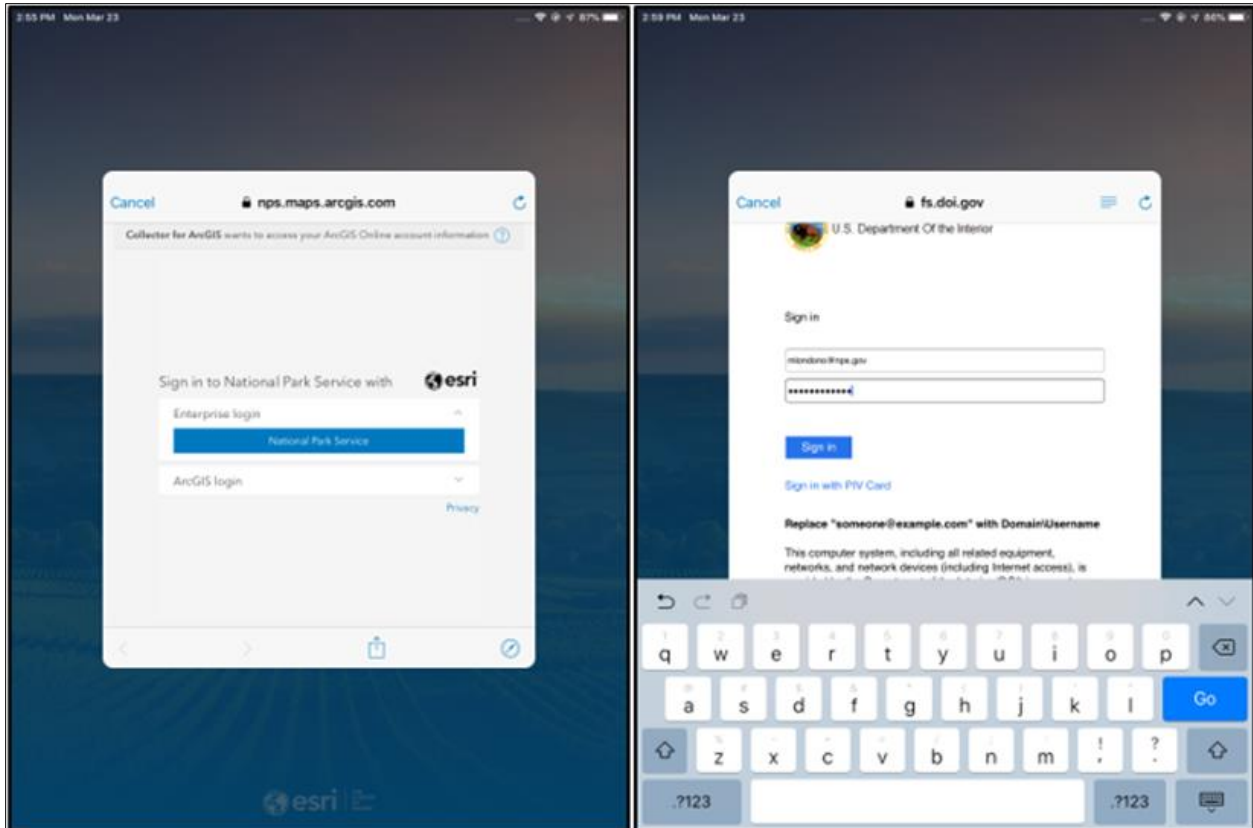


Figure 8. Above on the left is the National Park Service ArcGIS Online Enterprise login screen. Above on the right is the the Department of Interior Active Directory (AD) Sign In screen where the user enters their credentials for gaining access in the Enterprise account.

5. The next screen to appear should be the Maps page (Figure 9). Under the ‘My Maps’ section, find the map product that was created in ArcMap or ArcGIS Pro and published to ArcGIS Online. This map displays aerial imagery and the infestation areas from the previous survey year. Then press the “More Options” or ellipsis icon (three horizontal dots). A new option box should appear. Select ‘Add Offline Area.’

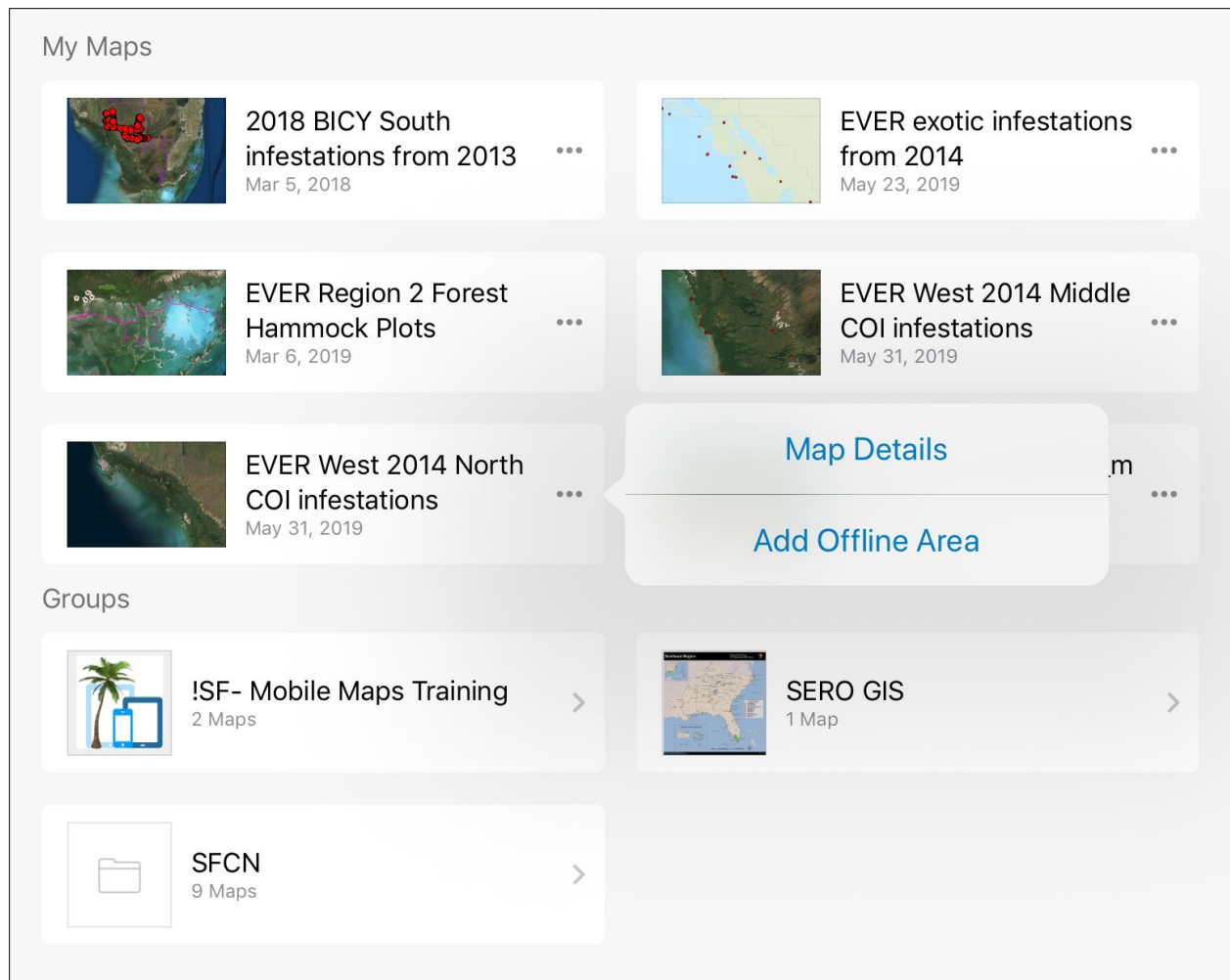


Figure 9. The Add Offline Area screen on the Collector for ArcGIS app is used to pan and zoom to define the area of the offline map.

