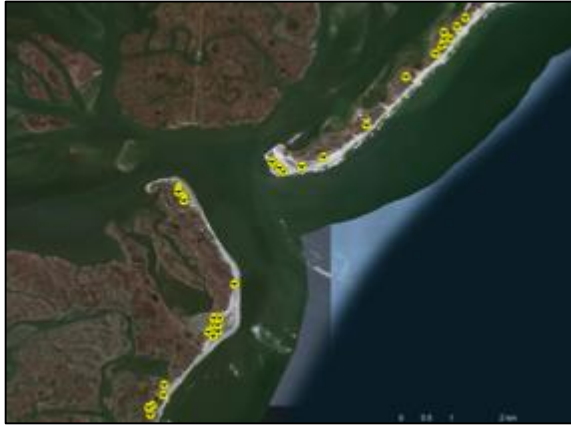


# iPlover Data Collection

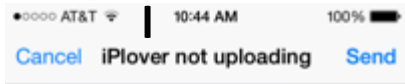


## Project Lead

**Rob Thieler**  
**U.S. Geological Survey**  
**Woods Hole, MA**

# Getting Help

## Email



To: [iplover\\_help@usgs.gov](mailto:iplover_help@usgs.gov)

**iplover\_help@usgs.gov**

Cc/Bcc, From: [rthieler@usgs.gov](mailto:rthieler@usgs.gov)

Subject: iPlover not uploading

put iPlover in subject

I'm having a problem!

Describe problem, or  
ask for a phone call.  
Provide contact info.



Email to  
**iplover\_help** goes to  
9 people on the  
team. We'll get back  
to you!

### Sara Zeigler (USGS)

- technical support questions, field description questions
- 9a-5p EST, M-F

### Rob Thieler (USGS)

- Any question or complaint
- 9a-5p EST, M-F

### Megan Hines (USGS)

- technical support questions
- 10a-6p EDT, M-F

### Sarah Karpanty (Va Tech)

- science, field description questions

### Anne Hecht (FWS), [anne\\_hecht@fws.gov](mailto:anne_hecht@fws.gov)

- how to maximize the value of iPlover data collection while minimizing adverse effects on plover breeding activity

# Suggested Workflow

1. Open iPlover application
2. Approach nest and establish your position
3. Tap **New Nest Site**
4. Get a good GPS fix – tap **Lock Location** if good accuracy
5. Move to 5 m from nest and take picture
6. Move away from nest to complete Site ID and other data fields

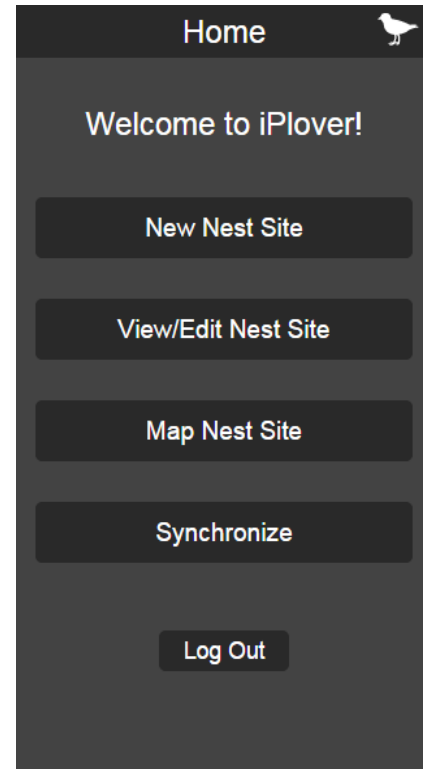


# Using iPlover

After finding a nest....




Tap iPlover home screen icon to start app



Tap **New Nest Site** to add data specific to this nest


# Site Information – Location

< Home New Nest Site 

Enter Site ID

Take Nest Photo

Location: 43.09244, -89.53225

Accuracy: 30 meters 

at 8:21:01 AM [Lock](#) [Show Map](#)

Geomorphic Setting

- ☐ Beach
- ☐ Backshore
- ☐ Dune
- ☐ Washover
- ☐ Barrier Interior
- ☐ Beach Ridge/Swale
- ☐ Marsh

- Stand 1-2 m from nest
  - iPlover will automatically start computing location using phone's internal GPS for 60 second
    - Accuracy should improve with time
  - If accuracy immediately < 5m, tap **Lock Location** to save current GPS fix
  - If accuracy poor (> 15-20 m), the GPS will stop automatically after 60 seconds. If accuracy still poor, tap **Refresh** to start another 60 second attempt.
  - If accuracy improves, tap **Lock Location**
  - If it does not improve, move on
- \*\* After location is locked, can move away from the nest to complete rest of data entry**

# Site Information - Location

- When obtaining point location, stand 1-2 m away from the point
  - For nests - minimizes disturbance
  - For random points – for consistency

