EVERGLADE by Juniper Systems



Wetland Delineation Software



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Requirements [chapter 1]

- Desktop operating environments: Microsoft® Windows XP, Microsoft Vista, and Microsoft Windows 7
- Mobile operating environments: Windows Mobile 5, Windows Mobile 6
- Microsoft® .NET Compact Framework 3.5. This requirement is addressed at time of installation.
- Juniper Systems Archer Rugged Field PC® must be running OS version 2.1.1 or greater
- Non-Juniper Systems devices should be running Windows Mobile® 5 or greater. Juniper Systems reserves the right to provide limited support on these systems.
- Microsoft® Office (Word) 2003 or later, or OpenOffice.org writer.
- Microsoft® ActiveSync or Windows Mobile Device Center
- Active Internet connection for software licensing.
 (Connection not required, call in licensing available.)

Software License Agreement [chapter 2]

- :: Manufacturer Agreement :: This Software License Agreement is between the end-user and the manufacturer (Juniper Systems, Inc.) Please read the following terms and conditions before using Everglade. This agreement supersedes any prior agreement, written or oral.
- :: Granting of License :: The manufacturer grants, under the following terms and conditions, a non-exclusive license to use the Everglade software.
- :: Ownership :: Juniper Systems, Inc. retains the title to and ownership of the software plus any copies made of the software.
- :: Software Use :: The software is authorized for use on the Juniper Systems Archer Field PC. You can use the software on one Field PC at a time per licensed copy. You may make one copy of the software to be stored as a backup.
- :: Copyright :: The Everglade software is copyrighted by Juniper Systems, Inc. You may not rent, lease, lend, sub-license, modify, or disassemble these programs. The associated documentation may not be copied without written permission.
- :: Term :: This License is in effect until terminated. It will be terminated under the following conditions:
- You destroy all copies of the software and documentation.

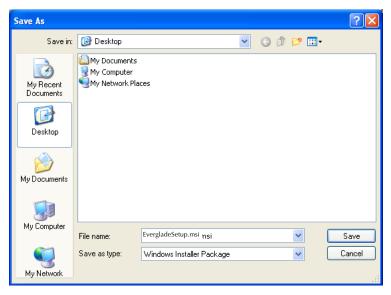
- You return all copies of the software and documentation to Juniper Systems, Inc.
- You fail to comply with any provisions of the License Agreement.

:: Acceptance or Disagreement :: Use of the software in any manner indicates your acceptance and acknowledgment of the terms and conditions of this agreement. If you do not agree with any of the terms and conditions, do not use the software. Return the disk and documentation to the manufacturer. If the software was installed on the Field PC device at the factory, you must delete it.

Download and Desktop Installation [chapter 3]

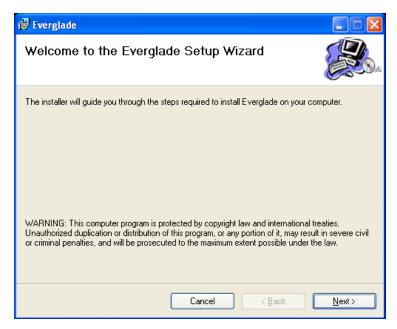
Complete the following steps to install the Everglade application on your Field PC. The application consists of desktop and mobile components. Installing the desktop application (EvDesktop) will allow you to install the mobile application (EvMobile).

- Power and connect the mobile device to a desktop PC 1 running Windows XP (ActiveSync) or Windows Vista/7 (Mobile Device Center).
- Using an Internet browser, navigate to http://www. everglademobile.com and click on the Everglade download link. Save the EvergladeSetup.msi to the PC desktop:

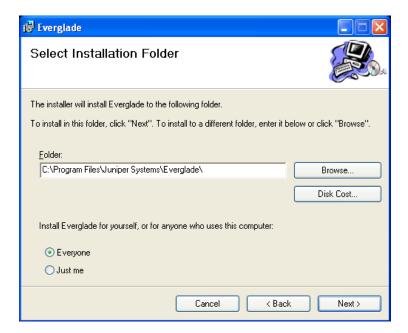


3. Double-click the EvergladeSetup.msi icon to launch the Everglade Setup Wizard.

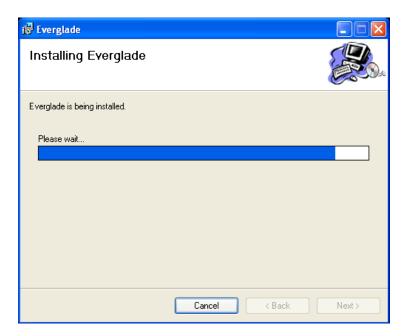




- 4. Click Next.
- 5. The installer will ask where you would like the program installed and what users may access the application. The default location is C:\Program Files\Juniper Systems\Everglade. The default access is "Everyone."