6. The “Add Offline Area” window now appears (Figure 10). Pan and zoom to define the area of the offline map. Under the ‘Level of detail’ option select ‘Street.’ Then click the ‘Download Area’ blue button.

Note: The greater the level of detail the greater the size of the offline map. We have found that the ‘Street’ and ‘Streets’ options provide a good compromise of detail and file size for offline maps.

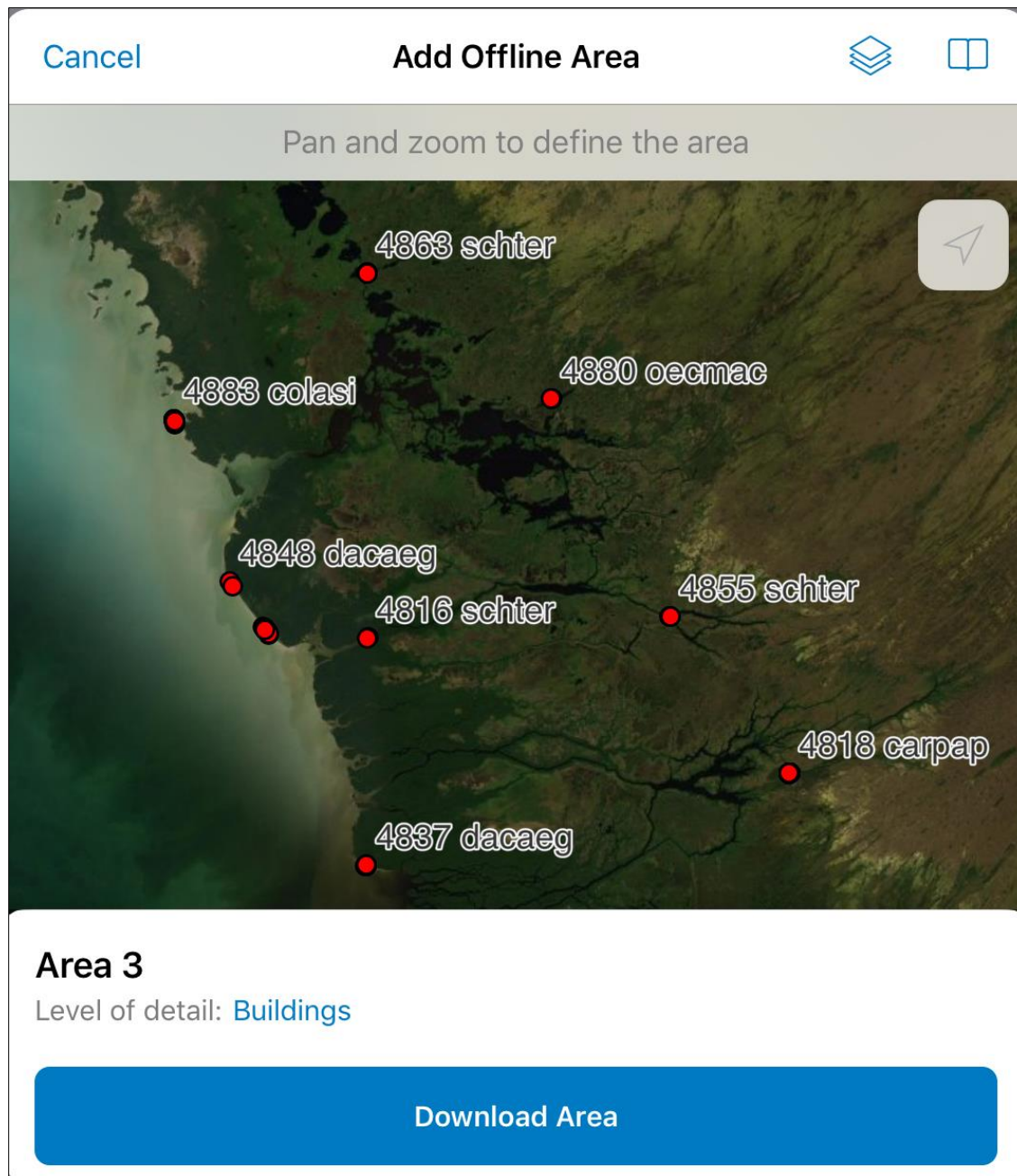


Figure 10. The Add Offline Area screen on the Collector for ArcGIS app is used to pan and zoom to define the area of the offline map.

7. The offline map product will begin to download (Figure 11), and it may take a while to complete. Once it finishes downloading click back to go to the Maps page. The offline map will now appear under the 'On Device' section (Figure 11). The offline map is ready to be used. It can be viewed on the Collector for ArcGIS app without a data card or WiFi.

Note: It is important to keep the iPad turned on and the Collector for ArcGIS app open on the iPad after leaving the office for the field. This will keep the user logged on even when the iPad goes offline.

