Beaver Monitoring Application v4.0

Utah State University and EcoTech Solutions

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Setting up your iOS Device

Installing FileMaker Go

Search for "Filemaker Go" in the Apple App Store on your device and download the free program.

Deploying the application via iTunes

1. Open iTunes and connect your device to the computer's USB port.
2. On the Apps tab for your device, scroll down to the File Sharing area.
3. Click on FileMaker Go in the Apps panel.
4. Click the 'Add...' button below the panel titled FileMaker Go Documents.
5. Select your file(s) and click Open. The file(s) will automatically be uploaded to your device.
6. When the upload is complete, the file(s) will appear in FileMaker Go in the "Files on Device" list.

Deploying the application via Email

1. You will receive your application through an email.
2. Open your email on your iOS device
   a. This may only work if you set up your email through the native email application on your iOS device.
3. Touch the attached file and select "Open in FileMaker Go"

Installing the home screen icon

1. You will receive an installation file for your application's home screen icon through email.
2. Open your email on your iOS device
   a. This may only work if you set up your email through the native email application on your iOS device.
3. Touch the attached file
4. In the following popup menu from the Settings window, touch "Install"
   a. To delete, tap and hold on the icon, when it starts to shake, tap the 'x'
   b. Then, tap Setttings >> General >> Profiles >> Select the correct profile >> Remove

Application Basics

Launching your application

You can launch your application through two methods:

If you installed a home screen icon you can simply tap that icon. Otherwise…

1. Tap the icon for FileMaker Go on your home screen
   a. On the left, you will see a list of all the FileMaker files loaded on your device
2. Select the FileMaker file you would like to open (BeaverApp)

Logging In

If you are an established and trained volunteer, enter your login ID and password. Full volunteers will have access to more forms and will collect more data than a typical volunteer. If you are not a trained volunteer, simply tap "Login as Guest."

While the application loads, you will see a splash screen showing a very scientific beaver and the EcoTech Solutions logo. After a few seconds, you will be taken to the startup screen.

Common Icons

Below, is a list of common icons and their use you will see while using the iBeaver application:

Icon	Purpose
; Large X	Deletes the current record in a portal row
; Magnifying Glass	Directs you to the associated record using a different layout
; Square Plus Sign	Adds a new 'something' related to an associated form or field
; List Document	Directs you to a list of records similar to the type you are currently viewing
; New Document	Creates a new parent record (visit, dam, or activity)
OK ; Button	Buttons are placed throughout the application to aid navigation and run scripts

The Visit Page

From the visit page you will be able to select, add, and delete stream visits. When you first start up the application, a new visit record will be created for you. When you arrive at a site, you must fill out your name, the name of the stream, the current date, and the flow conditions of the stream (Figure 1). A visit represents a time and place when monitoring occurred; therefore, if you visit two streams in one day, they each require a separate visit.

You can create new visit by tapping the new document button at the top of the screen. Again, when you first login, a new, blank visit will be created for you. So creating a new record is not necessary on your first visit of the day.

To add your name to the list of users:

1. Tap the square plus sign next to the 'Observer Name' field.
   a. A popup will appear with three fields.
   b. Please fill out your first and last name, your email, and your association.

       c.   Click OK
2.   Your name is now available in the drop down list in the 'Observer Name' field.

To add your current stream to the list of available streams:

1.   Tap the square plus sign next to the 'Stream Name' field
       a.   A popup will appear with two fields
       b.   Please fill out the name of the stream you wish to add to the list.
       c.   If you know the Hydraulic Unit Code of the stream, enter it as well.
       d.   Click OK
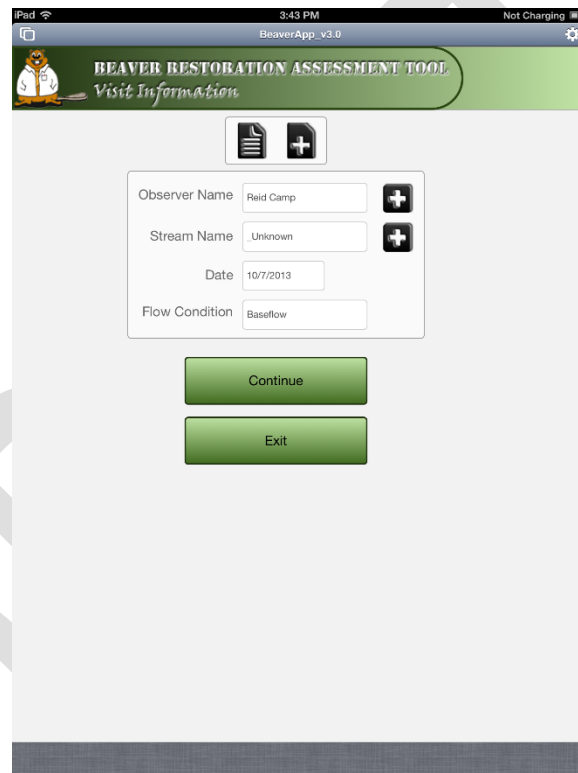2.   The stream you just added is now available in the drop down list in the 'Stream Name' field.

Figure 1. Visit page for the Beaver Monitoring Application.

To view past visits tap the document list button near the top of the screen. This will take you to a list view of all the visits you have created on your iOS device (Figure 2). From this list view, you can click on the large magnifying class next to a visit record to switch to that visit. This may be necessary if you are returning to a stream on the same day to continue collecting data, or if you accidentally closed the application and want to return to your current visit.

You can also delete visits by tapping the large X next to the visit record. Deleting a visit will also delete all the dam and beaver activity records associated with that visit.

Figure 2. List view for visits created on a device. In this example, there is only one visit created.

Collecting Data with the Application

Once you have filled out your name, the stream name, the current date, and flow condition on the visit page (Figure 1) you can click the 'Continue' button to go to the main menu (Figure 3).

During any particular visit, you will be collecting data on multiple dams and signs of beaver activity. You will use the main menu to switch between beaver dam observations and beaver activity observations.

Tapping the beaver scientist in the upper left corner will take you back to the previous screen.

Figure 3. The main menu of the Beaver Monitoring Application.

Monitoring Beaver Dams

To begin monitoring beaver dams, click the 'Monitor Beaver Dams' button in the main menu (Figure 3). For each visit, the first time you click either of the 'Monitor' buttons, a new record will be created for you. If you are simply switching between monitoring types or are revisiting a stream on the same day, you will be taken to the last record. After recording data at the first dam, you can create new dam records by clicking the 'New Document' button in the upper right corner of the 'Beaver Dam Monitoring' screen.

When you come to a beaver dam, you will pause and fill out information in the three tabs of the 'Beaver Dam Monitoring' screen (Figure 4).

General Tab

Under the general tab you need to designate the current dam as 'Active' or 'Abandoned.' Determining a dam's status will be difficult at first, but will become easier as you see more

examples. Active beaver dams should be fairly obvious; however, determining if a beaver dam has been abandoned is more difficult (Figure 5). Abandoned dams will have often been breached with no recent evidence of reconstruction, there will not be recent branches added, and the general age of all the wood making up the dam will often be apparently aged/withered.
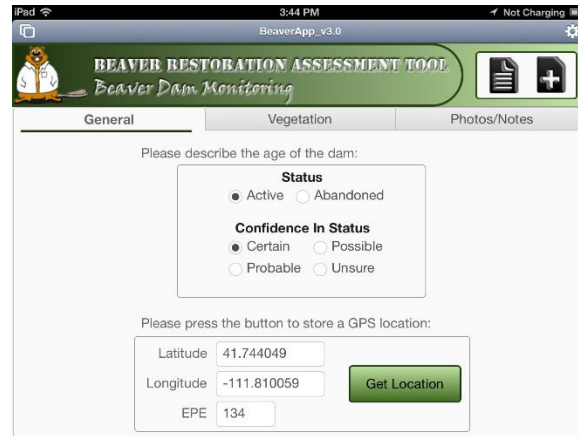

Figure 4. The General tab of the 'Beaver Dam Monitoring' form.