- 6. Click Next.
- 7. Confirm Installation: the installer is now ready to install Everglade on your computer. Click the Next button to continue.



8. When the installation is complete, click Close.

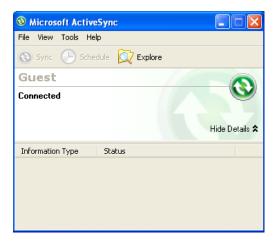
Everglade, specifically EvDesktop, is now installed on the PC and ready for use. The next section will outline the process of installing and registering EvMobile on your mobile device.

4

Mobile Device Installation [chapter 4]

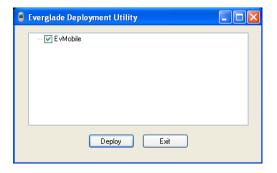
To install and use the Everglade mobile component EvMobile, you must connect your mobile device to a PC that is running EvDesktop and ensure your mobile device is powered. Users using the Windows XP operating system must have access to the ActiveSync utility; users using Windows Vista or Windows7 operating systems should have access to Windows Mobile Device Center. The mobile device must be running Windows Mobile 5 or greater to install and run the EvMobile application.

 Connect the mobile device to the desktop computer through ActiveSync (Windows XP) or Windows Mobile Device Center (Vista and Windows 7).



 Start the Everglade Deployment Utility. Navigate to Start > All Programs > Everglade. Select the Everglade Deployment Utility.



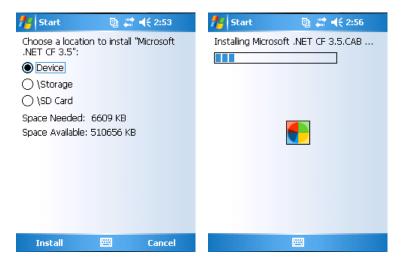


- 3. Verify that EvMobile has a checkmark placed next to it and click Deploy.
- Note that if your mobile unit does not have the. NET 3.5 framework, it will be installed prior to the EvMobile application deployment. As the components are installed, please check your mobile device screen for additional instructions.

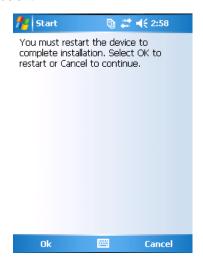




The mobile device will ask for the installation location. Accept the defaults by selecting the **Device** option and tapping Install.



6. If the .NET 3.5 framework was installed, the mobile device may ask for a restart prior to completing the EvMobile installation. Select OK to restart and continue the installation.



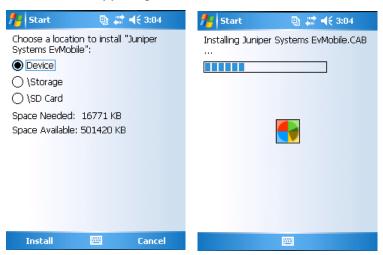
 When the mobile device restarts, ensure that the device connects to the PC through ActiveSync or Mobile Device Center.

If you have not done so, click OK in the box asking 8. you to review the mobile device for further steps. The EvMobile installation will continue.





Review the mobile device to complete the installation. 9. The mobile device will ask for the installation location. Accept the defaults by selecting the **Device** option and tapping Install. When the installation is complete, tap **OK** in the upper right of the mobile device window.



10. You may now exit the Everglade Deployment Utility.

11. EvMobile may now be run by tapping the Start menu on the mobile device and navigating to Programs
> EvMobile. EvMobile may be registered (see the Registering Everglade section of this document) or run in Demo mode. Demo mode is fully functional but will not allow the user to export collected data.