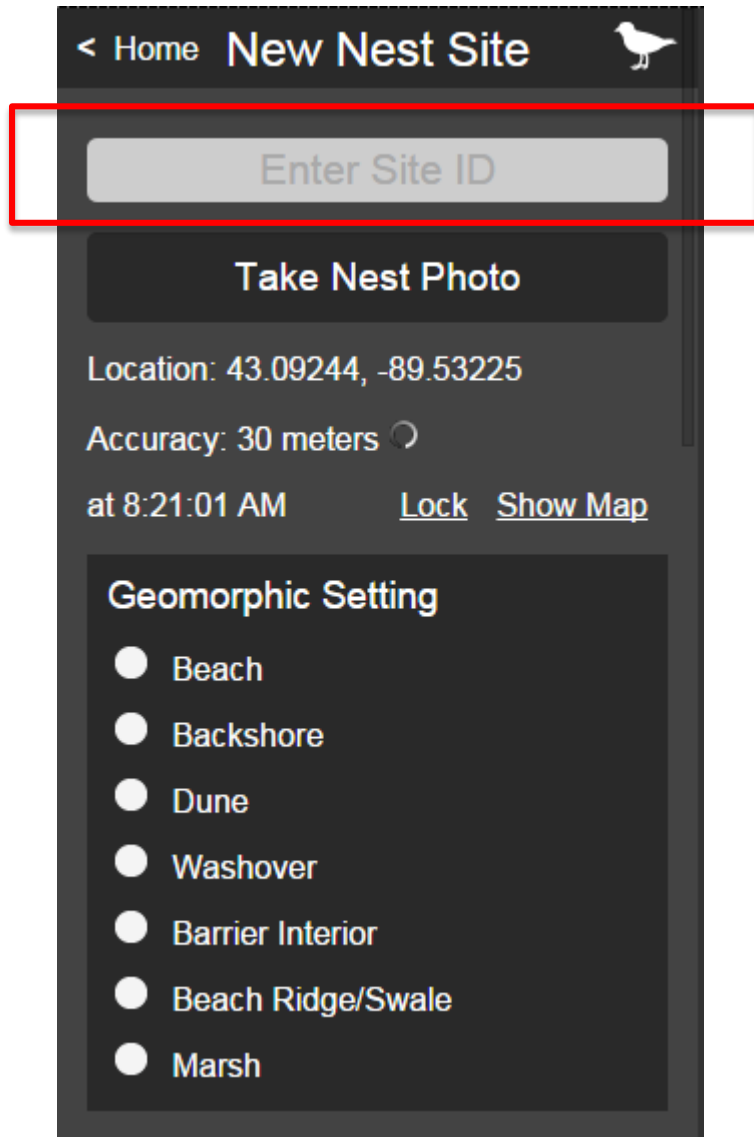
No



Yes



# Site Information – Site ID



The screenshot shows a mobile application interface for creating a new nest site. At the top, there is a navigation bar with a back arrow, the text '< Home', and the title 'New Nest Site' next to a bird icon. Below the navigation bar, a red rectangular box highlights a text input field with the placeholder text 'Enter Site ID'. Underneath this field is a dark button labeled 'Take Nest Photo'. The interface then displays location information: 'Location: 43.09244, -89.53225', 'Accuracy: 30 meters' with a circular arrow icon, and the time 'at 8:21:01 AM'. Below this, there are links for 'Lock' and 'Show Map'. At the bottom, there is a section titled 'Geomorphic Setting' with a list of seven options, each preceded by a radio button: 'Beach', 'Backshore', 'Dune', 'Washover', 'Barrier Interior', 'Beach Ridge/Swale', and 'Marsh'.

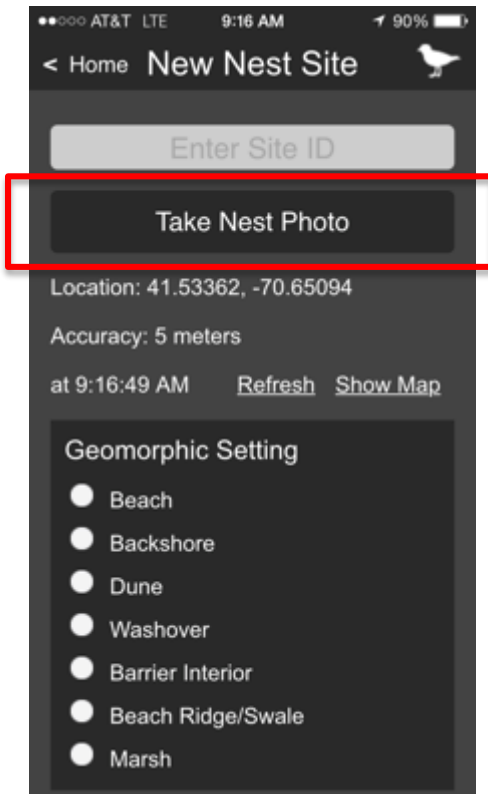
Enter a site ID:

- For Nests: enter name that is **based on your site's typical nest naming conventions** – be consistent
- For Random Points: enter the name associated with point in the original random point file we sent to you



# Site Information – Photo

To take photo of nest or random point, first **stand 5 m from the point; do not zoom the lens, hold phone horizontally** then:



Tap **Take Nest Photo**  
to attach a photo to  
the site



Take picture, tap **Use Photo** (or **Retake**  
if you want a do-over)



# Site Information – Photo – Android

When encountering a nest and using an Android device:

1. Take nest photograph before starting to enter the new record
2. When recording details in the new record, tap the 'Take Nest Photo' button and select the photo from your files that you previously took in step one
3. To select a different file, tap button that reads "Retake Nest Photo"

AT&T LTE 9:16 AM 90%

< Home New Nest Site

Enter Site ID

Take Nest Photo

Location: 41.53362, -70.65094

Accuracy: 5 meters

at 9:16:49 AM Refresh Show Map

Geomorphic Setting

- ☐ Beach
- ☐ Backshore
- ☐ Dune
- ☐ Washover
- ☐ Barrier Interior
- ☐ Beach Ridge/Swale
- ☐ Marsh