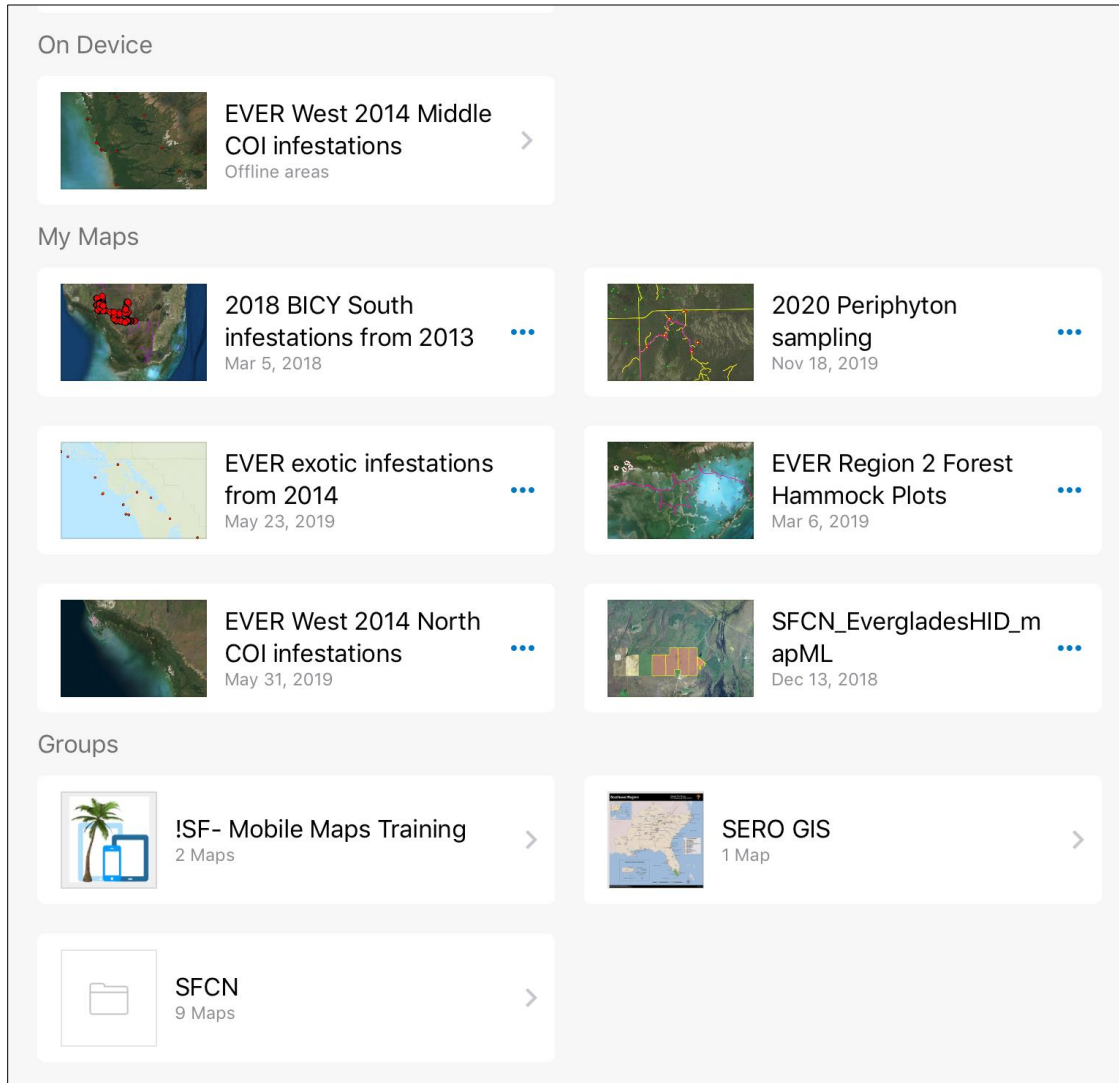


Figure 11. The “Maps” page on the Collector for ArcGIS app displays the offline map under the On Device section.

Configuring the Bad Elf External Bluetooth GNSS Receiver

Before setting out for the field, configure the Bad Elf to save time in the field. The function of the Bad Elf external Bluetooth GNSS receiver is to override the location data collected by the iPad’s built-in GPS, providing more accurate location data. The following steps to configure the Bad Elf for the first time are below:

1. Turn on the Bad Elf unit.

2. On the iPad navigate to the Bluetooth section found in the Settings app/window (Figure 12 left).
3. The Bad Elf unit should be listed under 'Other Devices.' The serial number for the unit will also be listed. Compare this number to the one that appears on the back of the physical unit itself. They should match.
4. Select the Bad Elf unit entry (with corresponding serial number) under the 'Other Devices' pane. A 'Bluetooth Pairing Request' message will appear. Select 'Pair.'
5. Back on the Bad Elf unit press the bottom GPS button to accept the pairing request.
6. The Bad Elf unit should now appear under the 'My Devices' pane in the Bluetooth section and be listed as 'Connected' (see Figure 12 right).

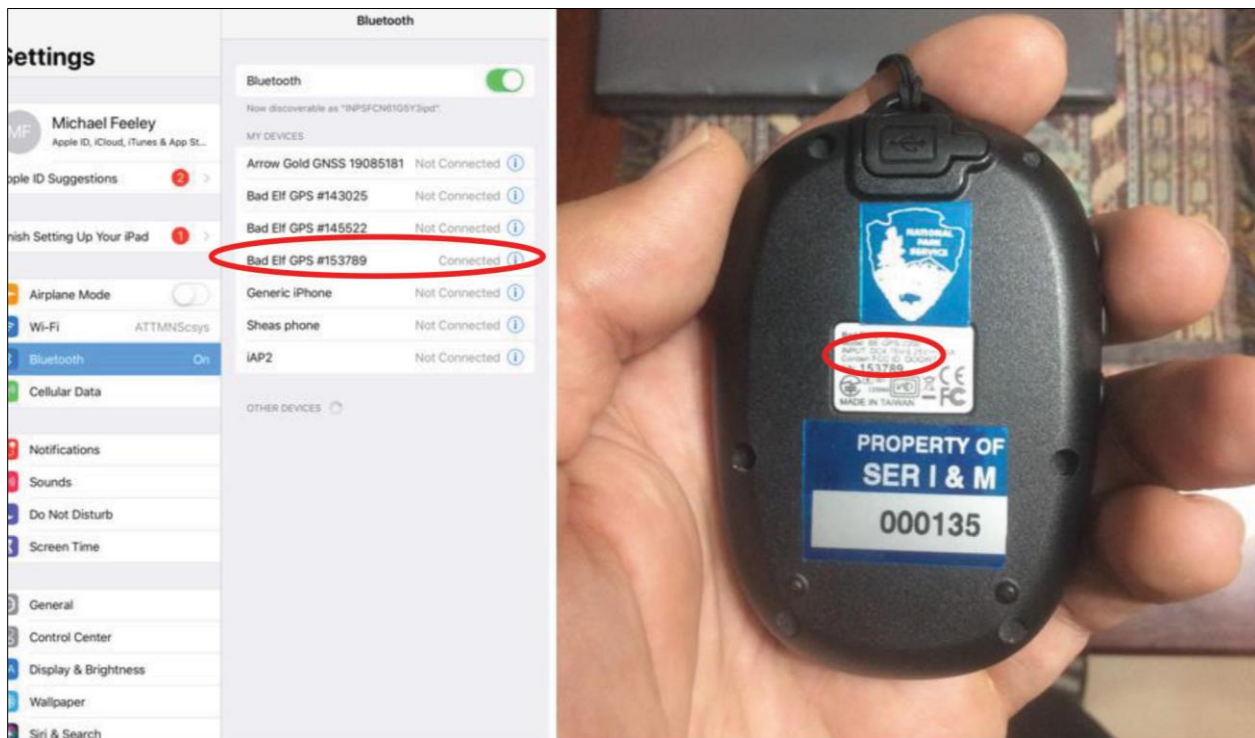


Figure 12. On the left, a screenshot of the Settings app on the iPad showing that the Bad Elf unit (on the right) successfully connected to the iPad.

7. Download the free Bad Elf GPS app from the Apple App Store.
8. Open the app. Select the second box from the top on the left pane. It should display the model of the Bad Elf that is connected (see Figure 13 below).
9. On the right side of the screen find 'Datalogging' under the Product Details section. Switch the Datalogging button to the right. It will display with a blue color if activated to 'On' (see Figure 13 below).