5

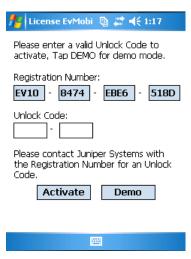
Registration [chapter 5]

The Everglade software license is controlled through the mobile device and EvMobile application. Everglade may be used in **DEMO** mode for testing purposes; however, data collected while in **DEMO** mode is not available for final export and use. The Everglade registration process is completed by connecting your mobile device to your PC, starting EvDesktop, and running the Register Mobile Device utility from the EvDesktop **Tools** menu. We recommend that you have an active internet connection to complete a rapid registration process. You can also activate Everglade by calling technical support at Juniper Systems, Inc.

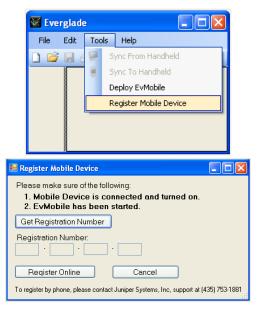
 Connect your mobile device to your PC through ActiveSync (Windows XP) or Mobile Device Center (Windows Vista/7). When your device is connected, you should see a similar icon in your Windows Start Menu tray:



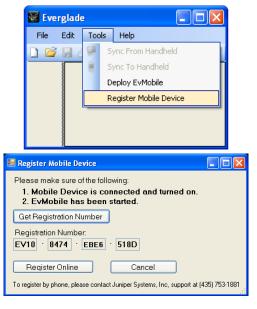
- 2. On your mobile device, tap the **Start > Programs > EvMobile.**
- 3. Unregistered versions of Everglade will begin with the registration window. You may continue past this screen in **DEMO** mode for testing purposes. Each registration number is unique and will only operate on the device from which it has been generated.



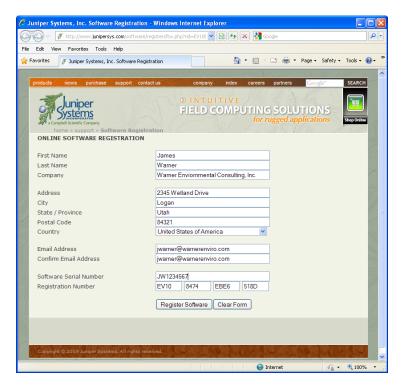
- 4. On the PC, navigate to the **Start > All Programs > Everglade** and select the **Everglade** program.
- From the EvDesktop menu bar, select Tools > Register Mobile Device.



- 6. Verify that your mobile device is connected and EvMobile has been started.
- 7. Click Get Registration Number.

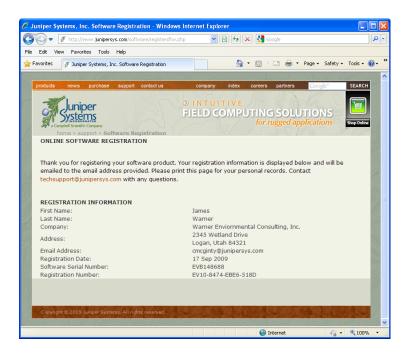


- 8. Click **Register Online.** If you do not have an active internet connection, please contact Juniper Systems, Inc. support at (435) 753-1881 for registration assistance.
- 9. Using the web form, complete all registration information, including name, address, email address, and Software Serial Number. The Software Serial Number can be obtained from your proof of purchase documentation. Note the Registration Number has been auto-populated in the online form; should any errors occur, you may type the registration number directly into the form.



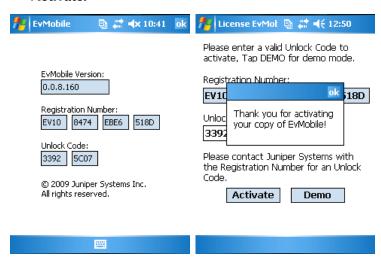
10. Click Register Software.

11. The Juniper Systems, Inc. registration process will validate the Software Serial Number and Registration Number and email the software **Unlock Code** to the email address provided.





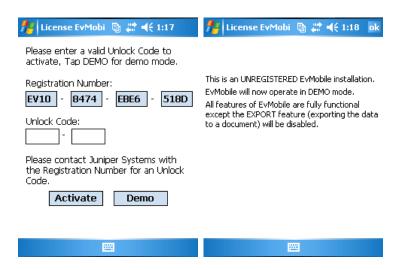
12. Type the Unlock Code into the mobile device and tap **Activate.**



13. Tap the OK button on the Thank You box to continue; the EvMobile program will launch. EvMobile is now registered and fully functional.