Figure 5. Examples of an active beaver dam (left) and an abandoned beaver dam (right).

You will also need to enter your confidence in the status (Active vs. Abandoned). This allows you to have some wiggle room for the certainty of your decision because determining the status of a dam can sometimes be tricky.

Finally, you will need to get a GPS location of the structure using the 'Get Location' button near the bottom of the General Tab. Simply press the button and wait a few seconds for the location to appear. The field labeled 'EPE' is simply a measurement of accuracy for the retrieved location.

Vegetation Tab

As of version 3.0 of the Beaver Monitoring Application, the vegetation tab is still being designed. Currently, we are asking volunteers to collect a small amount of observational data on three tree species: Aspen, Willow, and Cottonwood (Figure 6). To enter vegetation data:

1. Tap the field under 'Tree Species' to select one of the species.
2. Select the approximate density of that species under the field heading 'Tree Density'

3. Select the approximate diversity in height under the field heading 'Tree Height'
4. Please fill out a record for each of the three species. If the species is not present, select "Not Present" under the 'Tree Density' field heading.

Figure 6. The Vegetation Tab of the 'Beaver Dam Monitoring' form.

Photos/Notes Tab

This tab provides a location for storing photos and notes on the current dam being monitored (Figure 7). You will take a photo from downstream of the dam looking upstream, from upstream of the dam looking downstream, and an overview photo of the dam. For the overview photo, you should hike up a hill or away from the dam to capture as much of the area around the dam as you can. Simply tap the field and select 'Camera' from the popup menu to take a photo using your device. If you like the photo, tap 'Use' in the lower right corner of the camera screen.

The 'Comment Container' is meant to store any extra multimedia information you would like to include about the current dam. You can record video, audio, or insert another photo. The last field at the bottom of the page is an area to record typed text. When you select this field the iOS keyboard will appear and you can type any important observations.
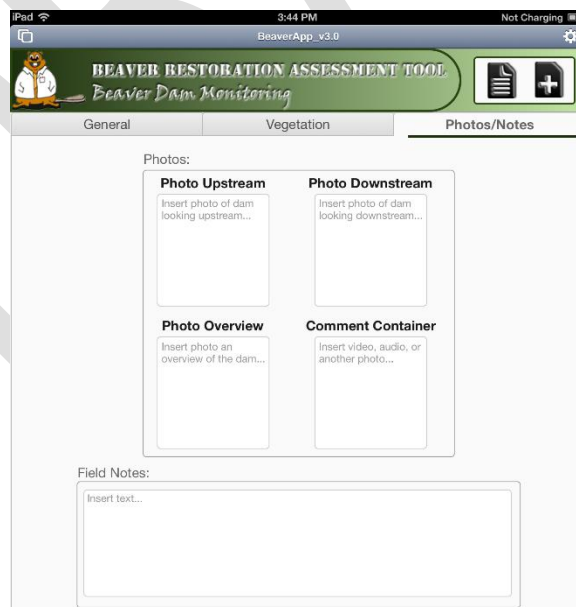

Figure 7. The Photos/Notes Tab of the 'Beaver Dam Monitoring' form.

Selecting Previous Dams

You can return to data of previous dams by selecting the 'Document List' button in the upper right corner of the 'Beaver Dam Monitoring' screen. This button will take you to a list of all the dams you have recorded data for during this current visit (Figure 8). To switch to a dam, tap the large magnifying glass next to the dam record. Likewise, you can delete a dam record by tapping the large X next to a dam record.

Figure 8. The list of beaver dams recorded during the current visit.

Monitoring Beaver Activity

The location of dams is very important for our projects. However, we will gain a lot of information in knowing where beaver activity is present even if a dam is not present.