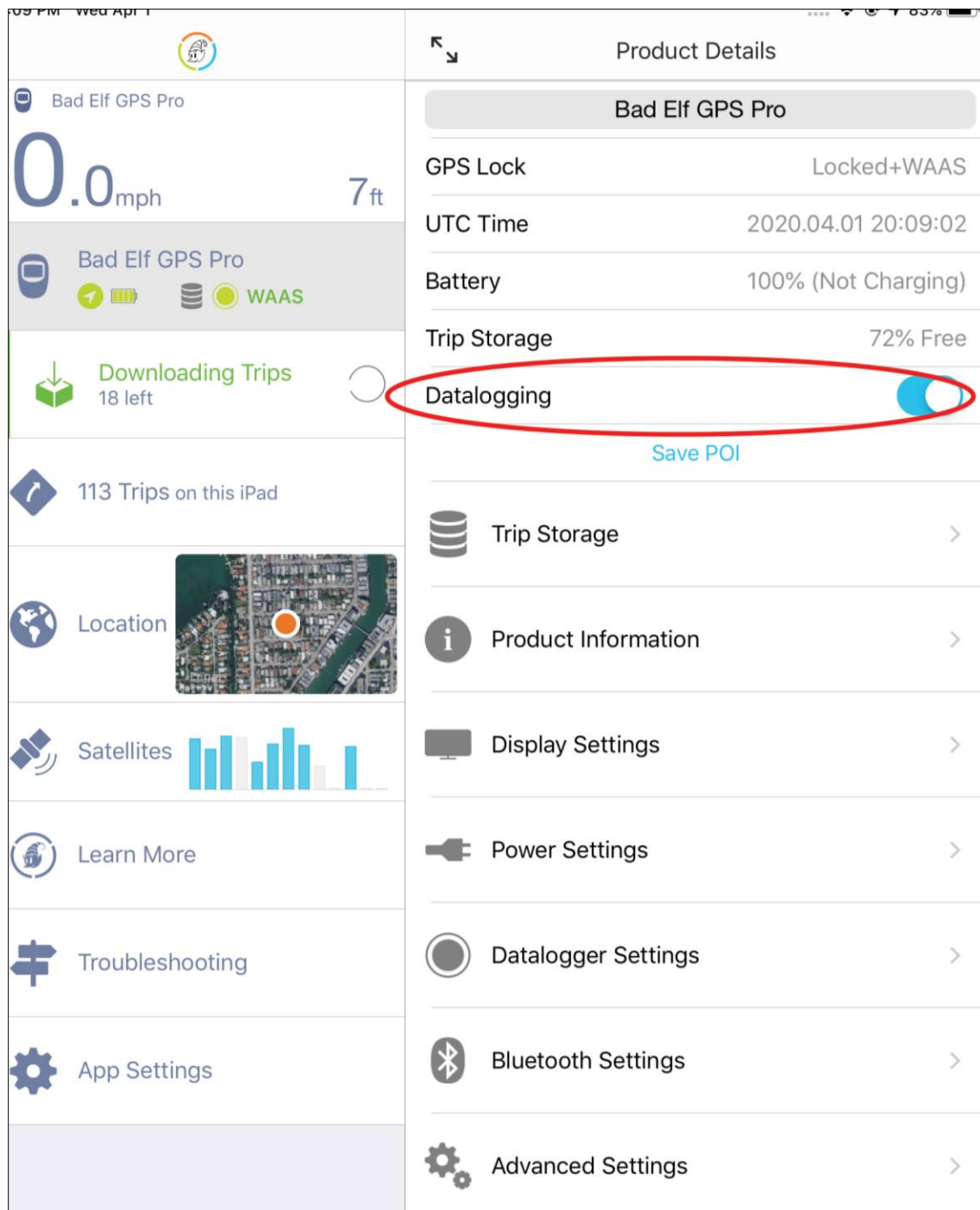


Figure 13. An example of the Bad Elf GPS app, with the Datalogging option turned on.

10. On the same screen, look towards the bottom and select 'Datalogger Settings.'
11. In the Datalogger pane that appears on the right side of the screen, ensure that Auto-logging is set to 'On startup' (see Figure 14 below). If not, change the setting.