:: Demo Mode :: To operate Everglade in Demo mode, tap on Demo. This allows for complete access to the software with the exception of exporting collected wetlands data.



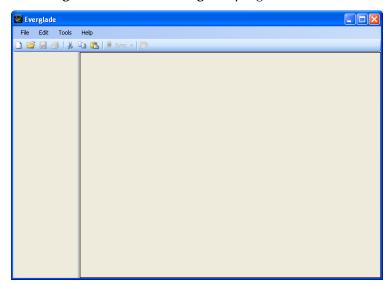
Wetlands Delineation Project Setup [chapter 6]

Everglade (EvDesktop and EvMobile) have been developed to work together to simplify your wetland data collection and reporting workflow. The Everglade workflow includes:

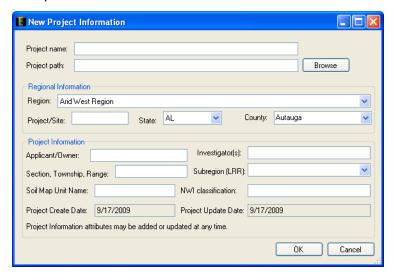
- Creating a new wetlands data collection project in EvDesktop
- Syncing the Everglade project to the mobile device and EvMobile
- Collecting tabular and spatial wetlands data using EvMobile
- Re-sync the mobile device to EvDesktop
- Editing and exporting your project data in EvDesktop for final reporting

To setup a new project, complete the following steps.

Start EvDesktop. Navigate to Start > All Programs > Everglade. Select the Everglade program.



Select **File > New Project.** A new project window will 2. open.



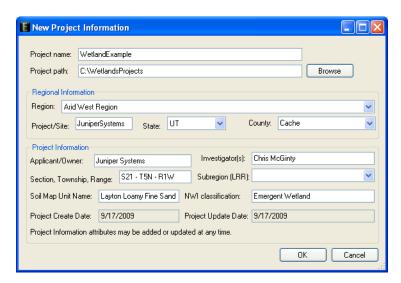
This window allows input for:

Project Name—title or descriptive name of the project.

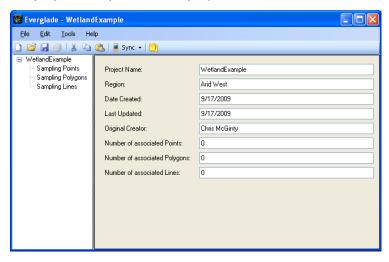
Project Path—desktop storage location.

Regional Information—United States Army Corp of Engineers regional form for the region of interest.

Project Information—detailed project attributes. These attributes may be static for one project or may change on a per-point basis. You can change the details entered in the Project Information section at any time in the data collection process.



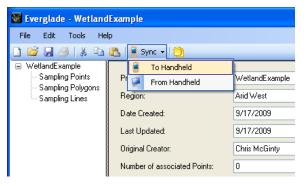
3. Click OK to continue. EvDesktop will create a new project ready for field deployment.

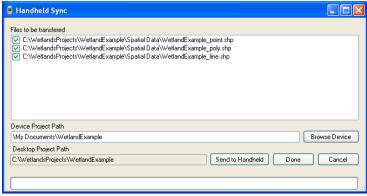


Chapter

Wetland Project Mobile Device Deployment [chapter 7]

- Ensure the mobile device is synced to the PC and powered
- 2. On the EvDesktop tool bar, click on the Sync icon and select **To Handheld.** The Handheld Sync options window will open and allow you to browse the mobile device for the desired project file storage location. To change the default location, click **Browse Device** and select the desired location.





3. To complete the project sync process, click **Send to** Handheld. The program will note when the files have successfully synced. Click OK.



4. Click Done in the Handheld Sync Window to complete the process. The program will return to the EvDesktop Project Window. Everglade may now be closed.

Chapter

8

EvMobile—Setup and Data Collection [chapter 8]

To start EvMobile on your mobile device, navigate to Start> Programs > EvMobile.

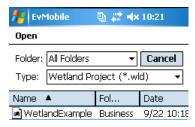
If Everglade is already registered the EvMobile main screen will appear.