**Android  
alternate  
workflow**

# Site Information

For series of data fields:

- Possible selections next to "radio buttons"
- Tap radio button to select option
- You can choose only 1 option for each field
- The selected button will darken

< Home New Nest Site

Enter Site ID

Take Nest Photo

Location: 41.53362, -70.65094

Accuracy: 5 meters

at 9:16:49 AM [Refresh](#) [Show Map](#)

Geomorphic Setting

- ☐ Beach
- ☐ Backshore
- ☐ Dune
- ☐ Washover
- ☐ Barrier Interior
- ☐ Beach Ridge/Swale
- ☐ Marsh

Substrate Type

- ☒ Sand
- ☐ Shell/Gravel/Cobble
- ☐ Mud/Peat
- ☐ Water
- ☐ Other

Vegetation Type

- ☒ None
- ☐ Herbaceous
- ☐ Shrub
- ☐ Forest

Vegetation Density

- ☐ None
- ☐ Sparse <20%

☐ Shrub

☐ Forest

Vegetation Density

- ☐ None
- ☐ Sparse <20%
- ☐ Moderate 20-90%
- ☐ Dense >90%

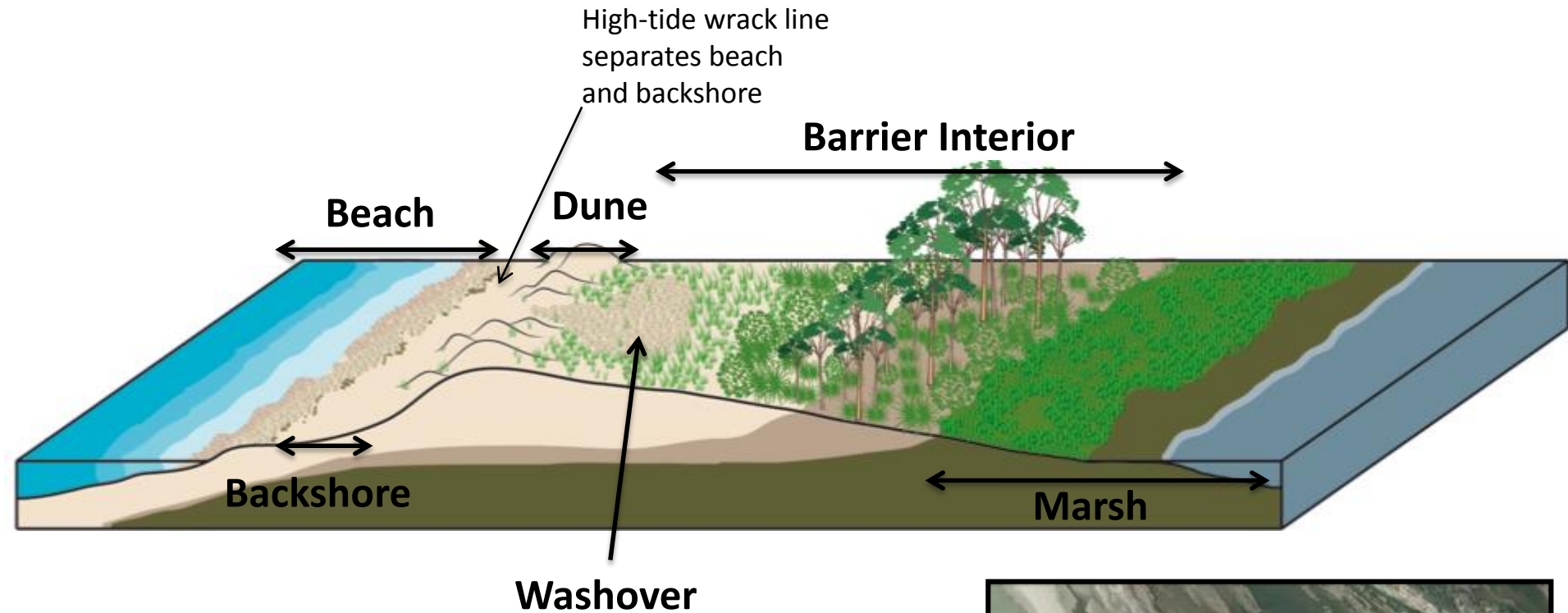
Nest Initiation Date

mm/dd/yyyy X

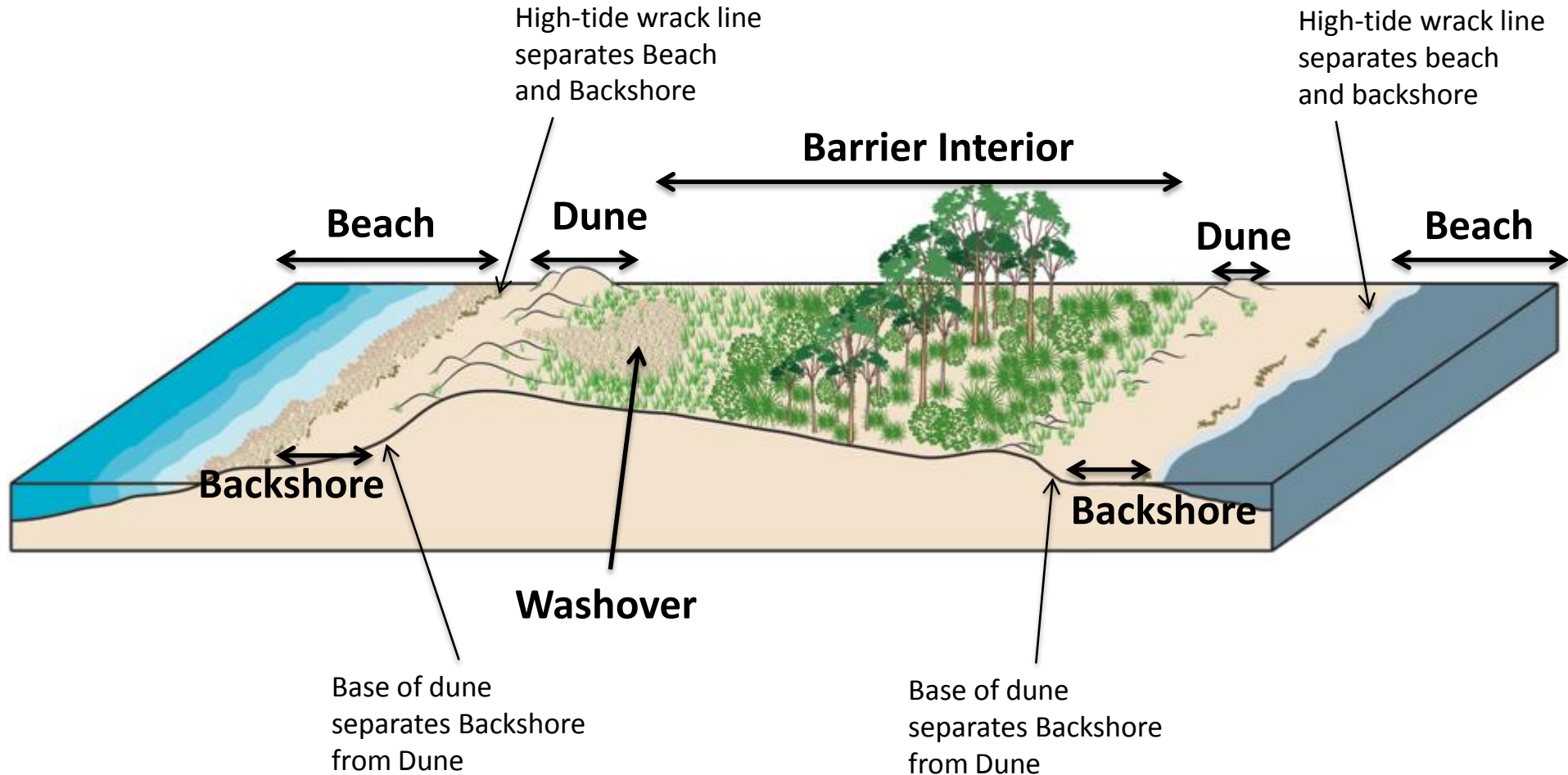
Put notes here

Save Nest Data

# Geomorphic Setting (if back-barrier contains marsh)



# Geomorphic Setting (if back-barrier is mirror of front)



# Substrate Type

\* Characterize substrate type in 5x5 m area with nest/random point at center

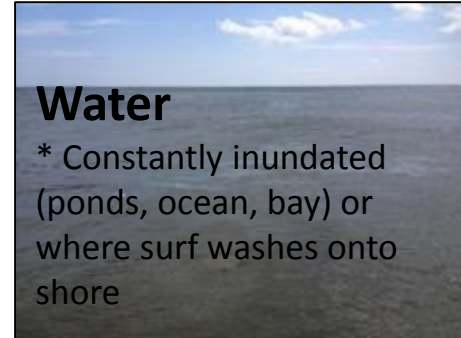


## Sand

Predominantly sand, few shells or rocks (contains ~ <30% shells, gravel, rocks)

## Water

\* Constantly inundated (ponds, ocean, bay) or where surf washes onto shore



## Shell/Gravel/Cobble

Sand mixed with shells, gravel, or larger rocks (contains ~ >30% shells, gravel, rocks)

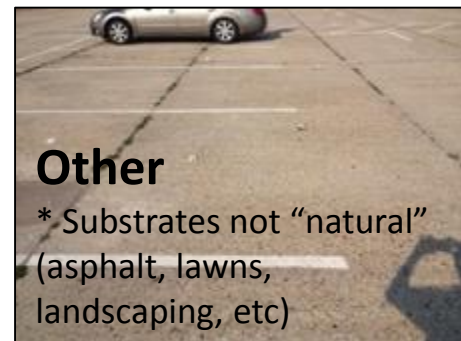


## Mud/Peat



## Other

\* Substrates not “natural” (asphalt, lawns, landscaping, etc)