To return to the Main Menu, tap the beaver scientist in the upper left corner of the form until you reach it (Figure 3). To begin monitoring beaver activity, simply tap the 'Monitor Beaver Activity' button.

When you come to signs of beaver activity, you will pause and fill out information in the two tabs of the 'Beaver Activity Monitoring' screen (Figure 9).

General Tab

Under the General Tab, you will need to first record whether you saw a beaver or not. You will also be looking for evidence of beaver felling trees, harvesting branches, and signs of active foraging (corn on the cob; branches completely stripped of bark). Tapping the light bulb button will bring up a popup window showing examples of those three activities (Figure 10).

Finally, you will record a GPS location of the activities you're describing by tapping the 'Get Location' button. Often, you will find these activities spread out across the valley. For example, there might be fallen trees in a 10 m^2 area. Please record these instances once; do not create an activity record for each individual fallen tree.

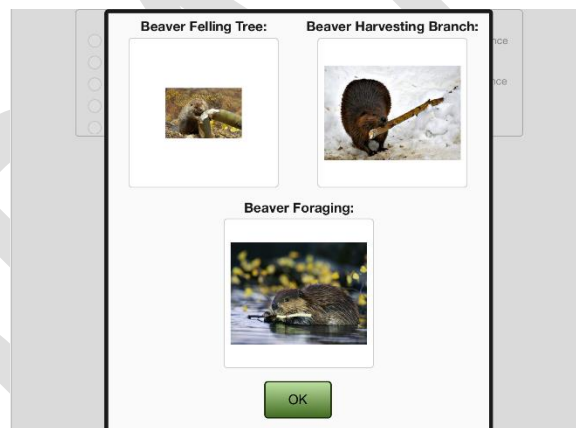*Figure 9. The General Tab of the Beaver Activity Monitoring form.*

Figure 10. Examples of beaver activity of interest. These examples are viewable in the application by tapping the light bulb at the top of the General Tab of the Beaver Activity Monitoring form.

Photos/Notes Tab

The Beaver Activity form also includes a tab for recording photos and notes. There are container fields to store three photos of the activities you are recording. The third container labeled 'Comment Container' can be used to store any type of multimedia data (video, audio, or another photo).

Finally, there is a large field for recording typed notes on your activity observations. Tap the field to bring up your iOS keyboard and type any important information you wish to include.
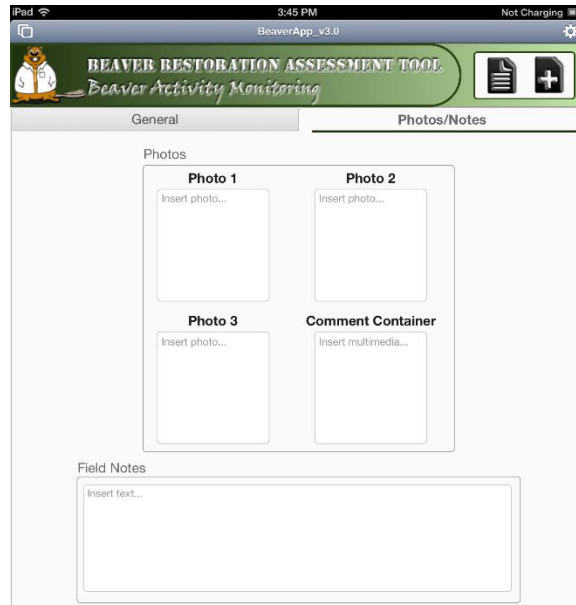
Figure 11. Photos/Notes Tab of the Beaver Activity Monitoring form.

Uploading Data

We ask that you upload the data you have collected after you return from the field. Although it is possible, we recommend that you do not try to upload data over a 3G or 4G connection because photos and videos will upload very slowly. Connect your device to a WiFi network before attempting to upload.

Simply click the 'Upload Data' button on the Main Menu screen of the Beaver Monitoring Application (Figure 3).