Four options are available on the EvMobile main screen.

Open Project—opens a new project. When the open project option is selected, the program evaluates the mobile device memory to locate any valid Everglade

projects:

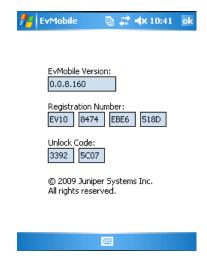




• GPS Setup—sets and tests GPS settings to connect to a GPS device (CF, serial, or Bluetooth®). Actual settings may vary, see GPS manufacturer's documentation Settings shown here are common for a GlobalSat® BC-337 CF GPS receiver:



 About—displays the current Everglade version, registration number, and unlock code.



- Exit—Exits EvMobile and returns to the Windows® Mobile home screen.
- :: EvMobile GPS Setup :: EvMobile will connect to a GPS receiver through compact flash, serial, or Bluetooth® communication ports. GPS setup is accessed through the GPS Setup icon on the EvMobile main screen.



Once in the GPS Setup menu, options available are Setup, Position, Signal, Sky, and NMEA.

:: Setup :: The setup utility allows the user to define the proper GPS receiver settings such that the receiver and EvMobile will communicate properly. Basic

GPS configuration requires that the user set the communications port and baud rate. The settings for parity, data bits, and stop bits are for advanced setup and users should consult their GPS receiver manual for details.

Once settings are set, the user may test the current settings by tapping Test Settings. The unit will return a message stating whether or not the communication was successful. The user may choose to then save the settings for continued use by tapping the Save Settings button.

Useful default values for receivers commonly used with EvMobile:

				Data	Stop
Receiver	Port	Baud	Parity	Bits	Bits
Hemisphere XF101	COM2	57600	None	8	One
GlobalSat BC-337	СОМ2	4800	None	8	One

:: Position :: The position utility allows the user to Position view the current position, speed, heading, altitude and receiver details including mode, PDOP, fix, and satellites used in fix.

- Latitude and Longitude: Reported in degree minutes (DD° mm.mmmm'). Based on the North American Datum of 1983 (converted from World Geodetic Survey 1984 to meet U.S. Army Corp of Engineers specifications)
- Speed: Reported in meters per second
- Heading: Reported in degrees (0° 360°)
- Elevation: Reported in meters above mean sea level

- Mode: Reporting the GPS signal quality standard
 - No Fix No fix is being received from the GPS.
 Poor connection, weak signal, or GPS is off.
 - SPS Standard Positioning Service. The fix is of moderate quality. Signal or connection may be moderately impaired.
 - DGPS Differential Global Positioning Signal. The signal is of high quality and the location calculation is using a differential component to improve reporting.
- PDOP: Position dilution of precision, an indication of satellite geometry. PDOP values less than 2 are considered excellent, PDOP values less than 5 are considered good.
- Fix: Reporting the quality of the geometric calculation being computed by the GPS receiver.
 - No Fix No fix is being received from the GPS.
 Poor connection, weak signal, or GPS is off.
 - 2D The fix has been acquired using a minimum of 3 satellites and will report X and Y values.
 - 3D The fix has been acquired using a minimum of 4 satellites and will report X, Y, and Z values.
- Satellites Used in Fix: Identifies the number of satellites used in the geographic location fix and lists the satellite identification numbers. The number of satellites reported depends on the GPS receiver being used.

Position information will only be visible when the GPS receiver is active.

:: Signal :: The signal utility allows the user to review satellite IDs and Signal Strengths. This utility is generally used for GPS receiver trouble shooting.

:: Sky :: The sky utility provides a user-centric view of overhead satellites. Satellites are shown in varying colors depending on use status. Satellite Based Augmentation System satellites such as the Wide Area Augmentation System (WAAS) satellites are uniquely displayed for differentiation. Satellites will only be visible when the GPS receiver is active.

:: NMEA :: The NMEA utility allows the user to view the NMEA strings being received by the GPS receiver. The user may choose to isolate a particular string, freeze the strings for review, or clear the NMEA display window. Freezing and clearing strings does not impact receiver performance. Strings will only be present when the GPS receiver is active.

Chapter

9

Tabular and Spatial Data Collection [chapter 9]

EvMobile collects spatial data in common shapefile format. EvMobile collect points, lines, and polygons in the NAD83 datum, projected as geographic coordinates.