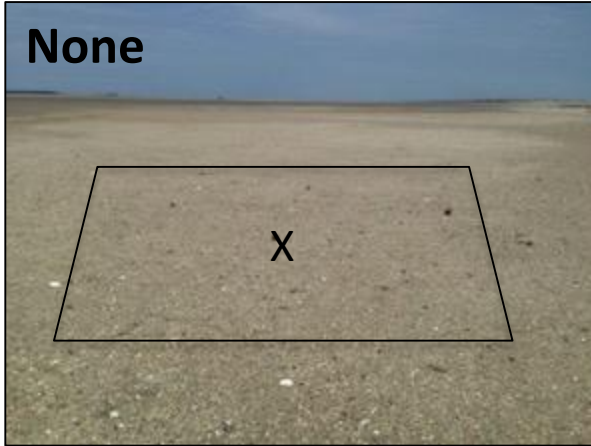




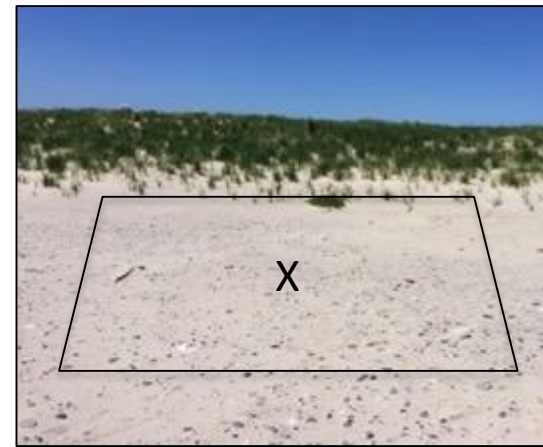
# Vegetation Type

\* Characterize veg type in 5x5 m area with nest/random point at center

**None**



X



X



**Shrub**

\* Contains woody plants but no trees

X



**Herbaceous**

\* No woody plants



X



**Forest**

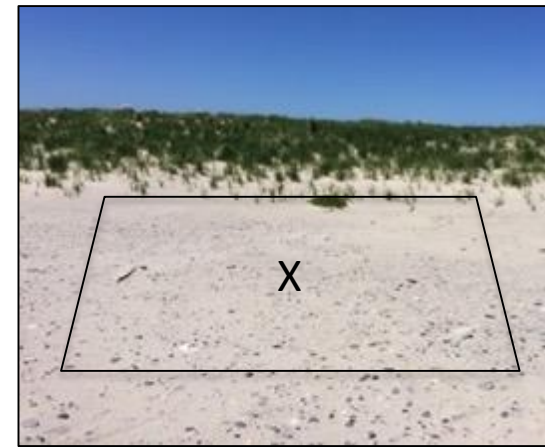
\* Contains trees

# Vegetation Density

\* Characterize veg density in  
5x5 m area with nest/random  
point at center

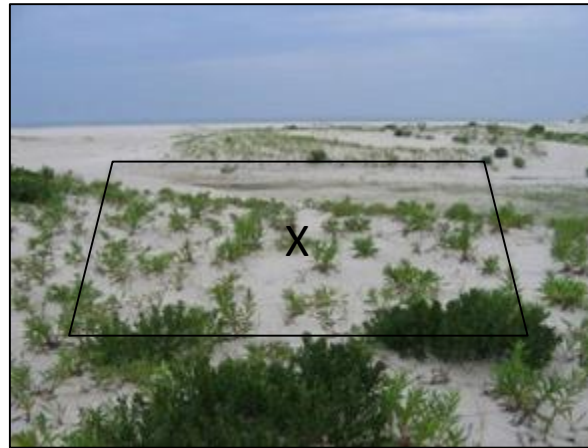
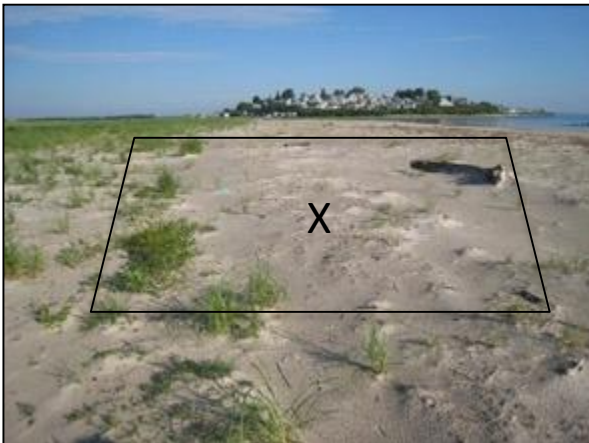
## None

\* No vegetation



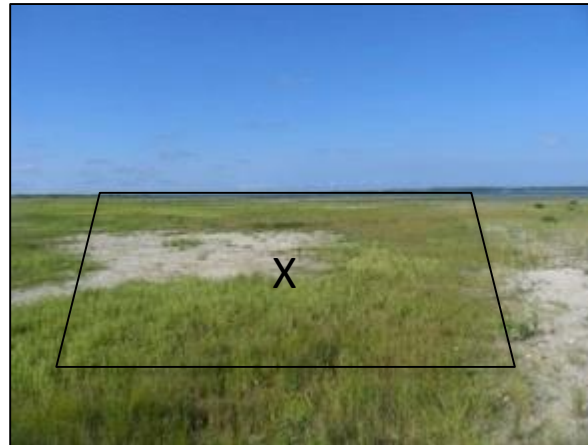
## Sparse

\* 1-20% vegetation cover



## Moderate

\* 20-90% vegetation cover



## Dense

\* > 90% vegetation cover



# Things to Remember!

1. Sand = predominantly sand ( $\sim < 30\%$  of 5x5m area contains shells, gravel, or cobble)  
vs.  
Shell/Gravel/Cobble = mix of sand and shells, stones and/or rocks  
( $\sim > 30\%$  of 5x5m area contains shells, gravel, or cobble)
2. Beach = area from ocean up to obvious high tide wrack line  
vs.  
Backshore = area from high tide wrack line to base of dunes
3. Get GPS fix while standing 1-2 m from nest BUT take photo standing  $\sim 5$  m from nest (while holding the phone horizontally)



# Site Information – Nest Initiation

- In this field, enter estimated date for nest initiation
- If this date unknown or not applicable, leave this field blank
- If date is entered erroneously, tap the **X** to clear