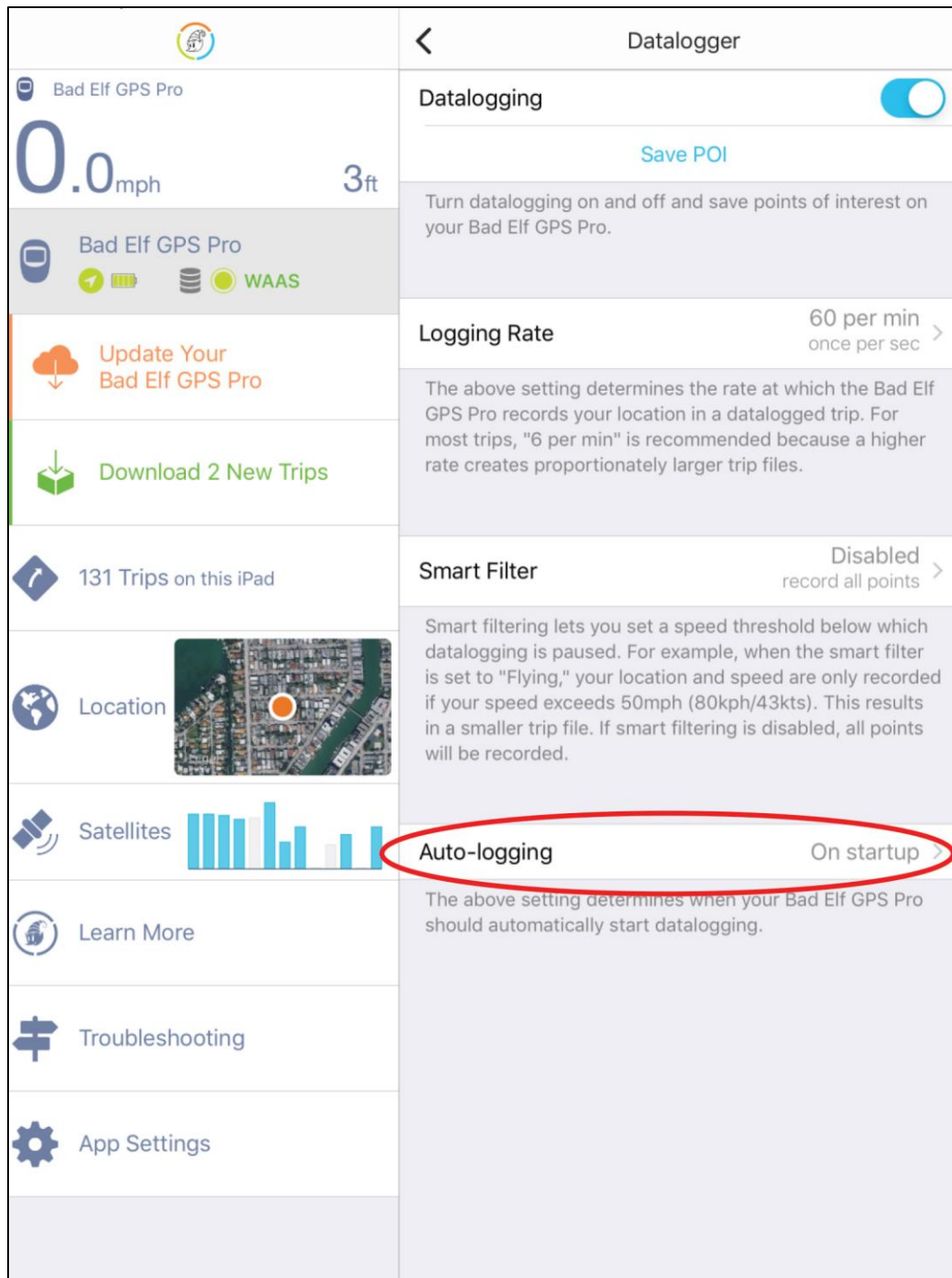


Figure 14. A screenshot of the Bad Elf GPS app, with the Auto-logging option set to 'On startup.'

The Bad Elf is now ready to be used, and whenever it is turned on it will now display a message stating 'GPS Logger Auto Started'.

Literature Cited

- Langeland, K. A. 2001. Natural area weed management: A training manual for restricted use pesticide applicators. Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville.
- Langeland, K. A. and R. K. Stocker. 1997. Control of Non-native Plants in Natural Areas of Florida. Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. SP 242. Available from <http://edis.ifas.ufl.edu/WG209> (accessed March 17, 2020).
- South Florida/Caribbean Network (SFCN). 2022a. Survey Methods—Version 2.0. South Florida/Caribbean Network Standard Operating Procedure NPS/SFCN/SOP—CI02. South Florida/Caribbean Network, Palmetto Bay, Florida. Available at: <https://irma.nps.gov/DataStore/Reference/Profile/2292944> (last accessed March 2022).
- South Florida/Caribbean Network (SFCN). 2022b. Reporting—Version 1.1. South Florida/Caribbean Network Standard Operating Procedure NPS/SFCN/SOP—CI07. South Florida/Caribbean Network, Palmetto Bay, Florida. Available at: <https://irma.nps.gov/DataStore/Reference/Profile/2292949> (last accessed March 2022).
- Wunderlin, R. P. and B. F. Hansen. 2011. Guide to the Vascular Plants of Florida, Third Edition. University Press of Florida, Gainesville, Florida.

Appendix A. Field Safety

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Operation Procedures 32

Safety First!!! Field Safety Sign-out Information

Objective: To know where field personnel are, when they are overdue from returning from the field, when help should be sent, and to have enough information to give to searchers to make them easy to find.

Date(s):

List all crew members (crew leader first): _____

Time of departure:

Time expected to return:

Time to send help:

Location(s) (please attach a copy of any maps you make and give enough information to direct a search crew):

☐ BICY ☐ BISC ☐ EVER ☐ DRTO ☐ WCA3A ☐ Other

Ramp

☐ Black Point Marina ☐ BISC Headquarters ☐ Flamingo

☐ Everglades City ☐ Other:

Contact info

Radio #:

Cell phone #:

Home phone #:

Will you be in cell phone range? ☐ Yes ☐ No ☐ Partial

If overdue call

☐ EVERGLADES Dispatch: 305-242-7740 ☐ 911

☐ Dry Tortugas Site Manager: 305-242-7700

☐ U.S. Coast Guard: 305-535-4300, 305-535-4304, 305-535-4582

Truck/Car

- ☐ Ford F250 pickup – 2012, green, 4x4, crew cab, long-bed, tag # I517061
- ☐ Ford F250 pickup – 2008, white, 4x4, crew cab, long-bed w/cap, tag # I411795
- ☐ Ford F250 pickup – 2007, white, 4x4 crew cab, short-bed, tag # I411786
- ☐ Chrysler Grand Caravan minivan – 2005, dark blue, tag # I410018
- ☐ Ford Expedition (XLT) SUV (Tony's) – 2009, white, tag # G62-0210F
- ☐ Ford Fusion – 2010, white, tag # I413445
- ☐ Honda ATVs – 2008/2009, red w/NPS logos, 20-ft white cargo trailer, tag # I411795

Boat

- ☐ TwinVee Catamaran w/NPS logo, length 29 ft, tag # I263404
- ☐ TwinVee Catamaran, length 19 ft, tag # I413447
- ☐ Airboat w/NPS logo, length 14 ft, tag # I411792
- ☐ Aluminum workboat “Sparky”, length 20 ft, tag # I411792
- ☐ M/V Fort Jefferson – Satellite Ph: 808-659-5146, Cell Ph: 305-215-4767
- ☐ Canoe, red, Osagian “Missourian”, length 17'
- ☐ Other:

If staying overnight**Lodging you are staying in:****Lodging phone number:****Name of field crew's Nightly Call-in Contact:****Expected call-in time:****If going on a helicopter****Name of the company:****Name of the pilot:****Contact info for pilot & company:****Precise take-off point:****Take-off time:****Precise landing point:****Landing time:**☒ Approval for permission to work 8 hours comp time per day:

SFCN Airboat Go/No Go Checklist

Items needed:

- A. Airboat safety action packer
- B. Airboat toolbox
- C. Orange key box
- D. Park radio
- E. Personal flotation devices (PFDs) for every person
- F. Eye protection for every person
- G. Earmuffs for every person
- H. Check logbook for comments from previous user

Airboat Check:

1. Remove airboat cover and stow in rear compartment of the truck.
2. Make sure you have a bow line and that it's attached to the bow of the airboat.
3. Does the airboat have fuel? Use 89 octane gas.
4. Check prop for damage. A few small dings are OK, but if there are many dings (>10), any chunks missing, or if the protective metal covering is peeling off, then that prop must be replaced.
5. Check prop bolts, making sure they are tight.
6. Check the bilge pumps for any loose or foreign material.
7. Check the engine cage for broken wiring and rusting.
8. Check the engine for oil leaks or radiator leaks, and make sure the spark plug wires are firmly attached, and that there are no loose nuts and bolts anywhere on the engine.
9. Check oil level.
10. Check radiator water level.
11. Check batteries for water and use voltmeter to ensure batteries are holding 12 volts of charge.
12. Start the airboat engine to ensure everything is working properly.

Trailer Check:

1. Check tire pressure.
2. Ensure tire hubs are greased. Look for a sinking of the center plate where the grease gun nipple attachment is.
3. Properly attach trailer to truck. Make sure truck has a 2-inch ball, and that the attaching wires are crossed forming an X.
4. Make sure the trailer lights are working. This includes brake lights, running lights, turn signals, and hazard lights.

Before Departing:

1. Send float plan and call Dispatch 305-242-7740 before and after each trip.
2. Fill out office safety form.
3. Put in the airboat plugs.
4. Always bring a large lunch and plenty of water. Bring 5-gallon water cooler filled with ice and water for crew hydration.
5. Frog City gate combo 5280. Gate to Taylor Slough takes the Z key.

SFCN ATV Go/No Go Checklist

Items needed:

- A. ATV keys (in ATV's ignitions and two spares in the SFCN office key box)
- B. ATV toolboxes (in ATV cargo box)
- C. ATV safety action packer (must be prepared prior to departure)
- D. Park radio
- E. Safety gear for every person (Helmets, goggles, gloves, boots, long pants)
- F. ASI ATV Rider Course Completion Card
- G. Spare gas (several 5 gal. containers of regular unleaded)
- H. Check logbook for comments from previous user (in ATV toolbox)

ATV Pre-ride Check:

1. Check for and remove any dirt vegetation or other debris that could interfere with the proper operation of the vehicles.
2. Check level of engine oil and add if necessary, check for oil leaks. The ATV's use SAE 10W-30 4 stroke engine oil.
3. Check fuel level and add fuel if needed (regular unleaded), check for leaks.
4. Check tires, air pressure, adjust if needed. Recommended tire pressure is 3.6 psi for all tires. Also look for signs of damage.
5. Make sure all axle nuts are tightened. Nuts will take an 11/16 or 17mm tool.
6. Check driver-shaft boots. Look for damage or leaks.
7. Check the air cleaner housing, clean if needed and or replace air cleaner if needed. Air cleaner can be found under the seat inside the black square housing.
8. Check for deposits in the drain tube, clean if needed. The clear drain tube hangs in the rear underside of the ATV, next to the underside of the air cleaner housing.
9. Walk around ATV and look for anything unusual, such as a leak or loose cable.
10. Check the cable housings for wear. Check the fittings for looseness. Tighten or replace as needed.
11. Check battery (under the seat), make sure it's completely charged. Check volts with the voltmeter/load tester. Check battery water.
12. Make sure the headlights, brake lights, and taillights are working properly.

13. Start the ATV engine to ensure everything is working properly.
14. For more specific information please refer to the ATV owner's manual located in the ATV toolbox, inside the cargo box.

Trailer Check:

1. Check trailer tire pressure. 50 psi maximum.
2. Ensure tire hubs are greased. We have grease in garage for this purpose.
3. Properly attach trailer to truck. Make sure truck has a 2-inch ball, and that the attaching wires are crossed forming an X.
4. Make sure the trailer lights are connected and working. This includes brake lights, running lights, turn signals, and hazard lights.

Before Departing:

1. Call Dispatch 305-242-7740 before and after each trip.
2. Fill out office safety form.
3. Put in the airboat plugs.
4. Always bring a large lunch and plenty of water. Bring 5-gallon water cooler.

Vehicle (Truck) Go/No-Go Checklist

In Office:

1. Check calendar to make sure vehicle is not already signed out.
2. Sign vehicle out with your initials on the office calendar.
3. Note vehicle on safety sign-out sheet and post on office float plan board.
4. Get keys and ensure spare set of keys is in key cabinet.

In Vehicle:

1. Walk around vehicle to inspect for dents or other visible damage.
2. Ensure there are no nails or cracks on tires.
3. Check air pressure in each tire, including spare tire.
4. Ensure you have sufficient fuel to complete your mission.
5. Make sure action packers with emergency equipment are in rear compartment of truck.
6. Make sure no warning lights are on in the dashboard indicating low fluid levels or other issues.
7. Consult manual in glove box if any lights are on, or if there is something you are unfamiliar with.
8. Log date, initials, destination, and beginning mileage in logbook.

Underway:

1. DO NOT over-crank: turn the key to the ON, wait, turn the key to START and immediately release key.
2. DO NOT use cell phone while driving – that means no talking and no texting – pull over if you must.

Parked:

Place magnetic NPS sign on dashboard when parking at a marina or a remote site.

In Case of Emergency:

1. Consult user manual - look in action packers for tools, etc.
2. Consult warranty information.
3. Notify office and consult on how to proceed.

On Way Back:

Fuel up if there's less than half a tank left.

In Office:

1. Put fueling receipt in envelope, bring them up if there are too many.
2. Log ending mileage, fuel, any other comments.
3. Park vehicle so it blocks our boats/trailers - do not block vehicles set up for a mission the next day.
4. Remove garbage from the vehicle, shake off dust mats especially if you got them muddy.
5. Take down and file your float plan.
6. Put keys back in cabinet.
7. IMMEDIATELY report any problems encountered (noise, vibrations, etc).

SFCN Motorboat

Minimum Safety Requirements for SFCN Motorboats

1. *Personal Flotation Devices (PFD)*

Acceptable type I, II, III and V PFDs (also known as Life Jackets) must be U.S. Coast Guard approved, in good serviceable condition, and of suitable size for each person on the boat. Wearable PFDs shall be "readily accessible." Type IV, or "throwable" devices shall be "immediately available." PFDs shall NOT be stored in unopened plastic packaging. Boats 16 Feet or longer must also have one Type IV.

2. *Visual Distress Signals (VDS)*

Recreational boats 16 feet and over used on coastal waters or the Great Lakes are required to carry a minimum of either 1) three day and three night pyrotechnic devices, 2) one day non-pyrotechnic device (flag) and one night non-pyrotechnic device (auto SOS light) or 3) a combination of 1) and 2).

3. *Fire Extinguishers*

Fire extinguishers are required if one of the following conditions exists: (1) Inboard engine(s); (2) Closed compartments that store portable fuel tanks; (3) Double bottom hulls not completely sealed or not completely filled with flotation materials (4) Closed living space (5) Closed stowage compartments that contain flammable materials or (6) Permanently installed fuel tanks.

NOTE: *Fire extinguishers must be readily accessible and verified as serviceable.*

Table A-1. Minimum number of extinguishers required.

Boat Length	No Fixed System	With Fixed System
Less than 26 feet	One B-1	None
26 feet to less than 40 feet	two B-1 or one B-2	one B-1
40 feet to 65 feet	three B-1 or one B-1 & one B-2	two B-1 or one B-2

4. *Sound Producing Devices / Bell*

To comply with Navigation Rules and for distress signaling purposes all boats must carry a sound producing device (whistle, horn, siren, etc.) capable of a 4-second blast audible for ½ mile.

5. *Navigation Lights*

All boats must be able to display navigation lights between sunset and sunrise and in conditions of reduced visibility. Boats 16 feet or more in length must have properly installed, working navigation lights and an all-around anchor light capable of being lit independently from the red/green/white "running" lights. The following configuration is standard for power boats less than 40 feet Length Overall (LOA). The mast and stern light may be combined as an all-round white light or displayed separately as in Figures A-1 and A-2.



Figure A-1. Combined all-around white mast and stern light.

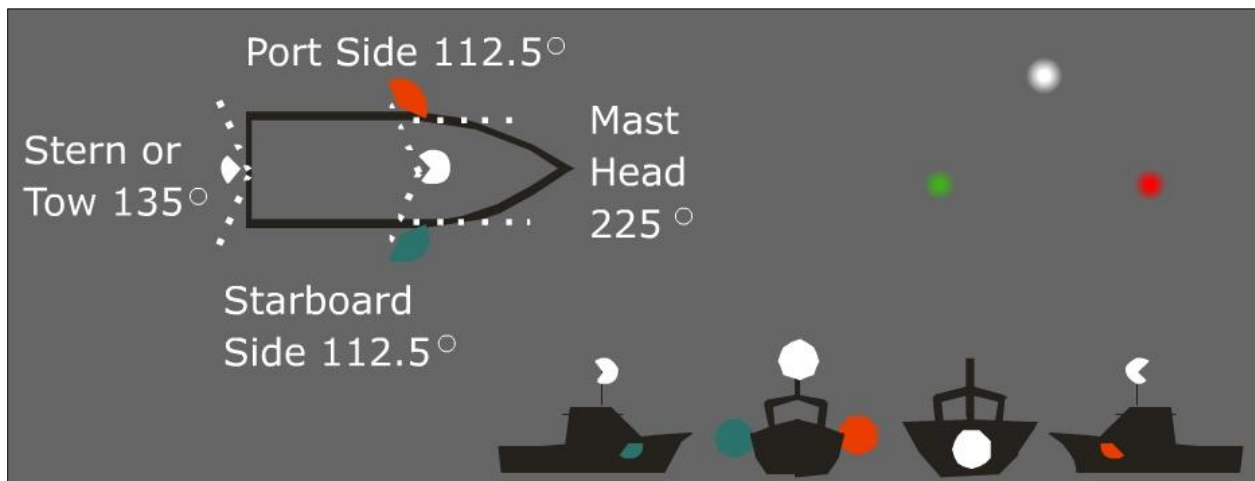


Figure A-2. White mast and stern lights displayed separately.

6. Overall Vessel Condition

a. Deck free of hazards and clean bilge

The boat must be free from fire hazards, in good overall condition, with bilges reasonably clean and visible hull structure generally sound. The use of automobile parts on boat engines is not acceptable.

b. Safe Electrical and Fuel Systems

The electrical system must be protected by fuses or manual reset circuit breakers. Switches and fuse panels must be protected from rain or water spray. Wiring must be in good condition, properly installed and with no exposed areas or deteriorated

insulation. Batteries must be secured, and terminals covered to prevent accidental arcing.

7. Emergency Positioning Indicating Radio Beacon: EPIRB

Model PLB-350b AquaLink 406 MHz GPS. The EPIRB is kept in the office and available for use during boat operations over open water or anytime boat operators may choose to have it on board.

a. Manual Operation

The unit is a category II beacon and is designed to operate manually. There are two ways to activate the beacon:

- i. Remove it from its bracket and place it in water.
- ii. Lift the activation/test switch to a vertical position, slide the switch toward the antenna then push the switch down to the opposite side of the beacon.

b. Beacon self-test

To test the device, momentarily lift the activation switch to a vertical position and hold it for at least one second and at most four seconds. A beep indicates the initiation of the self-test sequence. The test will check for battery capacity, beacon message errors, circuit board functionality, signal strength, GPS readiness and led functionality. At the end of the test the display will show that the self-test passed.

It is only necessary to test the device once every six months and before each prolonged trip because of the infrequent use of the device. It should not be tested more than once a month because it is designed to support a total of 60 self-tests, or one self-test a month for the five-year duration of the battery.

Operation Procedures

The following guidelines are basic and tailored to expected conditions in the Virgin Islands but are not all-inclusive. Operators should seek comprehensive guidelines in the MOCC and “Rules-of-the-Road” manuals.

1. Basic operation guidelines

a. Weather

Always check the weather conditions and forecast before leaving the dock.

Important: *Boaters rarely encounter serious trouble in calm weather, while in severe weather the decision to cancel a mission is obvious. Boat operators may decide that weather conditions are not severe enough to cancel a mission, but it is important to*

remember that in inclement weather a relatively small deterioration may prove dangerous.

b. Pre-ignition check

Once a visual inspection has been adequately performed, turn on the battery switches in the splashwell.

c. Turn engines on

Insert the kill switch key into the kill switch slot. This device may be attached to pants or a jacket by a lanyard when worn. This safety device is designed to remove the kill switch key from its slot, thus shutting down the engine, if the operator is forcefully dislodged from the pilot area.

Turn on engine. Verify that the water-cooling system is operational by observing the water pump outlet (see Figure A-3). If a water stream is not visible within a few moments, shut the engine off. Check for a clog in the outlet. If the hole is clear and no water discharges, the engines must not be run as they are likely to overheat. A boat mechanic should evaluate the situation to check the impeller, water pump or other cooling system defect.



Figure A-3. Water pump indicator.

d. Fuel status

Make sure the boat has enough fuel to safely accomplish objectives and allow for emergencies. Generally, it is unwise to travel if the boat has less than half a tank of fuel.

When fueling the boat, always estimate the amount of fuel needed before fueling by checking the boat log and fuel gauge.

e. Post lookouts

All passengers should behave as lookouts when underway. Often a passenger will see hazards to navigation before the operator. Acknowledge all communications from lookouts as these are attempts to assist in safely navigating the vessel.

To set group - Remove face plate and press [#] key, then group number. Then press [ENT] key or wait 5 seconds.

LOBATT display and yellow indicator light flashing means low battery

Remember that mixed mode receives analog and digital signals but only sends digital signals.

Dispatch call number - 784

Analog (A), Mixed (M), Digital (D)

Everglades

Group 1 (A)

Group 2 (M)

Group 3 (D)

Channel

- 1) Everglades Simplex
- 2) Research Tower
(Long Pine Key Rept.)
- 3) Flamingo Rept.
- 4) Key Largo Rept.
- 5) Pinecrest Rept.
- 6) Gulf Coast
(Everglades City Rept.)
- 7) East Everglades Rept.
- 8) Fire Simplex
- 9) Fire Rept.
(Research Tower)
- 10) Fire Ins
- 11) Fire Red
- 12) Fire White
- 13) Fire Blue
- 14) Weather

Biscayne

Group 4 (A)

Group 5 (M)

Group 6 (D)

Channel

- 1) Biscayne Simplex
- 2) Elliott Key Rept.
- 3) Cape Florida Rept.
- 4) Convoy Point Rept.
- 5) Customs Simplex
- 6) Customs Rept.
- 7) Everglades Simplex
- 8) Key Largo Rept.
- 9) Marine 1
- 10) Marine 2
- 11) Marine 2
- 12) Marine 1
- 13) Marine 1
- 14) Marine 6
- 15) Marine 7
- 16) Weather

Big Cypress

Group 7 (A)

Group 8 (M)

Group 9 (D)

Channel

- 1) Everglades Simplex
- 2) Research Tower
(Long Pine Key Rept.)
- 3) Flamingo Rept.
- 4) Key Largo Rept.
- 5) Pinecrest Rept.
- 6) Gulf Coast
(Everglades City Rept.)
- 7) East Everglades Rept.
- 8) Biscayne Simplex
- 9) Elliott Key Rept.
- 10) Cape Florida Rept.
- 11) Convoy Point Rept.
- 12) Customs Simplex
- 13) Big Cypress Simplex
- 14) Oasis Rept.
- 15) Carnestown Rept.
- 16) Weather

Dry Tortugas

Group 10 (A)

Group 11 (M)

Group 12 (D)

Channel

- 1) Fort Jefferson Simplex
- 2) Fort Jefferson Local
- 3) Fort Jefferson District Rept
- 4) Marine
- 5) Marine
- 6) Marine
- 7) Marine
- 8) Marine 1
- 9) Marine
- 10) Marine
- 11) Marine
- 12) Marine
- 13) Marine
- 14) Marine
- 15) Weather

Figure A-4. Radio Channel Sheet for National Park Service Radios in South Florida.

JOB SAFETY ANALYSIS WORKSHEET

Title of Job/Operation <u>Corridors of Invasiveness - Monitoring</u>	Date <u>05/01/2013</u>	No. <u>1</u>
Position/Title(s) of Person(s) Who Does Job <u>SFCN Botanist</u>	Name of Employee Observed _____	
(Biological Technician) & EPMT Technician	Analysis Made By <u>Brooke Shamblin</u>	
Department _____		
Section <u>South Florida / Caribbean Network</u>	Analysis Approved By <u>Kevin Whelan</u>	

Sequence of Basic Job Steps	Potential Accidents or Hazards	Recommended Safe Job Procedures
Supplies, equipment, and PPE needed:	First aid kit, snake bite kit, appropriate safety garments (gloves, boots, long pants, long-sleeved shirt), fully charged NPS radio, water, lunch, buddy, Tecnu at headquarters.	
Hiking trails to start monitoring	1. Cause injury or contamination when falling while carrying field equipment or herbicide 2. Snake bite 3. Hit by car while walking along sides of roads	1. Secure all field equipment high on body and limit amount of items needed to be carried by hand 2. Wear proper safety garments (gloves, boots, long pants and long sleeved shirts) when transporting herbicide 3. When encountering a snake, keep a safe distance and carry a snake bite kit in the first aid kit. If bitten by a poisonous snake, seek medical attention immediately; Contact EVER dispatch at 305-242-7740 and/or Miami Poison Control Center at 800-222-1222 4. Wear orange vests while walking along roads, parking lots, campgrounds. Be aware of vehicles coming towards you and be prepared to move. Some drivers tend to unconsciously steer towards what their eyes are looking at.
Monitoring for exotic plants	1. Fall on jagged limestone 2. Poked, stuck, or pierced by sharp branches 3. Allergic reactions to poisonous plants 4. Overexertion 5. Sun and heat exposure	1. Wear sturdy shoes and step carefully to avoid falls 2. Pay close attention to obstacles such as branches or tree limbs that stick out or hang low 3. Learn identification and avoidance of poisonous vegetation. Rinse and cleanse before and after exposure with Tecnu 4. Drink plenty of water for long field day, take breaks, wear light but protective clothing
Spraying of herbicide	1. Herbicide contamination	1. Keep herbicide in a separate storage compartment when travelling 2. Only a certified applicator handles the herbicide 3. The certified applicator wears protective equipment when handling herbicide and follows the safety guidelines outlined in Natural area weed management: A training manual for restricted use pesticide applicators (Langeland, 2001)

Figure A-5. Example of Job Safety Analysis Worksheet, page 1.

JOB SAFETY ANALYSIS WORKSHEET

Title of Job/Operation	Corridors of Invasiveness - Modes of Transportation	Date	05/01/2013	No.	1
Position/Title(s) of Person(s) Who Does Job	SFCN Botanist	Name of Employee Observed			
(Biological Technician) & EPMT Technician		Analysis Made By Brooke Shamblin			
Department	Department of Interior - National Park Service				
Section	South Florida / Caribbean Network (SFCN)	Analysis Approved By Kevin Whelan			

Sequence of Basic Job Steps	Potential Accidents or Hazards	Recommended Safe Job Procedures
Transit and surveying in truck	1. Accident/collision 2. Potential accident involving weather (flooding, slick roads)	Supplies, equipment, and PPE needed: Action packer with safety equipment, magnetic yellow flashing light, orange vests, park radio 1. Before leaving office read the Truck "Go – No Go" safety checklist and check the truck log book comments section for any problems 2. Operate vehicle at posted speed limits or below, operators must have a valid Florida driver's license, do not send text messages or talk on the phone while driving, always keep focus while operating vehicle. 3. Use magnetic yellow flashing light when travelling at low speeds. 4. Check the radar and weather before leaving office. Check weather reports on park radio weather channel 5. Call Dispatch before & after each trip and fill out office safety form
Transit on site and between sites on ATV	1. Accident	Supplies, equipment, and PPE needed: ATV safety action packer, helmets, goggles, boots, long pants, park radio, ATV toolbox, ASI ATV Rider Course Completion Card, spare gas, ATV log book 1. Always wear protective equipment (helmet, gloves, boots) and operate ATV at a safe speed. Follow safety guidelines received in ATV training 2. Read the ATV "Go – No Go" safety checklist before transporting and riding ATV's 3. Only ATV trained operators are allowed to operate ATV 4. Check the radar and weather before leaving office. Check weather reports on park radio weather channel 5. Call Dispatch before & after each trip and fill out office safety form

Figure A-6. Example of Job Safety Analysis Worksheet, page 2.

Sequence of Basic Job Steps	Potential Accidents or Hazards	Recommended Safe Job Procedures
Transit by motorboat to islands in BISC; Ten Thousand Islands, and Florida Bay in EVER	1. Boat will run aground in shallow areas 2. Boat will be "high and dry" after returning from island 3. Boat will have cut loose from anchor or anchor doesn't hold 4. Boating accident/collision 5. Potential accident involving weather (lightning storm)	Supplies, equipment, and PPE needed: All required Coast Guard safety equipment will be located on vessel; PFD's for all personnel on boat, first-aid kit, VHF radio, NPS radio, visual distress signals, fire extinguishers, sound producing devices, flares and throw bag. 1. Read the motorboat "Go – No Go" safety checklist before going out 2. Ensure tides are high and do not go at speed if there is a question of shallows 3. Always bring water depth chart 4. Make sure to tie line around a sturdy root or branch of mangroves tree (if there is no harbor or dock) and always tie two points of the boat to the mangrove tree 5. Maintain proper lookouts 6. Only MOCC certified operators drive the boat 7. Operate motorboat under DOI MOCC safe operation guidelines 8. Check the radar weather before leaving office and check park radio weather channel throughout the day for weather reports 9. Call Dispatch before & after each trip and fill out office safety form
Airboat surveying	1. Boating accident 2. Potential accident involving weather (lightning storm)	Supplies, equipment, and PPE needed: Airboat safety action packer, airboat toolbox, park radio, PFD's & eye protection & ear muffs for each person, airboat log book 1. Read airboat "Go – No Go" safety checklist and airboat log comment section for any problems 2. Maintain proper lookouts 3. Only MOCC and airboat certified operators drive the boat 4. Check the radar weather before leaving office and check park radio weather channel throughout the day for weather reports 5. Call Dispatch before & after each trip and fill out office safety form

Figure A-7. Example of Job Safety Analysis Worksheet, page 3.