EvMobile will collect spatial data to the accuracy of the attached GPS receiver, meaning, if the receiver is designated as real-time sub-meter using WAAS corrections, the data captured by EvMobile will have sub-meter accuracy. Likewise, if the GPS receiver has accuracy ranges from 2–5 meters, the data will be captured with 2–5 meter accuracy.

The shapefiles are transferred to the mobile device upon loading the new project and are re-synced to the desktop PC upon returning to the office and re-syncing the EvMobile project. Tabular data is captured and transferred using a customized database system.

USER WARNING: Each new project will have a unique directory, however, care should be taken to avoid overwriting previously captured data on desktop or mobile systems. EvDesktop and EvMobile will provide a file overwrite warnings if the user attempts to save identically named files into project directories. Overwritten data is not recoverable.

:: Data capture using EvMobile ::

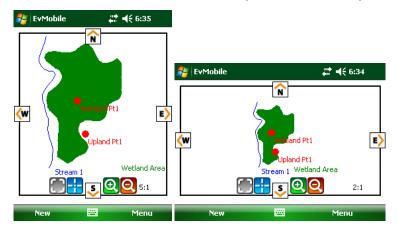
 Verify that the project data has been synced to the mobile device

- Using the Open Project button in EvMobile, tap the desired project to begin data collection
- Verify that the GPS is active

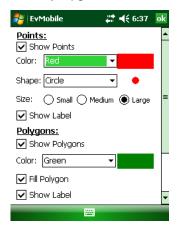
The EvMobile spatial data window allows the user to add, edit, and navigate through spatial and tabular data.

The **Menu** item provides the following user options:

- **GPS Setup**—Access the GPS Setup utility
- (**De)Activate GPS**—Activate/deactivate the GPS
- Rotate Screen—Rotate screen to portrait or landscape



 Map Settings—Adjust map settings such as colors, shapes, point sizes, polygon fill, and labels



 Collection Settings—Adjust line and polygon collection settings. This option allows the user to select the method vertices will be captured. Options include timed in second intervals, distance in meter intervals, or manual where users taps capture button each time a new vertex is desired.



- Hide/Show GPS Data—Hide or show GPS data on spatial data window. Users may wish to disable the GPS data to increase available spatial data display space on screen.
- Sampling Points—Access previously captured sampling points in the current project.
- Close Project—Close the current project. EvMobile will save the project prior to close.

The **New** item allows the user to begin point, line or polygon collection.

:: Collecting Polygons and Lines :: Collection of polygons and lines are completed using the GPS and the current user location. The user may choose to select a timed, distance, or manual data collection methods from the Menu > Collection Settings option.

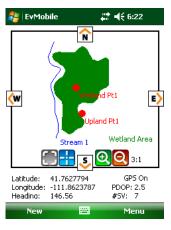
When the user selects Polygon or Line from the **New** option, the spatial display window presents for collection options: Start, Pause, Mark, and Cancel. To begin data capture, the user will tap the Start item and begin traversing the desired area.

The user may pause the data collection to take a point feature at any time. **NOTE:** The user may not pause a line feature to collect a polygon or pause a polygon feature to collect a line feature.

The Mark option allows the user to manually place a polygon or line vertex if the collection settings are set to manual.

The Cancel option terminates the current data collection

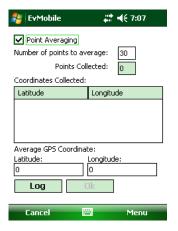
event.



:: Collecting Point and Tabular data :: Point features are tied to a database that captures all related wetland information. The tabular data input matches United States Army Corp of Engineers regional wetland delineation forms. All data is transferred to EvDesktop for reporting.

To begin point capture, ensure the GPS is active and tap **New > Point** in the spatial data window.

The point capture window presents several options:



Point averaging is a recommended option to improve point accuracy. When enabled, EvMobile will collect and average the number of desired points to improve the overall spatial point positional accuracy. Point averaging may be disabled by removing the checkmark from the Point Averaging option.

Point collection begins when the user taps Log. Capture is complete when the Average GPS Coordinates have been completed:



The user may choose to terminate the point collection if desired. To return to the spatial data window, tap Cancel.

Once capture is complete, the user may tap OK to continue with tabular data collection.