● Shrub  
● Forest

**Vegetation Density**

● None  
● Sparse <20%  
● Moderate 20-90%  
● Dense >90%

**Nest Initiation Date**

mm / dd / yyyy X

Put notes here

**Save Nest Data**

# Site Information – Notes

- This is a free text entry field
- Tap in the white area to bring up keyboard
- Add any supplemental information you think is important
  - Nest status (active, failed, fledged)
  - Exclosed
  - Uncertainty in observations (e.g., “This site has ~20% vegetation and could be sparse or moderate density”)

**\*\*Important:** if you are collecting a re-nest, indicate “re-nest” in the notes field

The screenshot shows a mobile app interface for entering nest data. It features a dark background with white text and radio button options. The sections include:

- Vegetation Type:** Radio buttons for "Shrub" and "Forest".
- Vegetation Density:** Radio buttons for "None", "Sparse <20%", "Moderate 20-90%", and "Dense >90%".
- Nest Initiation Date:** A date input field with a placeholder "mm/dd/yyyy" and a close button "X".
- Notes Field:** A large white text area with the placeholder "Put notes here", highlighted by a red rectangle.
- Save Nest Data:** A button at the bottom.

# Site Information – Save

- After all data fields have been added or selected, tap **Save Nest Data**
  - Saves data locally on the iPhone
- The app checks to make sure you entered all required data
- Returns you to home screen

● Shrub  
● Forest

**Vegetation Density**

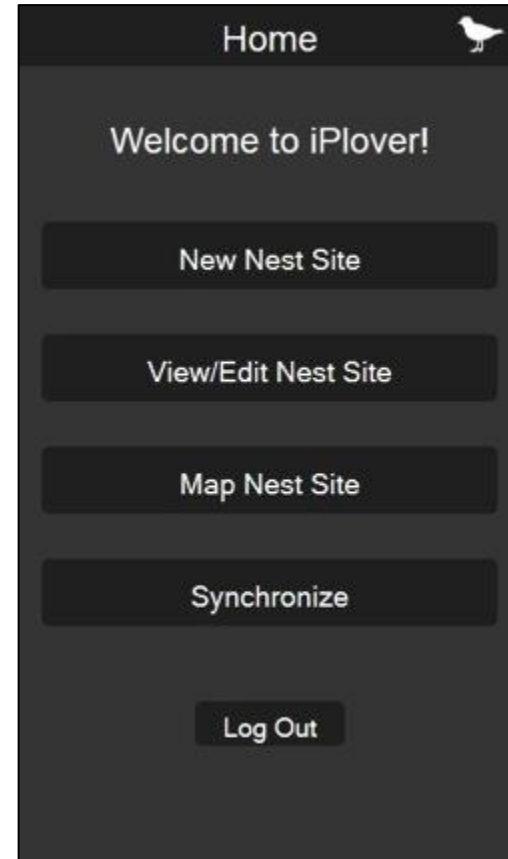
● None  
● Sparse <20%  
● Moderate 20-90%  
● Dense >90%

**Nest Initiation Date**

mm/dd/yyyy X

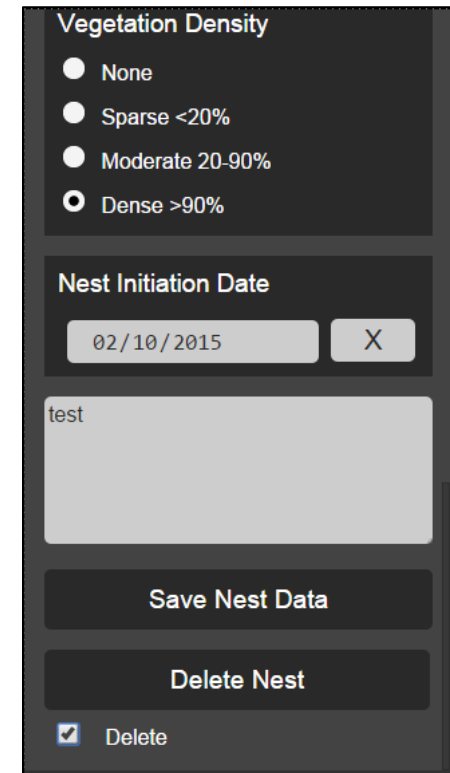
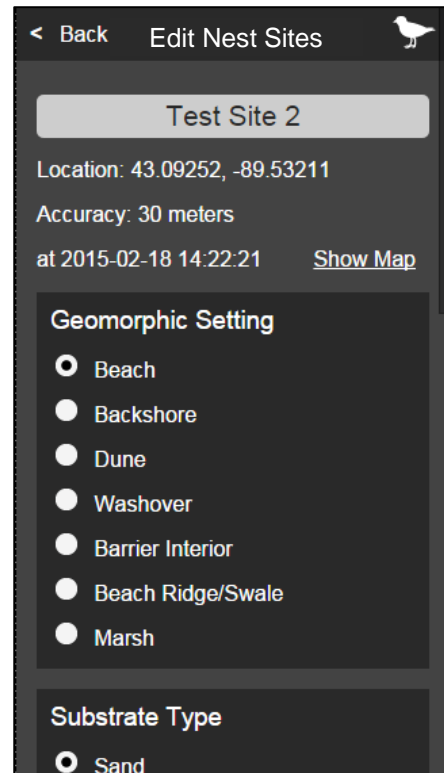
Put notes here

**Save Nest Data**



# Additional iPlover Options - Editing

- After a nest or random point is “collected” (and even if already uploaded), it can be edited
- Go to Home Menu and tap **View/Edit Nest Site**
- In the next screen, select the point you would like to edit
- You will then be taken to that point’s data collection screen where you can edit your previous selections or delete the point



# Additional iPlover Options - Editing

- Can be edited: Site IDs, site characteristics (anything with radio button), Nest Initiation Date, and Notes
- Cannot be edited: photos and GPS coordinates
  - If these things need to be edited, you must delete the record and start over

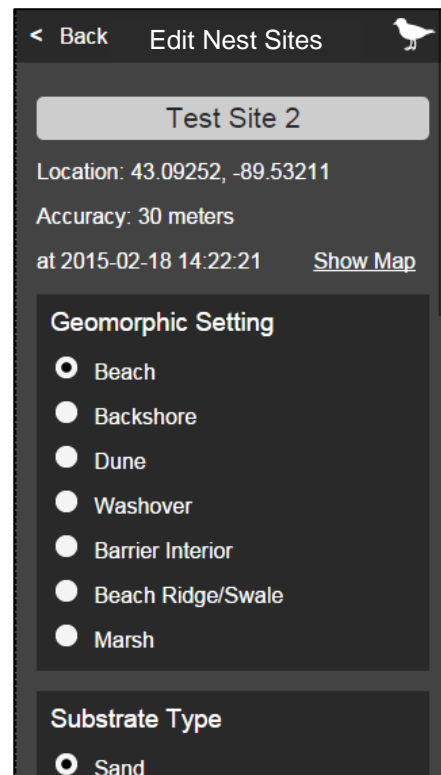



< Home Edit Nest Sites 

Select a site to edit

Group: iPlover\_test

- Test Site 2
- Test Site 1
- test site



< Back Edit Nest Sites 

Test Site 2

Location: 43.09252, -89.53211

Accuracy: 30 meters

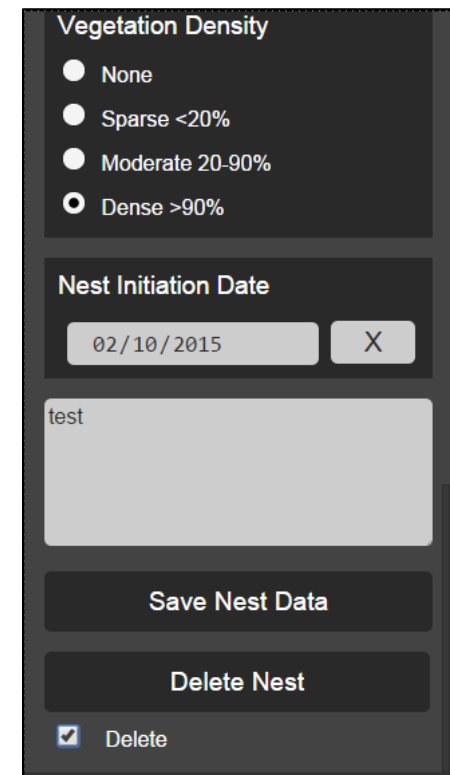
at 2015-02-18 14:22:21 [Show Map](#)

Geomorphic Setting

- ☒ Beach
- ☐ Backshore
- ☐ Dune
- ☐ Washover
- ☐ Barrier Interior
- ☐ Beach Ridge/Swale
- ☐ Marsh

Substrate Type

- ☒ Sand



Vegetation Density

- ☐ None
- ☐ Sparse <20%
- ☐ Moderate 20-90%
- ☒ Dense >90%

Nest Initiation Date

02/10/2015 X

test

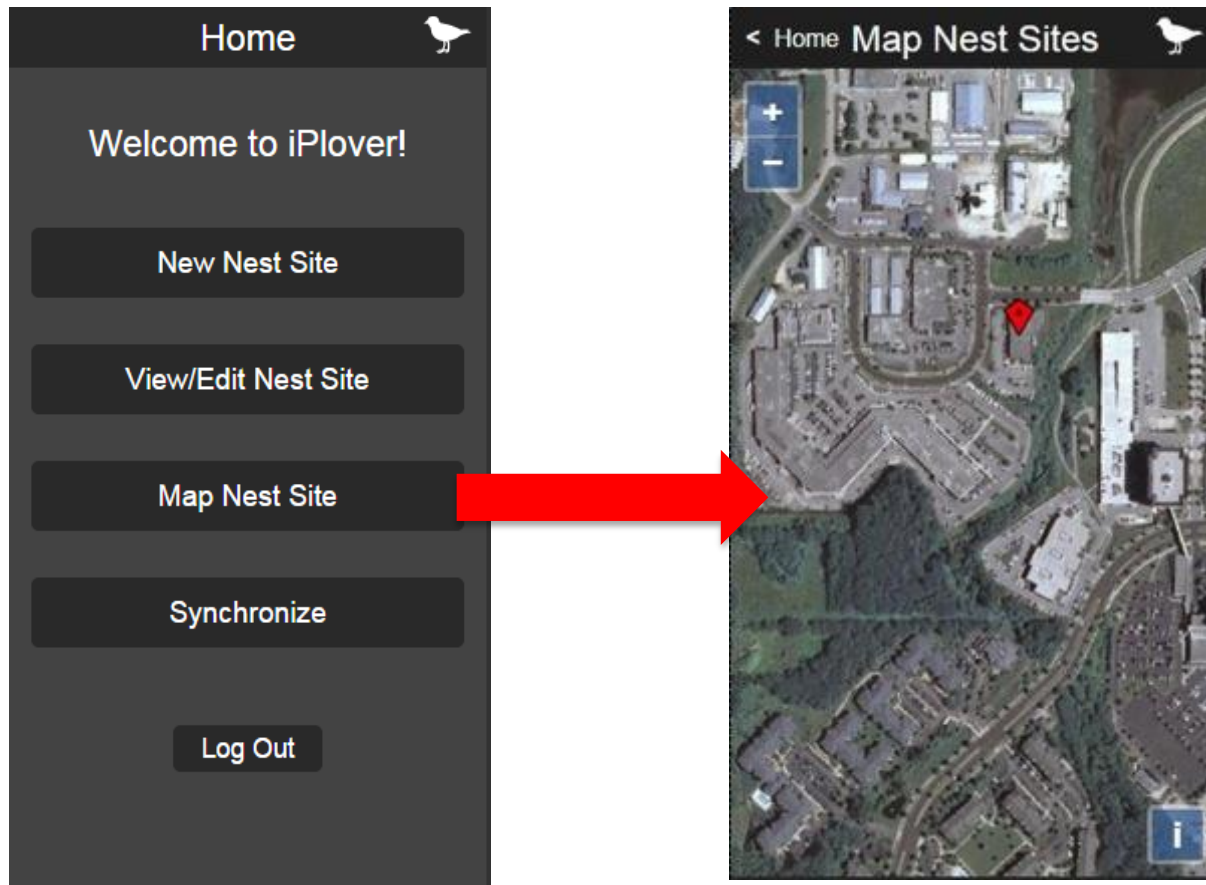
Save Nest Data

Delete Nest

☒ Delete

# Additional iPlover Options

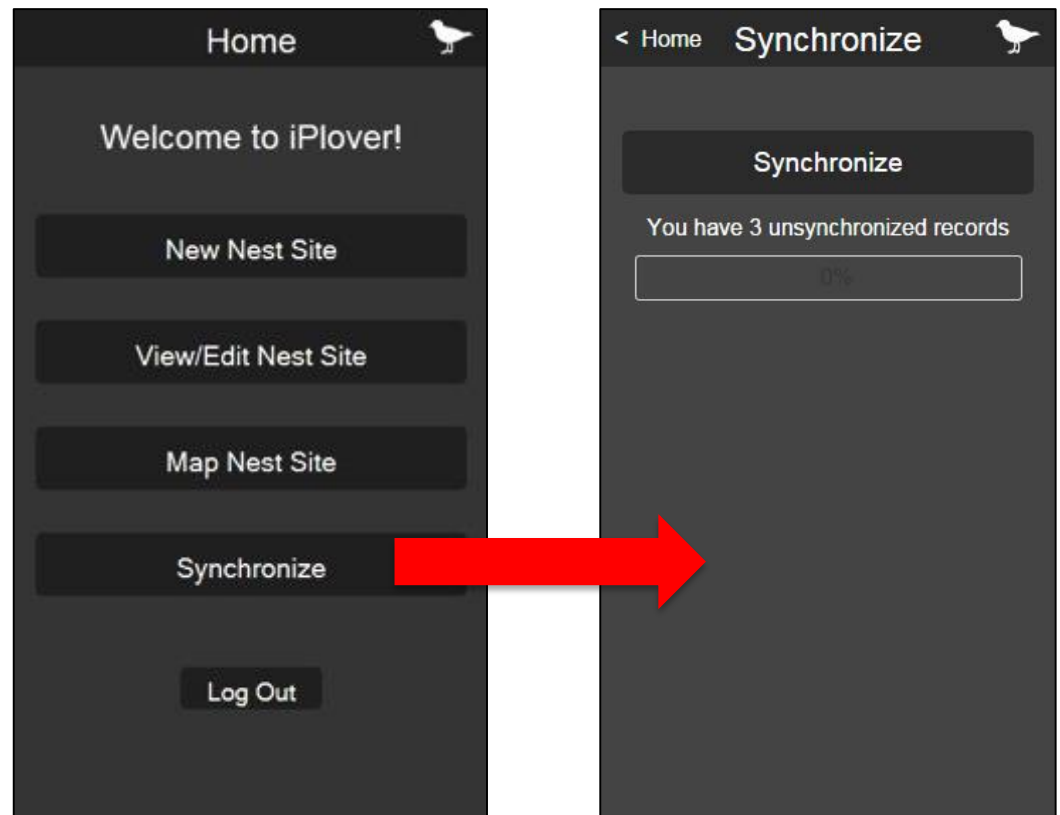
- On Main Menu, tap **Map Nest Site** to see a map of all previously collected nest and random points (both for your site and others)
- Can be used to prevent duplication of nest/random point collection





# Upload Data to USGS

- When you have completed data collection for the day, go to the iPlover home screen and tap **Synchronize**
- In the next screen, tap **Synchronize** to upload all unsynchronized data onto the cloud, and download nest site data from other users in your group
- As data synchronize, the progress bar will expand
- When all records have been synchronized, a message will appear to let you know the process is complete.



# Upload Data to USGS

## Important considerations about synchronizing:

- Protect your data by synchronizing at the end of the day (or when on lunch break, etc.)
  - Unsynchronized data will be lost if something happens to your phone
- Data will take longer to upload when number of unsynchronized records large
- Data can be synchronized in field, but we recommend waiting until on a wireless connection to reduce phone data usage
- Only synchronized data can be “seen” by other users on your team
  - Prevent data collection duplication by synchronizing and checking what others have done
- Synchronized data can still be edited