EvMobile tabular data collection is designed to reduce direct writing input through the use of slider bars, searchable databases, and simple drop-down menus. The EvMobile forms are presented in the order generally seen on United States Army Corp of Engineers regional wetland delineation forms, but may be filled out in any order or left blank if desired. Form tabs include:

- **Project Info**—Basic project information. Much of this information is automatically transferred from initial project creation in EvDesktop.
- **Site Info**—Site information includes local landform, relief, slope, etc.
- **Vegetation**—The Vegetation tab presents the user with the options of adding, deleting, or editing vegetation

features. When adding a vegetation feature, the user is asked to supply the stratum and is given the option of searching a database containing thousands of plant species. Searching may be performed via species (scientific) name or name (common name). Plants in the EvMobile database match those described by the United States Department of Agriculture and their associated wetland indicators.

- **Soil Profile**—Allows the user to capture soil strata details (including Munsell soil hue, value, and chroma) at varying depths during soil observations.
- **Soil Ind(icators)**—Lists all USACE form soil indicators as selectable checkboxes.
- Hydro Ind(icators)—Lists all USACE form hydrologic indicators as selectable checkboxes.
- **Hydro Obs(ervations)**—Lists all hydrologic observations as per USACE forms.
- **Summary**—Presents summary options and remarks.



When all desired data has been captured, press **OK** to return to the spatial data window.

:: Spatial Data Window Controls and Navigation ::

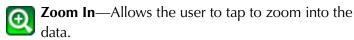
The Spatial Data Window allows the user to navigate around previously collected spatial data through panning and zooming.

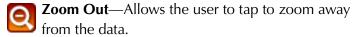
Panning

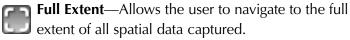
Tapping the cardinal direction buttons (N, E, S, W) on the spatial display window allows the user to navigate in those directions when spatial data is being displayed.

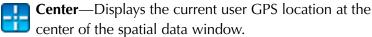
Using the stylus, the user may press and drag to pan through spatial data.

Zoom, Extent, and Center









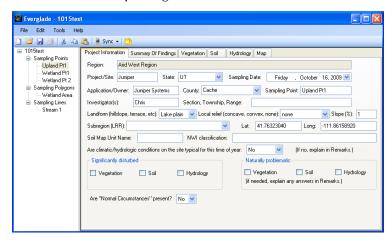
Chapter 1

Uploading Completed Field Projects [chapter 10]

Upon field work completion the EvMobile wetlands project may be uploaded to EvDesktop for review and exporting.

- Make sure the project to be synced back to EvDesktop is closed in EvMobile
- Sync the mobile device to the desktop running **EvDesktop**
- Start EvDesktop
- Open the EvDesktop version of the existing project
- Choose Tools > Sync From Handheld or choose Sync from Handheld on the toolbar

EvMobile and EvDesktop data will sync allowing review, alterations, and exporting of collected data:



Review and update data as needed

Chapter

Exporting Completed Data [chapter 11]

EvDesktop allows the user to export completed data. Spatial data shapefiles are stored in the project directory under the ...\Spatial Data folder. This data may be readily opened in any GIS for map creation or transferred to a GIS specialist.

The spatial data projection information is as follows:

GCS North American 1983

Angular Unit: Degree (0.017453292519943295)

Prime Meridian: Greenwich (0.000) Datum: D North American 1983

Spheroid: GRS 1980

Semimajor Axis: 6378137.000

Semiminor Axis: 6356752.31414035610

Inverse Flattening: 298.257222101000020000

GEOGCS["GCS North American 1983",DATUM["D North_American_1983", SPHEROID["GRS_1980", 6378137, 2 98.257222101]],PRIMEM["Greenwich",0],UNIT["Degree",0 .017453292519943295]]

:: Exporting Tabular Data :: EvDesktop exports collected tabular data to match the USACE wetland delineation form format. Each collected point is exported individually. The exported file is a .doc format, readable by Microsoft® Office Word 2003 or later and OpenOffice.org Writer. Post-export formatting changes may be made to fit specific documents.

- Verify that all necessary changes have been made to your data
- Select the point you wish to export
- Select File > Export or choose Export from the toolbar
- Provide a document Save As name in the desired directory
- Click **Save**. When export is complete you have the option to review the document:



